UTILIZATION OF SELECTED REPRODUCTIVE HEALTH SERVICES AMONG ADOLESCENT MOTHERS IN MERU COUNTY, KENYA

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF PUBLIC HEALTH (REPRODUCTIVE HEALTH) IN THE SCHOOL OF PUBLIC HEALTH AND APPLIED HUMAN SCIENCES OF KENYATTA UNIVERSITY

FEBRUARY 2022

DECLARATION

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

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DEDICATION

This work is dedicated to my family for their moral and financial support during the study period.

ACKNOWLEDGEMENTS

I take this opportunity to thank God for enabling me to complete this work. Special thanks to my supervisors Dr. Syprine A. Otieno, Dr. Judy Mugo and the late Dr. Joan Ngugi, for their professional advice and immense contributions to this project. Thanks to Kenyatta University Ethics and Research Committee (ERC), National Commission for Science Technology and Innovation (NACOSTI) for granting the permission to carry out the study. My appreciation to the entire Kenyatta University fraternity especially lecturers in the Department of Population Reproductive Health and Community Resource Management for imparting the knowledge to me. My gratitude also extends to Meru County Director of Education, Director of Community Health, Igembe South sub-County medical officer of health, area chiefs of Maua Township and all community health volunteers for their assistance during data collection. I also appreciate adolescent mothers for participating in the study and everyone else who contributed to the success of this study in one way or another. Last but not least, I appreciate my family for the moral and financial support to complete my studies.

TABLE OF CONTENTS

DECLARATION i
DEDICATION ii
ACKNOWLEDGEMENTS iii
LIST OF FIGURES vii
LIST OF TABLES viii
LIST OF ABBREVIATIONS AND ACRONYMS x
OPERATIONAL DEFINITION OF TERMS xi
ABSTRACT xii
CHAPTER ONE: INTRODUCTION 1
1.1 Background of the study 1
1.2 Statement of the problem 3
1.3 Justification 4
1.4 Research questions 5
1.5 Null hypothesis 5
1.6 Objectives 5
1.6.1 General objective 5
1.6.2 Specific objectives 5
1.7 Significance of the study 6
1.8 Limitations and delimitations of the study 6
1.9 Conceptual Framework 7
CHAPTER TWO: LITERATURE REVIEW 8
2.1 Introduction 8
2.3 Social cultural predictors of utilization of RHS by adolescent mothers 9
2.4 Health facility predictors of utilization of RH services 10
2.5 Utilization of selected RH services by adolescent mothers 11
2.5.1 Utilization of contraceptives by adolescent mothers 12
2.5.2 Utilization of STIs/HIV screening services by adolescent mothers 13
2.5.3 Utilization of ANC and SBA services by adolescent mothers 14
2.5.4 Synopsis of literature review 15
CHAPTER THREE: MATERIALS AND METHODS 16

3.1 Introduction....16
3.2 Study design....16
3.3 Variables....16
3.4 Location of the study....17
3.5 Study population....17
3.6 Sampling technique....18
3.7 Sample size determination....19
3.8 Inclusion criteria....20
3.9 Exclusion criteria....20
3.10 Research instruments....21
3.11 Validity of the questionnaire....21
3.12 Reliability of the methods....21
3.13 Pre-testing of the research tools....22
3.14 Data collection tools and procedure....22
3.15 Data management and analysis....23
3. 16 Logistical and Ethical Considerations....24
CHAPTER FOUR: RESULTS....25
4.1 Introduction....25
4.2 Demographic characteristics of the respondents....25
4.3 Utilization of selected reproductive health services....27
4.4 Demographic predictors of utilization of the selected RHS in Igembe South....29
4.5 Demographic predictors of number of times attended ANC services....31
4.6 Socio-cultural predictors of utilization of selected reproductive health services....33
4.7. Socio-cultural predictors of utilization of selected RHS in Igembe South....36
4. 7. 1 Socio-cultural predictors of attendance to ANC clinics....36
4.7. 2 Socio-cultural predictors of number of visits to ANC clinics....37
4.7.3 Socio-cultural predictors of attendance to skilled birth attendance (SBA)....38
4. 7. 4 Socio-cultural predictors of attendance to postnatal clinics (PNC)....39
4. 7. 5 Socio-cultural predictors of use of contraceptives....40
4.7. 6 Socio-cultural predictors of screening of STIs and HIV....42
4.8 Health facility factors influencing utilization of the selected RHS....43
4.8.1 Health facility predictors of use of the selected RHS in Igembe South....45

4.8.2 Health facility predictors of number of visits to ANC clinics 46
4.8.3 Health facility predictors of use SBA 47
4.8.4 Health facility predictors of attendance to PNC clinic 48
4.8.5 Health facility predictors of use of contraceptives 49
CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS 52
5.1 Discussion 52
5. 1.1 Demographic predictors of utilization of RHS among adolescent mothers in Igembe South, Meru County 52
5.1.2 Socio-cultural predictors of utilization of selected RHS by adolescent mothers in Igembe South, Meru County 53
5.1.3 Health facility factors influencing utilization of RHS by adolescent mothers in, Meru County 54
5.1.4 Utilization of RH services among adolescent mothers in Igembe South 55
5.2 Conclusions 57
5.3 Recommendations 58
5. 4 Recommendation for further research 58
REFERENCES 59
Appendix I: Participants' Consent Form 66
Appendix II: Questionnaire 68
Appendix III: Key informants Interview Schedule 73
APPENDIX IV: The Map of the Study Locale 74
APPENDIX V: Ethical clearance letter 75
APPENDIX VI: Authority letter (NACOSTI) 76
APPENDIX VII: Authorization letter (Meru County) 77
APPENDIX VIII: Ministry of Education approval 78

LIST OF FIGURES

Fig. 1.1 Conceptual framework of factors associated with utilization of selected reproductive health services among adolescents. 7

Figure 4.1 Reasons for not utilizing reproductive health services (n=10)..... 28

Fig.4.2: Sociocultural predictors of utilization of selected reproductive health services..... 34

Fig. 4. 3: Reasons for not accompanying partner to the health facility (%)..... 35

Fig. 4. 4: Community's approval of RH services 35

LIST OF TABLES

UTILIZATION OF SELECTED REPRODUCTIVE HEALTH SERVICES AMONG ADOLESCENT MOTHERS IN MERU COUNTY, KENYA..... i

Table 3.1 Sampling Frame..... 19

Table 4. 1: Respondents' demographic characteristics (n=234)..... 26

Characteristic..... 26

Table 4. 2 Utilization of selected RH services (n =234)..... 27

Table 4.3 AOR and P Values of Demographic predictors of utilization of selected RHS in Igembe South (95 % CL)..... 30

Table 4. 4: Logistic regression analysis of demographic predictors of number visits to ANC clinic in Igembe South (n= 234)..... 32

Table 4.5 Composite score on utilization of selected Reproductive Health Services (RHS) (n= 234)..... 33

Table. 4.6: Logistic regression analysis of socio-cultural predictors of number of visits to ANCs clinic Igembe South..... 37

Table 4.7: Logistic regression of socio-cultural predictors of number of visits to ANC clinics in Igembe South..... 38

Table 4.8: Logistic regression analysis of sociocultural predictors of utilization of SBA in Igembe South (n=234)..... 39

Table. 4. 9: Logistic regression of socio-cultural predictors of use of PNC clinic in Igembe South..... 40

Table 4. 10: Logistic regression of socio-cultural predictors of use of contraceptives in Igembe South (n= 234)..... 42

Table 4. 11: Logistic regression analysis of socio-cultural predictors of use of STI/HIV services in Igembe South..... 43

Table 4. 13: Logistic regression analysis of health facility predictors of use of ANC services in Igembe South (n= 234)..... 46

Table 4.14: Logistic regression analysis of health facility predictors of number of visits to ANC clinic (n=234)..... 47

Table 4.15: Logistic regression analysis of health facility predictors of use of SBA (n=234)..... 48

Table 4.16: Logistic Regression analysis of health facility predictors of use of PNC clinic (n=234)..... 49

Table. 4.17: Logistic regression analysis of health facility predictors of use of contraceptives in Igembe South 50

Table 4.18: Logistic regression of health facility predictors of HIV/STIs Screening in Igembe South 51

LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired immunodeficiency Syndrome
ANC	Antenatal Care
AOR	Adjusted Odds Ratio
CHW	Community Health Worker
CI	Confidence Interval
FHI	Family Health Initiative
FP	Family Planning
HIV	Human Immunodeficiency Virus
IBRD	International Bank for Reconstruction and Development
MOH	Ministry of Health
NACOSTI	National Commission for Science, Technology and Innovation
NCPD	National Council for Population and development.
OECD	Organization for Economic Co-operation and Development
PHO	Public Health Officer
PLWHA	People Living with HIV/AIDS
PNC	Postnatal Clinic
RH	Reproductive Health
RHS	Reproductive Health Services
SBA	Skilled Birth Attendance
SPSS	Statistical Package for the Social Sciences
STI	Sexually Transmitted Infections
UNFPA	United Nations Fund for Population
VCT	Voluntary Counseling and Testing
WHO	World Health Organization
YFRHS	Youth Friendly Reproductive Health Services
SCHMIS	Sub County Health Management System

OPERATIONAL DEFINITION OF TERMS

Adolescent mothers: girls aged between 15-19 years who have given birth

Antenatal care: services given to a pregnant woman when she visits pregnant women clinic (history taking, physical examinations, laboratory tests, health education, weight and blood pressure monitoring).

Challenges: things or situations that deter utilization of reproductive services by adolescence mothers.

Demographic predictors: age, religion, education background, occupation and the person adolescent lives with.

Health: a state of physical psychological and social wellness and not merely the absence of illness**.**

Health related factors: accessibility, availability of services and service providers attitude towards utilization of RHS by adolescent mothers

Post-natal: services given to a mother who has given birth

Skilled birth attendance: services of trained health personnel (nurses, midwives, clinical officers and doctors)

Socio-cultural factors: whether or not sexual partner/parent approve RHS and if adolescents discuss RH with partner/parent

Reproductive Health is a "state of complete physical, psychological and social wellness and not merely the absence of sickness" in relation to the reproductive organs and their functions.

Reproductive Health Services: Maternal Health Services (Antenatal, Skilled Birth Attendance and Postnatal care), Modern Contraceptives, STI/ HIV screening.

ABSTRACT

Reproductive health is "a state of complete physical, mental, emotional and social well-being and not merely absence of disease or infirmity, in all matters relating to the reproductive system and to its functions. Despite efforts from Ministry of Health relevant partners to provide the highest attainable health for all, adolescents continue to face reproductive health challenges such as; STI/HIV, teenage pregnancy, unsafe abortion and harmful practices, for example female genital mutilation. This affects adolescent's career progression, childbearing age and increases risk of reproductive health problems in future. Utilization of reproductive health services (RHS) could save many adolescents from the numerous sexual and reproductive health problems. Little has been documented about the levels of utilization of reproductive health services by adolescent mothers in Igembe South Sub County. The purpose of this study therefore was to determine the level of utilization of reproductive health services by adolescent mothers in County, Meru County. The study adopted a descriptive cross-sectional design using pretested questionnaires. The study population was adolescent mothers who had delivered within twelve months prior to the study. Sample size comprised of 234 adolescent mothers and 10 key informants. A pretest of research tools was carried out at Kimongoro location. Data analysis was done by use of thematic content and quantitative data presented by use of percentages and frequencies distribution tables. For inferential quantitative analysis, a partial binary logistic regression model was fitted to determine demographic, socio cultural and health facility predictors of utilization of reproductive health services in Igembe South sub-County. Adjusted Odds Ratios were evaluated for significance by considering the 95% Confidence Interval or the p. value for the Z statistic generated. Ethical clearance was sought from the Graduate School, Kenyatta University Ethical Review Committee, and National Commission for Science Technology and Innovation (NACOSTI), Meru County director of public Health, County director of education and County commissioner. The results showed that utilization of the selected reproductive health services by adolescent mothers was high (above 70%). In this study, majority of the adolescent mothers attended antenatal services at least once. However, the proportion attending the clinic at least 4 times according to the recommendations of the WHO was below the findings of the Kenya demographic survey report which reported that more than half of all pregnant mothers had visited the clinic four or more times. More than 80% of the adolescent mothers reported to have delivered their babies in health facilities. An adolescent mother who is not married was less likely to seek reproductive health services than married ones (AOR =0.51, p=0.033). Level of education and socio-economic status as well as the person adolescents live with, influence utilization of contraceptive services in the area. The study found that a Muslim adolescent was 74% less likely to attend antenatal services compared to a Christian adolescent (AOR= 0.262, 95% CI (0.132 to 0.51, p<0.001) The researcher recommends that primary school curriculum should include sexuality education to ensure factual information is passed to teenagers at primary level. The Ministry of Health to waive user-fee for reproductive health services to ensure all adolescents can access them. The information generated from this study may be a useful contribution to the current knowledge on adolescents' reproductive health management and policy development by the Government of Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Adolescence is a critical period of development between 10 and 19 years which marks the end of childhood and the beginning of adulthood. It is characterized by physical, psychological and social changes (KDHS, 2014). Reproductive health is defined as "state of complete physical, psychological and social wellness and not just the absence of sickness" in relation to the reproductive organs and their functions." (WHO, 2018). Adolescents make up to 20 percent of the world's population and 85 percent live in developing countries (Abajobir and Seme, 2014).

Eleven percent of all live births worldwide are of teenage mothers (15 - 19 years old) and 95% of them occur in developing countries. Almost two million of the above births were by adolescent mothers below 15-year-old (Worku and Worldesenbet, 2016). United States had the highest teen birth rate in the developed world (26.5 births per 1,000 births) in 2012 and 89 % of these were single mothers. About 12 million girls aged 15–19 years give birth each year in developing countries and 10 million unintended pregnancies occur each year among adolescent girls aged 15–19 years in the developing countries. Globally, pregnancy and childbirth complications are the leading cause of death for 15–19-year-old mothers. (WHO, 2020). About 3.9 million 15 to 19 years adolescents undergo unsafe abortions (WHO, 2019).

Adolescents make up to 24 % of the total population in Kenya. The government aims at providing the highest and attainable standard reproductive health services as stated in SDG 5 through the population Frame Work (2014) which aims to reduce the number of children per woman over her lifetime from 5 in 2009 to 3 by 2030, to control Kenyan population growth and to relieve burden of available infrastructure (KDHS, 2014). In

every four girls, one gets married by age 18, increasing their likelihood of having children at an early age (UNCEF, 2020). Eighteen percent of adolescent girls aged 15–19 years are already mothers or are pregnant with their first child (KDHS, 2014). Laws and policies such as sexual reproductive health security, including freedom from sexual coercion, rights to privacy, National Adolescent Sexual and Reproductive Health Policy, have been enacted to enhance the well-being of youth and support their right to health care. However, implementation of programs that promote youth empowerment in all sectors has been cited as a major setback. In order to minimize teenage pregnancies and its bad health outcomes, underlying sociocultural and economic factors which contribute to adolescent pregnancies and childbearing must be addressed. Youth programs must be designed considering their special needs and in consultation with the youth for whom they are intended (NCPD, 2013).

Adolescent mothers who have given birth to their first born would wish to delay subsequent pregnancies and continue with schooling to actualize their dreams. This can be achieved by use of modern contraceptives. Pregnant adolescents need prenatal and post-natal care in order to ensure health outcomes of their own and that of their babies. In order to prevent mother to child transmission of HIV, adolescent mothers need to access counseling and testing services during pregnancy like older mothers. Utilization of RH services by adolescent mothers can help to reduce maternal and child mortality in the country. Non utilization of modern contraceptives services put the adolescent mothers at risk for subsequent unintended pregnancies which deter them from achieving educational goals. This study therefore seeks to assess the utilization of reproductive health services by adolescent mothers in order to identify gaps in service provision that need interventions.

1.2 Statement of the problem

Sub-Saharan Africa has one of the highest levels of all adolescence pregnancies in the world (WHO, 2014). This is attributed to limited education opportunities, low level of sex education, lack of adequate information regarding contraceptives, as well as widespread poverty (Nathali *et al.,* 2019, Ibrahim and Waliu. 2018). Adolescents comprise of 24 % of the total population in Kenya.

Adolescence pregnancies are associated with health risks such as postnatal depression, anaemia in pregnancy, pregnancy induced hypertension, depression or even maternal death. Their babies are at greater risk of being born prematurely, low birth weight, and death due to inadequate care during pregnancy or upbringing, than babies born by older women (Rachel, 2016). *Miraa* farming in the area may have aggravated the problem as many (50%) adolescents drop out of school for *Miraa* plucking and packaging duties to earn a living. Adolescent mothers who are out of school are at increased risk of early marriage and/or early pregnancies. Early childbearing and rearing prevents the adolescent from achieving full potential in life leading to lack of economic empowerment.

According to sub–County Health Management System (SHMIS) in Igembe South, Meru County, more girls aged 15 to 19 years visited delivery units compared to those who visited family clinics between September 2013 and September 2014. This study sought to assess the level of utilization of planning selected reproductive health services (pregnancy care, skilled birth attendance, postnatal care, family planning and HIVSTI services) by adolescent mothers. Only 43 % (1340) of the 3136 adolescent mothers in Igembe Sub County utilized modern contraceptive methods. The unmet need for family

planning for adolescents was reported to be 23 % and most facilities have teenage pregnancy rate above the national average (KDHS, 2014).

1.3 Justification

Although the government and partners have worked hard to provide highest attainable health for all, adolescents continue to face challenges in accessing reproductive health services which is the target for SDG 3 to ensure healthy lives and promote wellbeing for all. Igembe South Sub County reportedly has high teenage pregnancy rate (19 %) which contributes to school drop-out and early marriages for adolescents (DHMIS, 2014). Nyambene South sub-County hospital had 28% adolescent births out of the total births in 2017 (KDHS, 2014).

Adolescent girls engage in unprotected sex, risking unintended teenage pregnancies and STI/HIV infections (Jessica and Hamid, 2015). This makes them more vulnerable to problems related to child birth and child upbringing compared to adolescents who have not given birth. There is diminutive information on utilization of reproductive health services in Igembe Sub-County focusing on adolescent mothers. Although the Sub-County has several facilities offering reproductive health services adolescents' pregnancies continue to rise. This study therefore aims at determining demographic, socio-cultural and health facility factors that influence utilization of reproductive health services which can be addressed specifically to improve utilization of the RHS by adolescent mothers. The findings of this study will contribute to attainment of Sustainable Development Goal (SDG 3).

1.4 Research questions

This study sought to address the following questions;

i. What are the demographic factors influencing utilization of reproductive health services by adolescent mothers in Igembe South, Meru County?
ii. What socio-cultural factors influence utilization of reproductive health services by adolescent mothers in Igembe South, Meru County?
iii. What facility-related factors influence utilization of reproductive health services by adolescent mothers in Igembe South, Meru County?

1.5 Null hypothesis

Utilization of reproductive health services by adolescent mothers in Igembe Sub County is not influenced by demographic, socio-cultural, or healthy facility related factors.

1.6 Objectives

1.6.1 General objective

To establish the level of utilization of selected reproductive health services by adolescent mothers in Igembe South, Meru County, Kenya

1.6.2 Specific objectives

i. To determine the demographic predictors of utilization of reproductive health services by adolescent mothers in Igembe South, Meru County.
ii. To determine socio-cultural factors influencing utilization of reproductive health services by adolescent mothers in Igembe South, Meru County.
iii. To determine the facility-related factors influencing utilization of reproductive health service by adolescent mothers in Igembe South, Meru County.

1.7 Significance of the study

The information generated from the study contributes to existing literature on adolescents' health and sexuality. It may also be useful in improving utilization of reproductive health services by adolescent mothers and in reducing unintended teenage pregnancies and pregnancy related complications. The information will add to available knowledge to improve utilization of reproductive health services by adolescents to improve their future health and socioeconomic status. Finally, the information is useful in reproductive health policy development.

1.8 Limitations and delimitations of the study

Limitations are shortcomings or influences that the researcher has no control of and has restrictions to the methodology and conclusions of the study. In this study, financial constraints were a challenge which means the researcher did not cover a wider area and population. The adolescent mothers had no formal groupings and this made the researcher walk from one house to another which was time consuming. Finally, the findings of the study may not be representative of all adolescent mothers in Igembe South Sub County.

Delimitations are assumptions made by the researcher which should be mentioned. They describe the restrictions that the researcher sets for the study. The researcher carried a pilot study in the neighboring Kimongoro location which has similar socio-economic characteristics with Maua Township and used a small sample of the adolescents. The community health volunteers in charge of each community unit that had been selected for the research was useful in helping to identify households with adolescent mothers. The researcher chose to interview a small sample of the adolescents.

The researcher had no control of the responses given by the respondents because their responses were independent. The researcher therefore requested the respondents to be as honest as possible for the research findings to be valid. The researcher further assured them that their identities were to be kept confidential and that the information that they gave would be used for the purpose of this study only.

1.9 Conceptual Framework

Through systematic review of the literature, the researcher conceptualizes the relationship between the independent and dependent variable. Demographic factors such as age, marital status, religion, educational background and occupation of adolescent as well as health facility associated factors influence utilization of reproductive health services (Figure 1.1)

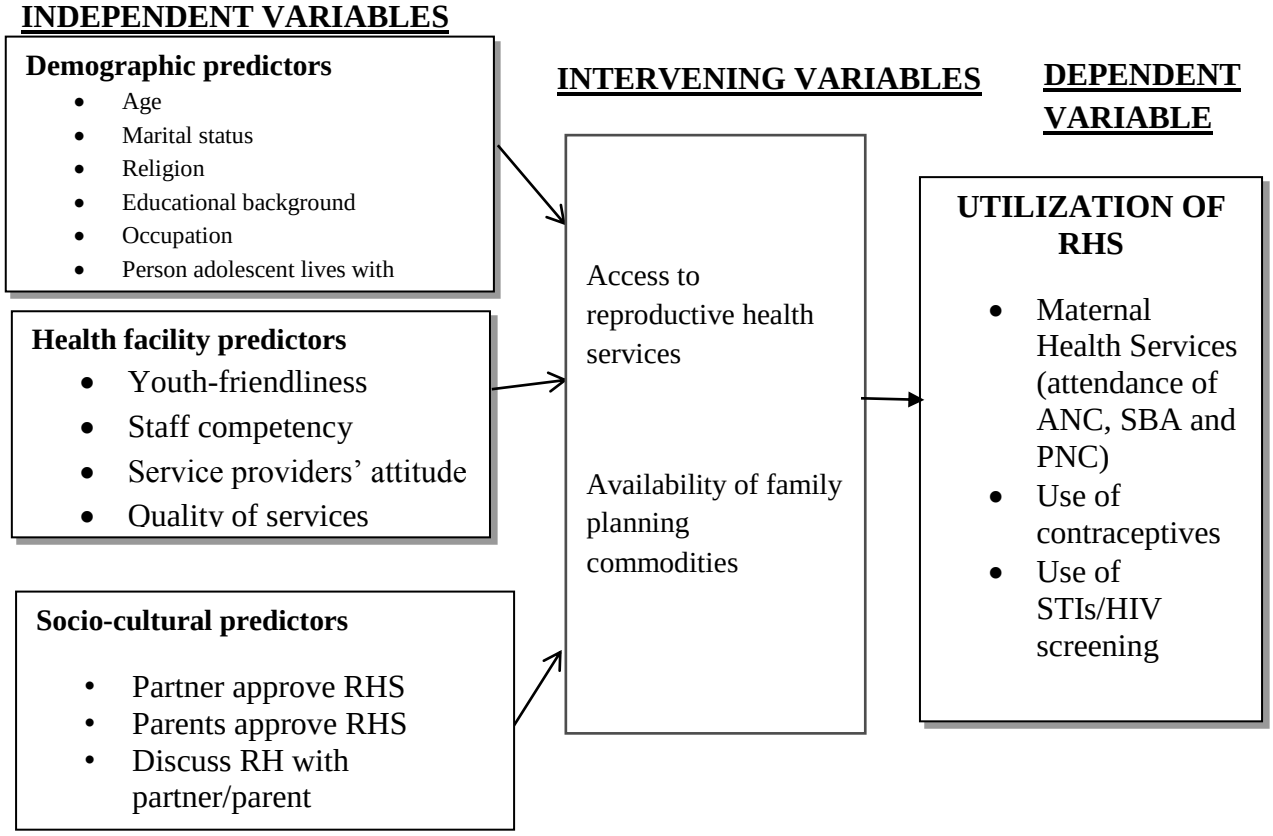

Fig. 1.1 Conceptual framework of factors associated with utilization of selected reproductive health services among adolescents.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of the reviewed existing literature on utilization of the selected reproductive health services by adolescent mothers. The existing literature was reviewed according to the objectives of the study. Adolescent mothers have limited knowledge, education, experience, income and decision-making power compared to older women (WHO, 2014). Limited knowledge on reproductive health services (RHS) contributes to increased incidences of unplanned pregnancies among adolescent mothers (Abajobir and Seme, 2014). This often leads to unsafe abortions due low socioeconomic status. According to KDHS report in 2013, 11% of female adolescents (15-19 years old) were sexually active (KDHS, 2014).

Adolescent mothers have less decision-making power at home which contributes to decreased utilization of maternal health services compared to older women (Shahabuddin, *et al.,* 2016). This study seeks to determine the level of utilization of antenatal, postnatal, modern contraceptives and STI/HIV screening services by adolescent mothers in Maua Township, Meru County.

2.2 Demographic predictors of utilization of RHS by adolescent mothers

Demographic factors such as age influenced use of reproductive health services as older adolescents were observed to use reproductive health services more than younger once (Journal of Women's Health and Development, 2019). Economic status influenced use of reproductive health services as the youths without income did not go for the services while Sociocultural and religious factors restricted youths from using some reproductive

health services (Omweno *et al.,* 2015). The level of education of an adolescent mother influences utilization of maternal health services (Oluwasola *et al.,* 2017). Utilization of contraceptives by mothers 15–19-year-old increases with level of education. Only 18 % of adolescents who have not been to school use a contraceptive method. Over half of adolescent mothers with primary school education use contraceptives. Contraceptive use is lower among adolescents of lower wealth quintiles (KDHS, 2014). Adolescents who are economically or socially dependent on men have limited power to negotiate on use of condoms during sex (WHO, 2014).

2.3 Social cultural predictors of utilization of RHS by adolescent mothers

Utilization of reproductive health services by adolescent mothers may be influenced by sociocultural factors (adolescents' attitudes towards RHS and perceptions from the community), reinforced by restrictive laws and policies which can hinder access information by sexually active adolescents (Countdown, 2015). Adolescents who are economically or socially dependent on men may have limited power to negotiate use of condoms during sexual intercourse (International Planned Parenthood Federation (IPPF), 2014).

Social pressure to bear children soon after marriage and stigma surrounding contraception bars adolescent mothers from using contraception (Chandra-Mouli & Braet, 2014). Some parents prohibit use of contraceptives by adolescents because it is perceived to be encouraging promiscuity among unmarried girls (KNBS, 2010). Sex education has been a taboo subject to the African society as a whole and the proposal to introduce it in schools has faced many challenges (Okafor, 2018). In a study done in Korogocho, it was found that, approval of reproductive health services for the youth by

religious institutions correlates with the utilization of the services in the area (Omweno *et al.,* 2015).

2.4 Health facility predictors of utilization of RH services

Reproductive health services have not been designed to be adolescent-friendly and to address their specific needs. This has been identified as one of the barriers to utilization of RHS by adolescent mothers (WHO, 2019). Hostile language used by healthcare providers, negative comments about age of marriage and pregnancy were mentioned has a major barrier to utilization of antenatal services in subsequent pregnancies in Napal (Binita *et al.,* 2019).

Lack of privacy, staff of opposite sex, negative attitudes by health workers, stigma and discrimination, and lack of confidentiality were cited as contributing to low utilization of reproductive health services by adolescents (Mbeba *et al.*, 2012). A study done in Nigeria found that low utilization of reproductive health services by adolescent mothers is associated with inconvenient hours and fear of being seen by parents or people whom they know (Abebe and Awoke, 2014). Cost of services is a major challenge met by adolescents in utilization of reproductive health services due to their low economic status (Save the Children, 2014).

The quality of services determines the utilization of reproductive health services by adolescents in Uganda. Well trained friendly health workers together with assured confidentiality enhance utilization of VCT services (WHO, 2019). The long waiting hours, lack of peer educators and inconsistent results, are other factors that make adolescents not want to use the services (WHO, 2013). Some communities think it is not appropriate for adolescent mothers to access family planning services because of

misconception that they will not have children later in life. Negative health workers' attitude toward sex and reproductive health services for unmarried youth indicated punitive rules and regulations against premarital sex. This consequently deters adolescents from seeking for the services (WHO, 2019).

In Kenya, health facilities are not well designed to favor adolescents thus leading to decreased utilization of the services (FHI, 2011). Many facilities do not have youth friendly services (YFS) and service providers may not be adequately trained to provide RH services to adolescents (Kimathi, *et al.*, 2020). Sometimes health providers are reluctant to provide contraceptives, to unmarried adolescent mothers due to their own religious or social beliefs (Godia *et al.,* 2013). This study therefore, seeks to determine health facility factors influencing utilization of reproductive health services by adolescent mothers.

2.5 Utilization of selected RH services by adolescent mothers

The utilization of maternal health services has significant impact on reduction of maternal mortality and morbidity through early detection and management of possible complications. Only 35.2 % of the pregnant girls attended ANC services four or more times (Tensae, *et al.*, 2017). Up to 93% of pregnant adolescents in Bangladesh had home deliveries with assistance of traditional birth attendants (Shahabuddin *et al.*, 2015). According to KDHS report, 92% of adolescent mothers received postnatal care from doctors/ midwives/nurses (KDHS, 2014).

Utilization of contraceptives and STI services by adolescents in Eastern and West African countries was observed to be low (Venkatraman Chandra-Mouli and Karlien, 2014). Adolescents in Sub Saharan Africa face more problems than in the rest of the

world due to low socioeconomic status (WHO, 2019). Restrictive laws and policies that guide utilization of reproductive health services by adolescents may also affect utilization of the services. It has been insinuated that both married and unmarried adolescent mothers would like to delay the first or subsequent pregnancies but lack knowledge about contraception (Venkatraman *et al.,* 2018). This study therefore sought to determine the level of utilization of RHS by adolescent mothers in Igembe South, Meru County.

2.5.1 Utilization of contraceptives by adolescent mothers

Access to safe, voluntary family planning is a right of every woman. It is a way of safeguarding gender equality and women empowerment as well as reducing poverty (UNFPA, 2016). Adolescents are eligible to use any method of contraception and must have access to a variety of choices. Age alone should not be the reason for denying adolescents any method of contraception (WHO, 2014).

Adolescent births, account for 11% of all births globally with 95 percent occurring in developing countries (WHO, 2014). Adolescence contraceptive use is characterized by shorter periods of consistent, more contraceptive failure and more discontinuation of methods than in adults (Population Council, 2020). Utilization of the reproductive health services by adolescent mothers in South Africa was observed to be below average (Mekonnen *et al*., 2019).

Lack of reproductive health services was cited among factors hindering utilization of contraceptives by adolescents (Ansha *et al.,* 2017). The prevalence of contraceptives use by adolescents in Kenya is 40.2 %, with 23% unmet need for contraceptive (KDHS, 2014). In some communities, contraceptive use is termed as killing or it is viewed as

encouraging promiscuity (Omweno *et al*., 2015). However, Meru County has a high (85%) uptake of modern contraceptives by married girls aged 15-19 years which is considerably higher than the national level of 37% (MOH, 2019). This study therefore, sought to determine the level of utilization of contraceptives by adolescent mothers in Igembe South. The researcher will afterwards, make recommendations to the relevant authorities to improve utilization of these services.

2.5.2 Utilization of STIs/HIV screening services by adolescent mothers

Healthcare and education systems in Russian were not youth friendly in relation to reproductive health needs. HIV testing rates among adolescents with acute STIs was low (55%) (Danielle *et al.*, 2020). Utilization of screening services among sexually active adolescents in Northwest Ethiopia was high (88.4 %) (Feleke *et al*., 2013).

Although the prevalence of HIV infection in young people in sub-Saharan Africa is reducing, condom use HIV screening services by adolescent mothers is below expectation. Adolescent girls face a greater risk of HIV infection because their biological structures are not fully developed. Only 15 % of married or in union adolescents use modern contraceptives (UNFPA, 2015). Adolescent mothers should be empowered to negotiate condom use in order to prevent unintended pregnancies and STIs (UNFPA, 2015). Increased HIV infections has prompted integration of STI prevention and management into existing family planning and antenatal care programs in most low-income countries, including Kenya. The integration is particularly preferred because there is a high level of overlap between the population at risk for unplanned pregnancy and those at risk for STIs and HIV. Through integration of the hard-to-reach clients, including men and youth, can be contacted (MOH, 2014).

2.5.3 Utilization of ANC and SBA services by adolescent mothers

Pregnancy and childbirth complications are the leading causes of death among adolescents aged 15–19 years in developing countries due to early childbearing age (WHO, 2020). Use of antenatal and skilled delivery services greatly improves maternal outcomes (Edite *et al*., 2019). Utilization of maternal health services can greatly reduce the risk of maternal morbidity and mortality which is a major problem in sub–Saharan Africa (Kimathi *et al*., 2020).

According to the National Guidelines for Quality Obstetrics and Perinatal Care by the Ministry of Public Health and Sanitation, *pregnant women can benefit from just a few antenatal visits, as long as those visits are thorough. Focused or targeted ANC refers to a minimum number of four comprehensive personalized antenatal visits, each of which has specific items of client assessment, education and care to ensure prevention or early detection and prompt management of complications.* Adolescent mothers have less decision-making power at home and as such low utilization of pregnancy related services (UNFPA, 2015). A pregnant adolescent, from rural areas may not have money for transport and care. Her movement may be restricted by social convection about travelling alone. Unmarried adolescents may not visit a nearby clinic for fear of being stigmatized and as such service utilization remains low in sub–Saharan Africa (WHO, 2014). This study aimed at determining factors influencing utilization of STI/HIV screening and treatment services among adolescent mothers in order to help in strengthening service delivery to adolescent mothers.

Over 90 percent of women in Kenya receive antenatal care from health providers, but only 50 % of them get skilled birth attendance. The high prevalence of home deliveries

(over 50 %) contributes to the country's high maternal death rate. Some of the reasons for home deliveries include lack of money for transport, fears stigmatization; cultural preferences, and cost for services (KDHS, 2014).

2.5.4 Synopsis of literature review

Understanding the level of utilization of reproductive health services by adolescent mothers and the associated factors is an important aspect in provision of quality reproductive health services for adolescents. This can help in achieving SDG 5 targets and promote girl child education to reduce gender disparity. There was evidence from literature review of gaps on socio-demographic, socio-cultural and facility-related factors that influence the utilization of reproductive health services by adolescent mothers in Meru County.

CHAPTER THREE: MATERIALS AND METHODS

3.1 Introduction

In this chapter, description of the study location, study population as well as description of sampling procedures and sample size determination is done. Finally, instrumentation and data analysis procedure is explained.

3.2 Study design

This study used descriptive cross-sectional design because it allows the researcher to look at numerous characteristics of the population at the same time. This research method involves looking at data from a population at one point in time. It is also a highly economical method of collecting data. It is useful in collecting, analyzing and presenting the data.

3.3 Variables

These are measurable characteristics that vary. It may change from group to group or person to person. An intervening variable is a hypothetical variable used to explain casual links between independent and dependent variables. In this study, intervening variables were access to reproductive health services and availability of family planning commodities. Where the services and commodities are not available utilization will not take place.

3.3.1 Independent variables

These are variables the researcher has control over. In this study, the independent variables are age, marital status, religion, educational background, occupation and persons with whom the adolescent lives. Youth-friendliness of services, service providers' competency, service providers' attitude towards RHS for adolescents, quality

and cost of services have influence on utilization of RHS by adolescent mothers. Measurement of these variables was based on the perception of the respondents towards the services and the service providers.

3.3.2 Dependent variables

These variables show the effects of manipulating or introducing the independent variables. In this study, the dependent variable is the level of utilization of the selected reproductive health services by adolescent mothers.

3.4 Location of the study

This study was done in Maua Township in Igembe Sub County in Meru County, eastern Kenya. The area has six locations; Maua, Kithetu, Kilalai, and Kathima locations (Appendix IV). It is situated under the slopes of Nyambene ridges. The area is famous for Miraa farming which is the main economic driver of the area. People from other regions such as Central, Eastern, North Eastern and even Nyanza regions of Kenya have migrated to the area in search of business opportunities. There are two distinct religions in the area namely Christianity and Islamic. Cultural practices such as female genital mutilation and early marriages for girls are common among the indigenous inhabitants of the area, contributing to teenage pregnancies and school dropout. Adolescents who are not in school engage themselves in casual labor such as plucking *mirra* (Khat), farming activities and household chores for daily wages. Others leave their children with their relatives to go to school.

3.5 Study population

The study population consisted of all adolescent mothers (15 – 19 years) who had given birth 12 months prior to the study. Health care providers working in the area were also

interviewed as key informants. These included public health officers, reproductive health service providers (doctors, nurses and clinical officers from sub county hospital), a ward administrator, and two primary school head teachers.

3.6 Sampling technique

Multistage cluster sampling approach was adopted for this study. First, Meru County was purposively selected due to the high teenage pregnancy prevalence rate (27% of all live births). Secondly, Maua Township was purposively selected because it is a cosmopolitan area with a diverse population, both rural and urban. All the four locations of Maua ward and their respective populations formed clusters and were sampled based on probability proportional to size. Two villages were selected per location using simple random sampling. The researcher used community health volunteers (CHVs) to identify households with adolescent mothers which were then listed down and then selected used simple random sampling method. The CHVs were selected using purposive probability method because they represent specific community units (Table 3.1).

If a household had more than one adolescent mother, only one of them was selected using simple random sampling method (papers written YES or NO and the one who picked YES participated in the study). Simple random sampling is probabilistic method which gives all the members of the study population an equal chance of being included in the study which then allows generalization of the study findings to the study population. The researcher applied purposive and snowball sampling methods to select the subjects for interviews. The ages of 15 – 19 years were purposely selected because they were assumed to be more knowledgeable than the younger ones.

Table 3.1 Sampling Frame

Clusters (Locations)	Target population (No. of HHs)	Sample Population (ward level)	Sample population (Village level)
Maua	704	704/1676*234= 98	Rwongone= 46 Kithaene = 46
Kithetu	391	391/1676*234= 55	Kalimantiri = 28 Kaliene = 27
Kathima	360	360/1676*234= 50	Kathima = 25 Gito = 25
Kilalai	221	221/1676*234 = 31	Makiri = 15 Gitura = 16
Total	**1676**	**234**	**234**

Source: Igembe South SCHMIS (2016)

3.7 Sample size determination

Sample size was determined according to the formula by Mugenda and Mugenda (2003) adapted from Fisher *et al.* (1998).

Sample size, $n = \frac{z^2(p)(q)}{d^2}$

Where**;**

Z**=** is the Standard normal deviation set at 95% confidence interval which is 1.96

P = is the proportion of population estimated to have characteristics similar to those of researcher's interested in measuring.

q = is 1-p = (1-0.5) = 0.5

d **=** is the statistical significance at 95% confidence level which is 0.05

Therefore, $n = (1.96^2 \times 0.5 \times 0.5) / 0.05^2 = 384$

However, where the population is less than 10,000 the formula goes another step.

$$nf = \frac{n}{1 + \frac{n}{N}}$$

This study applied the Mugenda and Mugenda (2003) less than 10,000 formula.

Where: -nf= desired sample size when the population is less than 10,000.

n = desired sample size when the population is greater than 10,000.

N = estimated study population size; sampling frame of 478 adolescent mothers in Maua Township was derived at using antenatal registers (MOH 405) in various health facilities.

Therefore:

nf = (384)/ 1 + (384/478) = 212.93.

Approximately 213 adolescent mothers constituted the sample size. To take care of any non-responses, 10% (21) of the sample was added to make 234 adolescent mothers.

3.8 Inclusion criteria

All adolescent mothers aged 15 to 19 years who had given birth twelve months prior to the study and had lived in the area for the last two years. All the respondents below the age of 18 years who gave assent to participate in the study and their caregivers gave informed consent in support of their participation in the study. Key informants included those working in MCH, Public health or understood the RH services and were willing to participate to the study.

3.9 Exclusion criteria

In this study, adolescent mothers who met inclusion criteria but were either unwell or mentally unsound were excluded.

3.10 Research instruments

Data was collected using semi-structured pretested questionnaires (Appendix II). Closed and open-ended questions were used to capture the required information from the subjects. The researcher also interviewed key informants (health service providers, community health workers and community leaders) using a key informant schedule to collect information about socio-cultural and health facility factors influencing utilization of reproductive health services by adolescent mothers (Appendix III).

3.11 Validity of the questionnaire

To enhance validity of the study, the questionnaire developed precisely to ensure that data generated addressed the objectives of the study. Quality of the instruments was ensured by seeking opinion of supervisors and peer review. A pretest of research tools was done in Kimongoro market to ensure completeness, coherence and accuracy of the data collection tools. The questions used were standardized and closed ended where appropriate to ensure that the responses were guided. Two research assistants were trained using standardized materials. The training included taking them through the basic concept of RH and explanation of key words and interpretation of the questions in the tools. This ensured they acquired the desired level of competence in completeness and accuracy in the filling of questionnaires.

3.12 Reliability of the methods

It is the extent to which an instrument yields consistent results if repeated. The training included taking them through the basic concept of RH and explanation of key words and interpretation of the questions in the tools. This ensured they acquired the desired level of competence in completeness and accuracy in the filling of questionnaires. All

respondents were given equal time to respond to the questionnaire. Adequate supervision throughout data collection was also ensured.

3.13 Pre-testing of the research tools

A pretest of 23 questionnaires (10 %) of sample size was done at Kimongoro location in Igembe South prior to actual data collection. This helped to establish reliability by finding out if sufficient questions were included to meet objectives of the study and whether the meaning of the questions was the same for all respondents. After which necessary adjustments were made. Research assistants were trained and supervised to ensure consistency of data collected and each participant was given enough time to respond to the questions.

3.14 Data collection tools and procedure

Two female college students, (20 and 22 years old) who were fluent in English, were trained for two days to understand and interpret the research tools. They assisted the researcher to carry out data collection by interviewing each respondent according to the pretested questionnaire (Appendix II) between 5th and 30th December 2017. Each of the assistants was given 117 questionnaires to administer. The objective of the study was explained to the participants. Key informant schedule (Appendix III) was used to generate information from three key informants. Three Key informants' schedules were conducted; one RHS provider, one community health worker and one community leader. Each of them was given one structured questionnaire to fill and the researcher collected them for analysis.

Focused group discussion was conducted in two groups of five (total 10) adolescent mothers. The size of 10 participants was selected because it is ideal and easy to manage

(Taherdoost, 2018). Systematic sampling technique was used to select the FGD participants. Systematic sampling is a probability sampling method where every *nth* case after a random start is selected. This method of sampling was selected because of its simplicity and not bias (Taherdoost, 2018). Nth case was calculated by dividing the population sample by 10 i.e., 234/10 =23.4. This was estimated to a whole 23 as the interval of selection. Therefore, every 23rd adolescent mother, starting from 10 was recruited for FGD (10, 33, 56, 79, 102, 125, 148, 171, 194 and 217).

3.15 Data management and analysis

Data management started with checking the questionnaires for completeness and clarity. Coding was done and data entered into SPSS version 22. Qualitative data from key informant interview and FGD was transcribed verbatim into MS word files and thematic analysis was done to provide in-depth understanding of the sociocultural and health facility factors influencing utilization of RHS by adolescent mothers. Descriptive quantitative data analysis was presented by use of percentages and frequencies distribution tables. For inferential quantitative analysis, a partial binary logistic regression model was fitted to determine demographic, socio-cultural and health facility predictors of utilization of reproductive health services in Maua Township. The model is of the form:

$$\ln\left(\frac{\mathrm{p}}{1\text{-}\mathrm{p}}\right) = \ln(\text{odds of event}) = \beta_0 + \beta_1 X$$

Where; β_0 and β_1 are regression coefficients

p = probability of event occurring

1 – p = probability of event not occurring

Adjusted Odds Ratios were evaluated for significance by considering the 95% Confidence Interval or the p. value for the Z statistic generated. Any Adjusted Odds Ratio without a 1 in its 95% Confidence Interval or p. value <0.05 was considered statistically significant. Qualitative data was analyzed using thematic content.

3. 16 Logistical and Ethical Considerations

Approval to conduct the study was sought from Kenyatta University Graduate School. Permission was sought from Kenyatta University Ethical Review Committee (ERC), National Commission for Science Technology and Innovation (NACOSTI), county commissioner, County Director Public of Health and County Director of Education (Appendix V, VI, VII, and VII). Participants were informed of the objective of study and of their full right to withdraw or refuse to participate in the study. Data was collected after getting informed assent and consent from the respondents/parents/guardians. The respondents were given permission to withdraw from the study if one wished to and opportunity to seek for clarification about the questionnaires and then requested to sign consent for participation in the study. Parents or guardians were requested to consent for the respondents below 18 years old.

CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter deals with the presentation and analysis of the data gathered from the research on the utilization of selected reproductive health services in Meru County. Data was analyzed in regard to the objectives. A total of 234 adolescent mothers (15 and 19 years old) who had delivered their babies one year before the study irrespective of whether they had other deliveries before were interviewed. There was 100% response rate. The questionnaires were administered through one-on-one interview by the trained research assistants. Key informants were given open-ended questionnaire to answer which were collected later and analyzed using qualitative method. This chapter presents results from quantitative (descriptive and inferential data analysis) and qualitative data analysis.

4.2 Demographic characteristics of the respondents

Most of the respondents (50.9%, n=234) were 19 years old (Table 4.1). The mean age was 16.5. Less than half of the respondents (44.8%) were single, 28% were cohabiting and 14.9 % were married and 11.9 % had separated from their partners. Most of the respondents in this study (79.1%) were Christians while 20.9% were Muslims. Out of the total respondents, 75.2% attained primary level of education, 19.7 % secondary level and only 5.1% had College or University education. Less than half of the respondents (48.8%) were casual laborers at the time of the study, 16.2% were engaged in small scale businesses, 29.9% were in school, and only 5.1% were in formal employment. It was found out that 43.2% of the respondents were living with the father of their children (married or cohabiting), whil**e** 47.2% were living with parents/guardian and only 9.8% were living alone (Table 4.1).

Table 4. 1: Respondents' demographic characteristics (n=234)

Characteristic	Frequency (n)	Percentage (%)
Age		
15-16 years	28	11.9
17-18 years	87	37.2
19 years	119	50.9
Total	**234**	**100**
Marital status		
Married	35	14.9
Single	105	44.8
Separated/Divorced	28	11.9
Cohabiting	66	28.4
Total	**234**	**100**
Religion		
Muslims	49	20.9
Christians	185	79.1
Total	**234**	**100**
Educational background		
Primary	176	75.2
Secondary	46	19.7
College/University	12	5.1
Total	**234**	**100**
Occupation		
Small scale business	38	16.2
Formal employment	12	5.1
Informal employed	114	48.8
Still in school	70	29.9
Total	**234**	**100**
Who the respondent lives with		
Father of child/children	101	43.2
Biological parent /Guardian	110	47.2
Alone	23	9.8
Total	**234**	**100**

4.3 Utilization of selected reproductive health services

The respondents were asked if they had used the selected reproductive health services during and after pregnancy or not. Those who answered YES were categorized as having used and vice versa. Majority of the respondents (86.3%) had attended antenatal clinic at least once. However, only 17.3% had attended up to 4 visits. Most of the respondents (88.1%) had delivered in a health facility but only 20.9% of them managed to attend postnatal clinic within 2 weeks. Most of the respondents (70.1%) had ever used a contraceptive method before this study. Majority of them (88.1%) had delivered in a health facility and only 20.9% of them managed to attend postnatal clinic after 2 weeks (Table 4.2).

Table 4. 2 Utilization of selected RH services (n =234)

Health Service	**Percentage**
Attendance of ANC clinic during previous pregnancy	86.3
Number of times one attended ANC services	
Less than 4 visits	82.7
4 or more visits	17.3
Place of delivery of last-born baby	
Health facility	88.1
Outside health facility	11.9
Attendance to postnatal clinic after two weeks	20.9
Currently using a contraceptive method	88.1
Tested for STI/HIV in the last one year	93.2
Average score	**61.9**

Reasons for not utilizing reproductive health services

According to key informants, adolescent mothers utilize antenatal, and delivery services (80 % of them agreed to this). Only 20 % out of the ten key informants said, "*Reproductive health services are not well utilized by adolescents.* Reason for not utilizing the services according to the key informants were as follows*:* lack of confidentiality by health service providers (20%), lack of self confidence amongst adolescents while (30 %), another 20% said reported unavailability of services in the health facilities, "*embarrassment and fear of social stigma* (40%). One of the nurses providing health service said that, *"even married adolescents, may lack financial power to seek services when required, since the husband is the provider". Society prohibits use of contraceptives because it encourages immorality by the minors*. "*It is expected that sex is for the married and young people should abstain from premarital sex"*, said one another (Fig. 4.1).

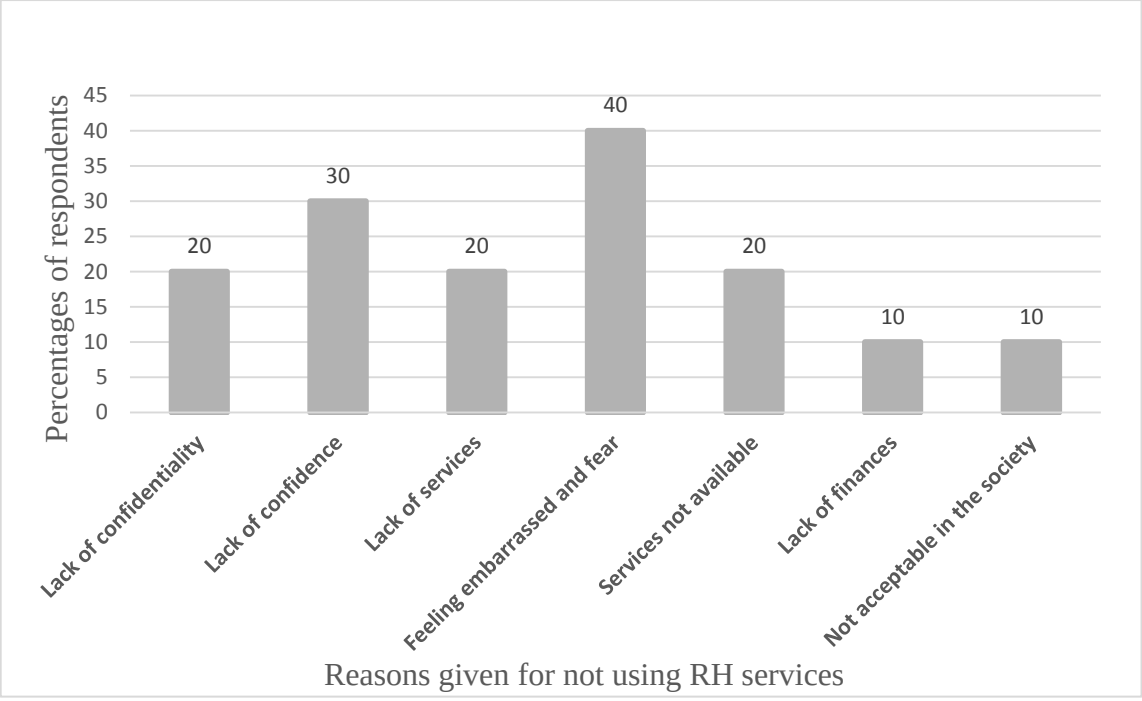

Figure 4.1 Reasons for not utilizing reproductive health services (n=10)

4.4 Demographic predictors of utilization of the selected RHS in Igembe South

Partial binary logistic regression model was fitted to determine demographic predictors of utilization of reproductive health services in Maua Township. Adjusted Odds Ratios were evaluated for significance by considering the 95% Confidence Interval or the p. value for the Z statistic generated. Any Adjusted Odds Ratio without a 1 in its 95% Confidence Interval or p. value <0.05 was considered statistically significant (Table 4.3).

Table 4.3 AOR and P Values of Demographic predictors of utilization of selected RHS in Igembe South (95 % CL)

RH SERVICES	ANC	SBA	P/NATAL	CONTRACEPTIVES	STI/HIV
AGE IN YEARS					
17 – 18	AOR= 1.003, P<0.068	AOR= 1.012, P = 0.906	AOR=1.080 P = 0.167	AOR=1.023 P= 0.067	AOR=1.013 P= 0.067
19	AOR= 1.026 P= 0.000	AOR=1.213 P = 0.097	AOR= 1.468 P = 0.009	AOR=0.961 P= 0.098	AOR=0.891 P =0.089
RELIGION					
Muslim	AOR=0.264 P<0.000	AOR= 0.952 P =0.032	AOR= 0.972 P= 0.000	AOR= 0.480 P= 0.028	AOR= 0.25 P= 0.000
LEVEL OF EDUCATION					
Secondary	AOR=1.011 P =0.002	AOR= 1.341 P= 0.067	AOR=1.000 P =0.763	AOR= 1.571 P= 0.026	AOR=1.860 P= 0.142
University/college	AOR=2.234 P=0.015	AOR= 1.94 P =0.034	AOR=1.380 P= 0.296	AOR= 2.781 P= 0.017	AOR= 2.79 P= 0.000
MARITAL STATUS					
Single	AOR=0.510 P= 0.033	AOR= 0.890 P= 0.237	AOR= 1.059 P =0.376	AOR= 1.341 P= 0.077	AOR= 0.780 P= 0.047
Cohabiting	AOR=1.371 P= 0.381	AOR= 1.059 P=0.376	AOR=1.070 P= 0.171	AOR= 0.792 P= 0.071	AOR= 1.223 P=0.077
OCCUPATION					
Formal employment	AOR=1.001 P= 0.998	AOR= 1.210 P= 0.737	AOR= 1.272 P <0.000	AOR=1.572 P <0.000	AOR= 1.992 P= 0.014
Informal employment	AOR= 1.210 P 0.737	AOR= 1.070 P 0.072	AOR= 0.860 P 0.095	AOR=1.23 P 0.080	AOR= 0.543 P 0.014
Not employed	AOR= 0.650 P= 0.027	AOR= 9.620 P <0.000	AOR= 1.338 P= 0.258	AOR= 0.953 P= 0.098	AOR= 1.07 P= 0.171
PERSON ADOLESCENT LIVES WITH					
Parent/guardian	AOR=1.988 P= 0.000	AOR=0.790 P= 0.071	AOR=1.110 P= 0.059	AOR=1.790 P= 0.047	AOR=1.350 P= 0.032
Alone	AOR=0,212 P=0.000	AOR=0.73 P= 0.002	AOR=1.000 P= 0.884	AOR=0.950 P =0.075	AOR= 1.143 P= 0.075

4.5 Demographic predictors of number of times attended ANC services

This current study found out that a Muslim adolescent is 79% less likely to attend antenatal services 4 times or more compared to a Christian adolescent (AOR=0.21, 95% CI (0.06 to 0.71), p=0.012), adjusting for all other demographic variables. Education was found to be a predictor of number of times an adolescent attended antenatal services. A secondary school adolescent is 2.8 times more likely to attend antenatal services compared to a primary school adolescent (AOR= 2.78, 95% CI (1.47 to 5.26), p=0.002), adjusting for all other demographic variables while a university/college adolescent is 1.9 % more likely to attend antenatal services compared to a secondary school adolescent (AOR= 1.019, 95% CI (1.018 to 1.05), p=0.001), adjusting for all other demographic variables. In this study, an unemployed adolescent was 21% less likely to make 4 visits to ANC compared to another one in small scale business (AOR =0.65, 95% CI (0.51 to 0.79), p=0.027), adjusting for all other demographic variables (Table 4.4).

Table 4. 4: Logistic regression analysis of demographic predictors of number visits to ANC clinic in Igembe South (n= 234)

Variable	AOR	95% CI Lower	Upper	P value
Constant				
17-18 yrs.	1.061	0.631	1.783	0.824
19 yrs.	0.707	0.505	0.989	0.043
Marital status				
Single	1.02	0.828	1.212	0.061
Separated/Divorced	1.151	0.451	2.938	0.769
Cohabiting	0.99	0.622	1.358	0.078
Religion				
Muslim	0.21	0.062	0.708	0.012
Education				
Secondary	2.78	1.466	5.264	0.002
College/University	1.019	1.018	1.05	0.001
Occupation				
Formal employment	1.929	1.066	3.492	0.030
Informal employment	1.08	0.700	1.460	0.057
Not employed	0.65	0.511	0.789	0.027
Living with				
Parent/Guardian	1.87	1.43	2.48	0.069
Alone	1.23	0.685	1.775	0.098

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval

Summary on utilization of reproductive health services by adolescent

Attendance to ANC clinics by adolescent mothers in Igembe South was 86 % which was slightly below the national level of utilization of the service (93 %). However, only 17.3 % of them made four or more visits which is below the national level of utilization (60%). Utilization of SBA and contraceptives services was 83% and (88 %) respectively, which was above the national level (65 %) and (46) respectively, while utilization of STI/HIV services was 93 % (Table 4.5).

Table 4.5 Composite score on utilization of selected Reproductive Health Services (RHS) (n= 234)

REPRODUCTIVE HEALTH SERVICES (RHS)	**SCORE IN (%)**	**NATIONAL LEVEL OF UTILIZATION OF RHS IN (%)**
ANC attendance at least once	86.0	93
4 visits and more	17.3	60
Skilled birth attendance	83.0	65
PNC attendance	21.0	92
Contraceptives use	88.0	46
STI/HIV screening services	93.0	95
Average	**62.0**	

4.6 Socio-cultural predictors of utilization of selected reproductive health services

Only 1.3% of all the respondents had experience of losing a baby during delivery. The study found out that 14.9 % of the adolescents discussed reproductive health services with their parents/guardians and 20.9 % had opinion that their parents/guardians approve use of contraceptives by adolescents. Less than half (44.9%) of the respondents said that

their partners approved reproductive health services while (53.4%) ever discuss about reproductive health services with sexual partners. A minority of the respondents (18.8 %) indicated that their sexual partners accompany them to health facility (Fig 4.2).

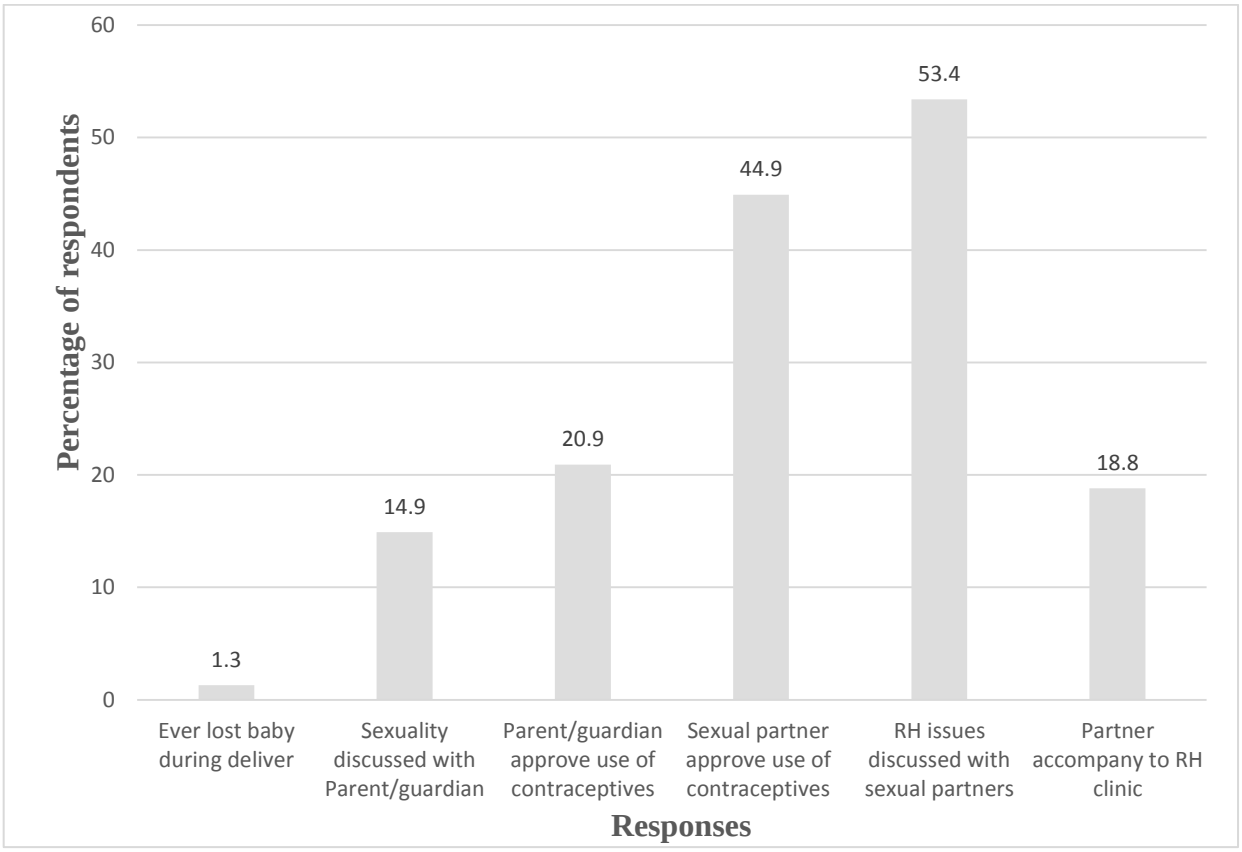

Fig.4.2: Socio-cultural predictors of utilization of selected reproductive health services

In this study, more than half (66.7 %) of the respondents said that their sexual partners did not get time from work to accompany them to the clinic, 23 % had cultural reasons not to accompany them while only 9.8% said long waiting at the health facility discouraged them from accompanying their female partners to the clinic (Fig. 4.3).

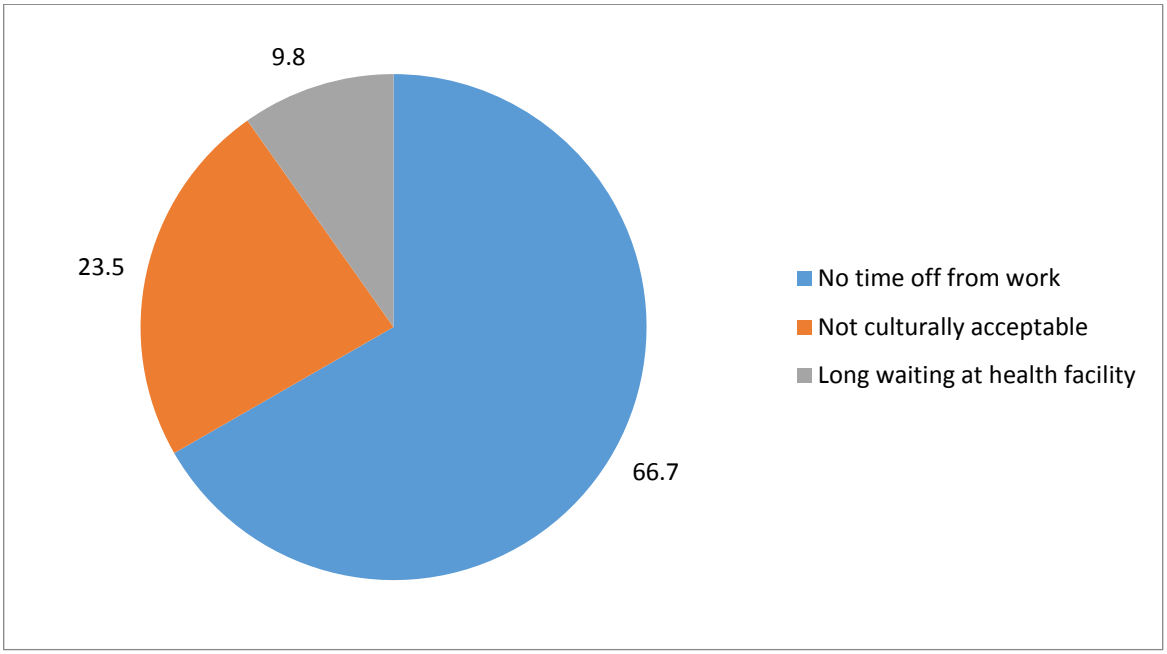

Fig. 4. 3: Reasons for not accompanying partner to the health facility (%)

The study also found out that only 14.5 % of the respondents felt that the community approves utilization of reproductive health services by adolescents. However, slightly more than half (57.3 %) of them said that the community does not approve utilization of RH services while 27 .8 % were not sure whether the community approved the use of the RH services by adolescents or not (Fig, 4. 4).

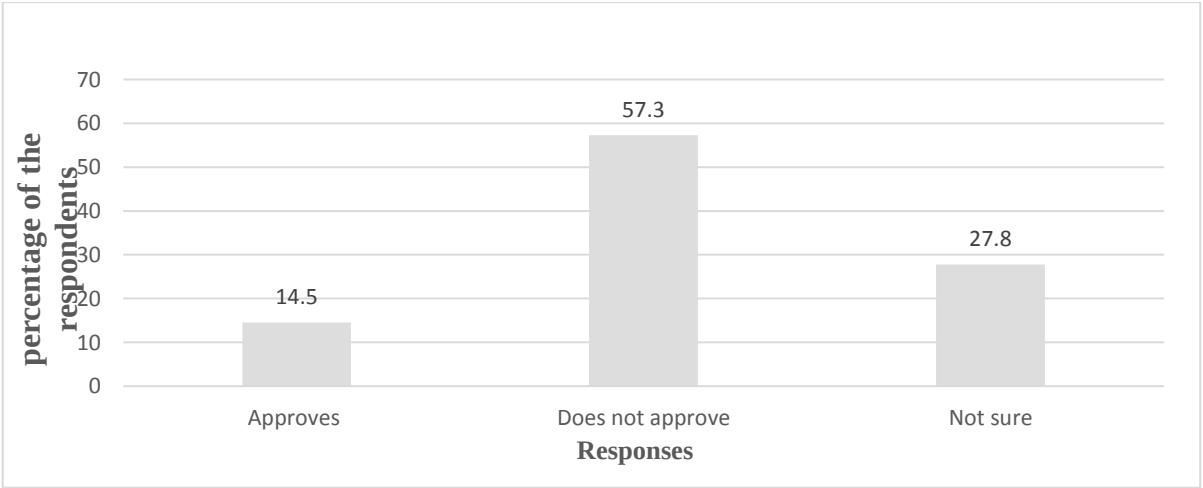

Fig. 4. 4: Community's approval of RH services

4.7. Socio-cultural predictors of utilization of selected RHS in Igembe South

Partial binary logistic regression model was fitted to determine Socio-cultural predictors of utilization of RH services in Maua Township. Adjusted Odds Ratios were evaluated for significance by considering the 95% Confidence Interval or the p. value for the Z statistic generated. Any Adjusted Odds Ratio without a 1 in its 95% Confidence Interval or p. value <0.05 was considered statistically significant.

4. 7. 1 Socio-cultural predictors of attendance to ANC clinics

It was found out that adjusting for all other socio-cultural variables, an adolescent who had ever lost a baby was 78% more likely to attend antenatal clinic compared to another who never lost a baby during delivery (AOR= 1.78, 95% CI (1.46-2.10); p=0.017). An adolescent who discussed sex with parents was found to be 3.9 times more likely to attend antenatal services compared to another who did not (AOR= 3.90, 95% CI (3.72-4.08); p=0.0000) adjusting for all other socio-cultural variables. An adolescent whose parents approve reproductive health services was found to be 2.3 times more likely to attend antenatal services compared to another whose parents do not approve (AOR= 2.34, 95% CI (2.13-2.55); p=0.010), adjusting for all other socio-cultural variables. It was finally found out that adolescent who perceived that the community approved reproductive health services was 67% more likely to attend antenatal services compared to another who did not (AOR= 1.67, 95% CI (1.65-1.69); p=0.036) adjusting for all other socio-cultural variables. An adolescent who was sure the community approved reproductive health services compared to another who said the community did not approve was 66% less likely to attend antenatal services (AOR= 0.34, 95% CI 0.31-0.37); p=0.0000) adjusting for all other socio-cultural variables (Table 4.6).

Table. 4.6: Logistic regression analysis of socio-cultural predictors of number of visits to ANCs clinic Igembe South

Variable	AOR	95% CI		P value
		Lower	Upper	
Constant				
Lost a baby	1.78	1.459	2.101	0.017
Discuss sex with parents	3.90	3.722	4.078	<0.000
Parent approve RH services	2.34	2.130	2.550	0.010
Partner approve RH services	1.09	0.853	1.327	0.098
Discuss sex with partner	1.07	0.880	1.260	0.071
Partner accompany to health facility	0.99	0.622	1.358	0.078
Community approves RH Yes	1.67	1.646	1.694	0.036
Not sure	0.34	0.309	0.371	<0.000

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval

4.7. 2 Socio-cultural predictors of number of visits to ANC clinics

In this study adjusting for all other socio-cultural variables, an adolescent who has ever lost a baby compared to another who has never lost one was 2.2 times more likely to attend antenatal services 4 times or more (AOR= 2.17, 95% CI (1.95-2.39); p=0.001). An adolescent whose sexual partner approved reproductive health services compared to another who did not, was found to be 2.6 times more likely to attend antenatal services 4 times or more (AOR= 2.58, 95% CI (2.18-2.98); p=0.021), adjusting for all other socio-cultural variables while an adolescent who discussed reproductive health services with

partner compared to another who did not, was 56% more likely to attend antenatal services (AOR =1.56, 95% CI (1.29-1.82); p=0.021), adjusting for all other socio-cultural variables. An adolescent who was accompanied by her sexual partner to antenatal services compared to another who was not, was found to be 3.5 times more likely to attend antenatal services 4 times or more (AOR= 3.52, 95% CI (3.13-3.91); p=0.001), adjusting for all other socio-cultural variables (Table 4.7).

Table 4.7: Logistic regression of socio-cultural predictors of number of visits to ANC clinics in Igembe South

Variable	AOR	95% CI Lower	Upper	P value
Lost a baby	2.17	1.947	2.393	0.001
Discussed sex with parents	1.12	0.818	1.422	0.076
parents approve RH	1.25	0.699	1.801	0.079
Sex partner Approve RH services	2.58	2.182	2.978	0.021
Discussion sex with partner	1.56	1.297	1.823	0.024
Partner accompany to clinic	3.52	3.134	3.906	0.001
Community approve RH services	1.11	0.808	1.412	0.059

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval.

4.7.3 Socio-cultural predictors of attendance to skilled birth attendance (SBA)

An adolescent who has ever lost a baby compared to another who has never lost one was 4.5 times more likely to attend skilled birth attendance (AOR= 4.51, 95% CI (4.25-4.79); p=0.000), adjusting for all other socio-cultural variables. An adolescent who discussed reproductive health services with partner compared to another who did not was 2.2 times likely to attend skilled birth attendance (AOR= 2.17 95% CI (1.61-2.73); p=0.024), adjusting for all other socio-cultural variables, while adolescent who was accompanied

by her sexual partner health facility compared to another who did not was found to be 63% more likely to attend skilled birth attendance (AOR= 1.63, 95% CI (1.00-2.26); p=0.031), adjusting for all other socio-cultural variables (Table 4.8).

Table 4.8: Logistic regression analysis of sociocultural predictors of utilization of SBA in Igembe South (n=234)

Variable	AOR	95% CI Lower	Upper	P value
Lost a baby	4.51	4.251	4.769	<0.000
Discussed RH with parents	1.05	0.864	1.236	0.076
Parents approve RH	0.91	0.483	1.337	0.079
partner approve services	1.07	0.743	1.397	0.061
Discussed sex with partner	2.17	1.606	2.734	0.024
Partner accompany to clinic	1.63	1.001	2.259	0.031
Community approve RH services	1.19	0.820	1.560	0.094

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval

4. 7. 4 Socio-cultural predictors of attendance to postnatal clinics (PNC)

An adolescent whose sexual partner approved reproductive health services compared to another whose partner did not was 78% more likely to attend postnatal clinic (AOR= 1.78, 95% CI (1.07-2.47); p=0.047), adjusting for all other socio-cultural variables while an adolescent who discussed sex with partner compared to another who did not was 2.9 times more likely to attend postnatal clinic (AOR= 2.95, 95% CI (2.52-3.38); p=0.0012), adjusting for all other socio-cultural variables. An adolescent who was accompanied by her sexual partner to health facility compared to another who did not was 3.5 times more likely to attend postnatal clinic 5 times or more (AOR= 5.07, 95% CI (4.81-5.33); p<0.000), adjusting for all other socio-cultural variables (Table 4.9).

Table. 4. 9: Logistic regression of socio-cultural predictors of use of PNC clinic in Igembe South

Variable Constant	AOR	95% CI Lower	 Upper	P value
Lost a baby	3.59	3.163	4.017	0.011
Discuss sex with parents	1.07	0.798	1.342	0.062
Parent approve of RH parents	1.33	0.701	1.959	0.085
Partner approve RH	1.78	1.074	2.486	0.047
Discussion RH with partner	2.95	2.523	3.377	0.0012
Partner accompany to Health facility	5.07	4.807	5.333	<0.000
Community approve RH	1.33	0.846	1.814	0.052
Community approve RH (Not sure)	1.34	0.707	1.973	0.072

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval.

4. 7. 5 Socio-cultural predictors of use of contraceptives

All socio-cultural factors were found to significantly predict use of contraceptive among adolescents in Igembe South. Adjusting for all other socio-cultural variables, an adolescent who has ever lost a baby compared to another who has never lost one was 67% more likely to use a contraceptive (AOR= 1.67, 95% CI (1.35-1.99); p=0.017). An adolescent who discussed sex with parents compared to another who did not was found to be 3.2 time more likely to use a contraceptive (AOR= 3.23, 95% CI (2.76-3.69); p=0.001), adjusting for all other socio-cultural variables. An adolescent whose parents approve contraceptives use compared to another whose parents do not approve was found to be 2.9 times more likely to use a contraceptive (AOR= 2.89, 95% CI (2.54-3.24); p=0.001), adjusting for all other socio-cultural variables.

An adolescent whose sexual partner approved reproductive health services compared to another whose partner did not approve was found to be 57% more likely to use a contraceptive (AOR =1.57, 95% CI (1.31-1.84), p=0.018), adjusting for other socio-cultural variables. An adolescent who discussed sex issues with partner was 2.7 times more likely to use a contraceptive compared to another who did not (AOR =2.67, 95% CI (2.39-2.95); p=0.012), adjusting for all other socio-cultural variables. Finally, it was found out that adolescent who perceived the community approved reproductive health services compared to another who did not was found to be 2.3 times likely to use a contraceptive method, (AOR 2.3, 95% CI (1.88-2.72); p=0.006), adjusting for all other socio-cultural variables (Table 4.10).

Table 4. 10: Logistic regression of socio-cultural predictors of use of contraceptives in Igembe South (n= 234)

		95% CI		
Variable	AOR	Lower	Upper	P value
Ever lost a baby	1.67	1.349	1.991	0.017
Discuss sex with parents	3.23	2.775	3.685	0.001
Approval by parents	2.89	2.543	3.237	0.001
Approval by Sexual partner	1.57	1.305	1.835	0.018
Discuss sex with partner	2.67	2.392	2.948	0.012
Partner accompany to Health facility	1.23	0.707	1.753	0.078
Community approves	2.3	1.880	2.720	0.006
Not sure	1.01	0.710	1.310	0.0698

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval

4.7. 6 Socio-cultural predictors of screening of STIs and HIV

Only experience of losing a baby was found to be significant predictors of STIs and HIV screening. Adjusting for all other socio-cultural variables, an adolescent who has ever lost a baby compared to another who has never lost one was 2.9 times more likely to attend HIV/STIs screening (AOR= 2.89, 95% CI (2.59-3.19) and p=0.001) (Table 4.11).

Table 4. 11: Logistic regression analysis of socio-cultural predictors of use of STI/HIV services in Igembe South

Variable	AOR	95% CI Lower	Upper	P value
Ever lost a baby	2.89	2.592	3.188	0.001
Discuss sex with parents	1.23	0.801	1.659	0.061
Parent approve RH	1.01	0.379	1.641	0.057
Partner approve RH	1.78	0.961	2.599	0.142
Discuss with partner	0.78	0.347	1.213	0.412
Partner accompany to H/facility	0.96	0.348	1.572	0.192
Community approves	1.09	0.859	1.321	0.067
Not sure	0.91	0.690	1.130	0.078

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval

4.8 Health facility factors influencing utilization of the selected RHS

Majority of the respondents indicated that facilities that provide reproductive health services were very near. Majority (81.2%) of them said they pay for reproductive health services and 4.7% said they did not have to pay. However, 14.1% were not sure whether the services are paid for. Of those who indicated they pay for reproductive health services, most of them (71.6%) said they were not comfortable with the cost of services. One key informant opinionized that "*cost of services prevents mothers from seeking reproductive health services because they may not afford or feel comfortable asking friends or family to provide funds for such expenses*" (20%). When asked to indicate quality of reproductive health services, most of the respondents (62%) indicated that staff are competent while 38 said service providers were incompetent, 53.4% perceived staff to friendly with 46.6 % of them saying they were not friendly. Another one said that

"*fear of being judged by service providers make adolescent fear to go to the clinic. "Unmarried pregnant girls may be embarrassed to seek help from judgmental or scolding service providers*," said another. 56.8% of the adolescents opinioned that RH services are satisfactory. "*Inconvenient clinic hours, costs, and lack of privacy and confidentiality were some of barriers that prevent adolescent girls from seeking reproductive health services".* (Table 4.12).

Table 4. 12: Health facility factors influencing utilization of RHS in Igembe South (n=234)

Health Facility Factor	Percentage (%)
Very near	70.5
Between 1 and 2 Km	20.9
More than 2 Km	8.6
Total	100
RH services are paid for	
Yes	81.2
No	4.7
I don't know	14.1
Total	100
Okay with cost	
Yes	28.4
No	71.6
Service providers	
Competent	62.0
Incompetent	38.0
Total	100
RH services	
Friendly	53.4
Unfriendly	46.6
Total	100
RH services are satisfactory	
Satisfactory	56.8
Unsatisfactory	43.2
Total	100

4.8.1 Health facility predictors of use of the selected RHS in Igembe South

Partial binary logistic regression model was fitted to determine health facility predictors of utilization of reproductive health services in Igembe South. Adjusted Odds Ratios were evaluated for significance by considering the 95% Confidence Interval or the p. value for the Z statistic generated. Any Adjusted Odds Ratio without a 1 in its 95% Confidence Interval or p. value <0.05) was considered statistically significant.

Adolescents who felt service providers were competent compared to those who felt they were not were 3.7 times more likely to attend ANC adjusting for all other health facility variables (AOR= 3.71, 95% CI (3.09-4.32); p=0.0017) (Table 4.18). Compared to an adolescent who felt health providers were unfriendly, an adolescent who felt they were friendly were 4.7 times more likely to attend an antenatal clinic (AOR =4.73 CI (4.34-5.12); p=0.0013), adjusting for other health facility variables. It was further found out that an adolescent who found services satisfactory compared to another who found them not was 4.2 times more likely to attend antenatal clinic (AOR= 4.21, 95% CI (3.80-4.62); p=0.0015), adjusting for all other health facility variables (Table 4.13).

Table 4. 13: Logistic regression analysis of health facility predictors of use of ANC services in Igembe South (n= 234)

Variable	AOR	95% CI		P value
		Lower	Upper	
Distance				
1-2 km	1.45	0.907	1.993	0.057
>2 km	0.99	0.547	1.433	0.075
Required to pay				
Yes	1.55	0.929	2.171	0.073
Don't know	1.18	0.892	1.468	0.061
Okay with cost	1.07	0.645	1.495	0.171
Service providers				
Competent	3.71	3.098	4.322	0.0017
Friendly	4.73	4.340	5.120	0.0013
Services satisfactory	4.21	3.802	4.618	0.0015

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval.

4.8.2 Health facility predictors of number of visits to ANC clinics

Adolescents who felt health service providers were competent compared to those who felt they were not were 89% more likely to attend antenatal clinic 4 times or more adjusting for all other health facility variables (AOR =1.89, 95% CI (1.36-2.42); p=0.027). Compared to an adolescent who felt health providers were unfriendly, an adolescent who felt they were friendly was 2 times more likely to attend antenatal clinic 4 times or more (AOR =2.01 CI (1.66-2.36); p=0.018), adjusting for other health facility variables. It was further found out that an adolescent who found services satisfactory compared to another who found them not, was 2.3 times more likely to attend antenatal clinic 4 times or more (AOR= 2.31, 95% CI (1.92-2.70); p=0.013) adjusting for all other health facility variables (Table 4.14).

Table 4.14: Logistic regression analysis of health facility predictors of number of visits to ANC clinic (n=234)

Variable Constant	AOR	95% CI Lower	95% CI Upper	P value
Distance				
1-2 km	1.03	0.858	1.202	0.187
>2 km	1.19	0.953	1.427	0.063
Required to pay				
Yes	0.99	0.565	1.415	0.158
Don't know	1.23	0.991	1.469	0.057
Okay with cost	1.21	0.808	1.612	0.093
Service providers				
Competent	1.89	1.359	2.421	0.027
Friendly	2.01	1.663	2.357	0.018
Services satisfactory	2.31	1.916	2.704	0.013

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval.

4.8.3 Health facility predictors of use SBA

Adjusting for all other health facility variables, an adolescent who live beyond 2 km from the nearest reproductive health facility compared to another who lives less than 1 km is 42% less likely to attend skilled birth attendance, (AOR= 0.58, 95% CI (0.33-0.83); p=0.018). According to key informants' view *"Health facilities which are far from where adolescents live, work, or attend school, and limited access to transportation can prevent young people from accessing the service providers"*. Compared to an adolescent who felt health providers were unfriendly, an adolescent who felt they were

friendly was 2 times more likely to attend skilled birth attendance, (AOR= 2.08 CI (1.66-2.51); p=0.012), adjusting for other health facility variables. An adolescent who found services satisfactory compared to another who found them not was 95% more likely to use skilled delivery, (AOR=1.95, 95% CI (1.32-2.58); p=0.022), adjusting for all other health facility variables (Table 4.15).

Table 4.15: Logistic regression analysis of health facility predictors of use of SBA (n=234)

`			95% CI
Variable	AOR	Lower	Upper
Distance to cover			
1-2 km	1.13	0.509	1.751
>2 km	0.58	0.327	0.833
Required to pay			
Yes	0.95	0.750	1.150
Don't know	0.65	0.511	0.789
Okay with cost	1.33	0.903	1.757
Service providers			
Competent	1.13	0.867	1.393
Friendly	2.08	1.655	2.505
Services Satisfactory	1.95	1.317	2.583

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval.

4.8.4 Health facility predictors of attendance to PNC clinic

Adolescents who felt providers were competent compared to those who felt they were not were 25% more likely to attend postnatal clinic adjusting for all other health facility variables, (AOR= 1.25, 95% CI (1.22-1.28); p<0.000). Compared to an adolescent who felt health providers were unfriendly, an adolescent who felt they were friendly were 84% more likely to attend postnatal clinic, (AOR 1.84, CI (1.43-2.25); p=0.0242) adjusting for other health facility variables. It was further found out an adolescent who found services satisfactory compared to another who found them not was 2.3 times more

likely to attend postnatal clinic 2.9 times or more, (AOR= 2.97, 95% CI (2.37-3.56); p=0.0132) adjusting for all other health facility variables (Table 4.16).

Table 4.16: Logistic Regression analysis of health facility predictors of use of PNC clinic (n=234)

		95% CI		
Variable	AOR	Lower	Upper	P value
Distance				
1-2 km	1.11	0.939	1.281	0.067
>2 km	0.89	0.627	1.153	0.098
Required to pay				
Yes	0.79	0.482	1.098	0.057
Don't know	1.12	0.505	1.735	0.098
Okay with cost	1.32	0.910	1.730	0.062
Service providers				
Friendly	1.84	1.430	2.250	0.024
Services				
Satisfactory	2.97	2.378	3.562	0.013

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval.

4.8.5 Health facility predictors of use of contraceptives

In this study, an adolescent who was required to pay for services compared to another one who could access them for free was 73% more likely to use a contraceptive method adjusting for all other health facility variables, (AOR= 1.73, 95% CI (1.23-2.24); p=0.038), while an adolescent who did not know that services are supposed to be paid for compared to another one who could access them for free was 51% less likely to use a contraceptive adjusting for all other health facility variables, (AOR= 0.41, 95% CI (0.27-0.71); p=0.011). Adolescents who felt providers were competent compared to those who felt they were not, were 2 times likely to use a contraceptive adjusting for all other health facility variables, (AOR= 2.07, 95% CI (1.77-2.36); p=0.016. Compared to an adolescent who felt health providers were unfriendly, an adolescent who felt they were friendly were 98 % more likely to use a contraceptive, (AOR=1.98, 95% CI (1.77-2.19);

p=0.014) adjusting for other health facility variables. It was further found out an adolescent who found services satisfactory compared to a mother who found them not was 4.2 times more likely to use a contraceptive (AOR 4.24, 95% CI (3.81-4.67); p=0.012) adjusting for all other health facility variables (Table 4.17).

Table. 4.17: Logistic regression analysis of health facility predictors of use of contraceptives in Igembe South

Variable	AOR	95% CI Lower	Upper	P value
Distance				
1-2 km	0.89	0.523	1.257	0.071
>2 km	1.08	0.880	1.280	0.053
Required to pay				
Yes	1.73	1.236	2.224	0.038
Don't know	0.49	0.270	0.710	0.011
Okay with cost	1.02	0.828	1.212	0.061
Service providers				
Competent	2.07	1.772	2.368	0.016
Friendly	1.98	1.770	2.190	0.014
Services satisfactory	4.24	3.811	4.669	0.012

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval

4.8.6 Health facility predictors of screening for HIV/STIs

It was found that an adolescent who was required to pay for services compared to another one who could access them for free was 2.1 times more likely to go for HIV/STIs screening adjusting for all other health facility variables (AOR= 2.11, 95% CI (1.94-2.28); p=0.023). On the other hand, an adolescent who did not know that services are supposed to be paid for compared to another one who could access them for free was 55% less likely to go for HIV/STIs screening adjusting for all other health facility variables (AOR= 0.45, 95% CI (0.101-0.799); p=0.016). It was further found that an adolescent who was comfortable with the cost was 42% more likely to go for HIV/STIs screening compared to another who said was not ok (AOR 1.42, 95% CI (1.07-1.77);

p=0.048) adjusting for all other health facility variables. Compared to an adolescent who felt health providers were unfriendly, an adolescent who felt they were friendly were 5 times more likely to go for HIV/STIs screening (AOR 5.08, 95% CI (4.44-5.72); p=0.012) adjusting for other health facility variables. FGD statements: "*some nurses are very rude to us young people when we go to the clinic or in maternity. They shout at us which makes one to feel ashamed".* It was further found out that an adolescent who found services satisfactory compared to another who found them not was 3.9 times more likely to go for HIV/STIs screening (AOR =3.94, 95% CI (3.73-4.14); p=0.001) adjusting for all other health facility variables (Table 4.18).

Table 4.18: Logistic regression of health facility predictors of HIV/STIs Screening in Igembe South

Variable	AOR	95% CI Lower	95% CI Upper	P value
Distance (1-2 km)	1.19	0.769	1.611	0.0612
Distance (>2 km)	0.98	0.664	1.296	0.124
Required to pay				
Yes	2.11	1.938	2.282	0.023
Don't know	0.45	0.101	0.799	0.016
Okay with cost	1.42	1.071	1.769	0.048
Service providers				
Competent	1.15	0.523	1.777	0.078
Friendly	5.08	4.441	5.719	0.012
Satisfactory	3.94	3.736	4.144	0.001

Key: AOR – Adjusted Odds Ratio, CI-Confidence Interval,

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion

Findings from this study have revealed the utilization of different aspects of reproductive health services, demographic, socio cultural and health facility factors associated with the utilization.

5. 1.1 Demographic predictors of utilization of RHS among adolescent mothers in Igembe South, Meru County

In this study, religion was found to influence utilization of different aspects of reproductive health services among the adolescent mothers. Islamic religion was found to have negative influence on utilization of all reproductive health services since, Muslim adolescent mothers were less likely to attend antenatal, skilled delivery, contraceptives, postnatal and STI/HIV services compared to Christian adolescent mothers. This is different from a study done in Nigeria which concluded that there was no difference between Christians and Muslim beliefs on utilization of reproductive health services (Maryam *et al.,* 2016). The findings agree with others studies which found that religious affiliations were correlated to utilization of maternal child health services where certain religious belief would hamper utilization of services (Bola *et al*., 2015; Omweno *et al*., 2015; Tensae *et al.,* 2019).

The strict Islamic religious teachings on "women and morality", contributes to low utilization of reproductive health services by Muslim adolescent mothers. Level of education was found to have positive influence utilization of reproductive health services across the board. An adolescent who had attained secondary education was more likely to attend antenatal services compared to a primary school level adolescent and those who

had attained university level more likely than the secondary level counterparts. This is because knowledge is significantly correlated with utilization of reproductive health services (Abajobir and Seme, 2014; Tensae *et al.,* 2019).

Other demographic variables such as age, marital status, economic status and who the adolescent lives with, influences utilization of some reproductive health services without having any influence on others. Those who had formal employment reported to have used the services more than the ones on casual employment which can be attributed to financial empowerment. This is in agreement with the study which found out that adolescent who are economically or socially dependent on men are less likely to use condoms due to limited negotiating power (Bright *et al.,* 2020). It has also been observed that social pressure to bear children soon after marriage and stigma surrounding contraception use is a barrier to the service use by adolescent mothers (Chandra-Mouli and Braet, 2014).

5.1.2 Socio-cultural predictors of utilization of selected RHS by adolescent mothers in Igembe South, Meru County

Socio- cultural factors influencing utilization of RH services in this study includes, economic empowerment of the adolescent mothers, being able to discuss sexuality with parents, parents/partner's approval of RH services, and adolescent's perception that community approved RH services. An adolescent mothers whose parents approved RH services were more likely to utilize RH services than those whose parents did not approve and one who was employed or doing small scale business was more likely to utilize RH services than one who had no means of income. This is consistent with a

study that found that employment as positive association with utilization of maternal health care (Tensae *et al.,* 2019)

5.1.3 Health facility factors influencing utilization of RHS by adolescent mothers in, Meru County

The researcher was interested in examining how cost influences utilization of different aspects of reproductive health services. In this study, cost of services, health service providers' attitude, competency and quality of services influenced utilization of all RH services. Adolescents who were required to pay for the services were less likely to utilize the skilled birth attendance and contraceptives services compared to those who were asked to pay services. These findings are in congruent with earlier studies which showed that utilization of RH services increased with wealth quartile (Mekonnen *et al.,* 2019: Hadian *et al.,* 2019: Shabani *et al.,* 2018).

Competence of health service providers assessment was basically perception based. Adolescents who thought the providers were competent reported use of services more than those who thought otherwise. Those who perceived the health service providers as friendly and quality of services as satisfactory were more liked to attend antenatal and skilled birth attendance services. This is similar to a study which found that well- trained health workers and quality of services are associated with increased utilization of RH services (Maharjan *et al.,* 2019; WHO, OECD; and IBRD/The World Bank, 2018). Others factors that influence utilization of the selected RH services include individual barriers such as personal attitude towards health service providers.

5.1.4 Utilization of RH services among adolescent mothers in Igembe South

Attendance of antenatal services is very important for the wellbeing of a mother and unborn child during pregnancy and increases chances of good birth outcome. The respondents were asked whether or not they used ANC services during pregnancy and those who said YES were categorized as having used while those who said NO were categorized as never used the services. This study found that attendance of antenatal care services by adolescent mothers in Igembe south was above average with the majority (86.3%) of the respondents reporting they attended antenatal services at least once during the pregnancy. This is below the national level (93%) of utilization ANC services reported in 2017. The proportion of the number attending the clinic at least 4 times according to the recommendations of WHO was 17.3% which is below the findings of the KDHS report that more than half of all pregnant mothers had visited the clinic four or more times (KDHS, 2014). The findings agree with a study in Malindi which found that the majority of adolescent mothers attended antenatal clinic less than four times (Ndambuki *et al.,* 2017).

Attendance of skilled birth attendance is very important in preventing maternal and perinatal complications (WHO, 2012). The utilization of the service was assessed asking the respondents whether they were assisted to deliver by trained personnel. Those who said YES were categorized as having used the services while those who answered NO, as never used. This study found out that the majority (88.1 %) of the adolescent mothers gave birth in a health facility and 11.9% had home deliveries. This finding differs with the KDHS (2014) report and KNBS (2015) that 50% of all births in Kenya are conducted by unskilled attendants and this could be due to interventions by the ministry of health such as free Maternity services introduced in 2013 (KDHS, 2014; KNBS, 2015).

The Linda Mama program for pregnant mothers and their infants may have contributed to the increase in utilization of the services. Adolescent Youth friendly Services (AYFS) initiative may also have contributed to the increase in utilization of skilled birth attendance. The findings of this study disagree with another study which stated that there was low utilization of pregnancy related services by adolescent mothers (Tensae *et al.*, 2019).

This study further found out that current use of contraceptives among the adolescent mothers in Maua Township is above average. Most of the respondents had ever used a contraceptive method before this study although some of them had discontinued the use by the time of this study. These findings concur with KDHS report Thirty-one percent of family planning users discontinue use of a method within 12 months of starting its use. The findings are different from the KDHS report which indicated that the contraceptive prevalence rate for adolescents was 40.2% (KDHS, 2014).

Majority of the respondents had tested for HIV/STIs at least once in the last one year which points to a good utilization of this service. This could be attributed to the requirement by the ministry of health that all pregnant mothers visiting antenatal clinic be counseled and tested for HIV and Syphilis as a measure to prevent mother to child transmission of the infections. This finding concurs with another done in Uganda which found out that the level of utilization of VCT services among sexually active adolescents was high (Mafigiri, 2017). However, it is in disagreement with another study done in Northwest Ethiopia which found that utilization of HIV screening services among sexually active adolescents was low (Feleke *et al.*, 2013).

5.2 Conclusions

This study sought to determine the utilization of various reproductive health services in Igembe South and the factors influencing utilization. The study concludes that;

i. **Demographic predictors of utilization of RH services**

Married adolescents utilized RH services more than unmarried adolescents. Age, level of education and employment status are determinant to utilization of the selected RH services. Religious beliefs were seen to influence utilization of RH services where Islamic religion seemed to be a barrier to utilization of the services in the area.

ii. **Sociocultural predictors of utilization of RH services**

Approval of RH services by parents and community was positively associated with the utilization of RH services. Support by sexual partners and community approval of RH services for adolescent positively influence utilization of the services.

iii. **Health facility predictors of utilization of RH services**

Positive attitude by adolescents towards competency and friendliness of service providers and services as 'satisfactory' has positive influence while payment for services decreased utilization of the services.

iv. **Utilization of selected RH services**

Majority of adolescent mothers visited antenatal clinics at least once but only few of them made up to forth visits as recommended by the World Health Organization. Majority gave birth in a health facility. Postnatal services were poorly utilized while contraceptive use was well utilized. Majority of the mothers had been screened for HIV/STIs.

5.3 Recommendations

i. Health services providers to continuously educate the community on importance of postnatal services and at least four visits to ANC clinic.

ii. Public health officers to intensify public education on the importance discussing sexuality with adolescent mothers to enable them share their challenges with adults and avoid repeat of unintended pregnancies.

iii. County governments should improve work environment in health facilities to adolescents friendly.

iv. County governments and partners ought to scale-up sensitization and awareness creation to healthcare providers on adolescence reproductive health rights to improve their attitudes towards adolescent RH services

5. 4 Recommendation for further research

Further research needed to determine the influence of Islamic religious beliefs on utilization of reproductive health services among adolescent mothers in Meru County.

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APPENDICES

Appendix I: Participants' Consent Form

Dear, Respondent

My name is Sabera Makena Muriuki. I'm a student at Kenyatta University School of Public Health. I'm conducting a research project titled "Utilization of Reproductive Health Services by Adolescent Mothers in Igembe South which is a partial fulfillment of the requirement for the award of Master of Science in Public Reproductive Health of Kenyatta University. Please read all information before signing the consent form.

Participation in the study

Your participation in the research study is voluntary and may withdraw your participation any time if you wish to. No penalty will result from your refusal to take part in the study.

Benefits

There will be no direct benefit to you, but your participation in this study will generate information that may help in improving utilization of the services by adolescent mothers as well as inform policy implementation for adolescent reproductive health.

Confidentiality

The information that will be collected from this research will be kept private, your identity anonymous in any publication resulting from this study.

Risks: This research is not associated with any risk.

Contact information

Respondents can contact the researcher and the Kenyatta University supervisors through the following numbers for any clarifications or answering questions relating to this research project through the mobile phone numbers shown below.

1. Sabera M. Muriuki, Principal investigator, Mobile Phone 0727550570
2. Dr. Syprine. A. Otieno, Kenyatta University Supervisor, Mobile Phone 0723744909
3. Dr. Judy Mugo, Kenyatta University Supervisor, Mobile Phone 0720671286

Participant's/guardians' Consent

I have understood the information contained in this form and have been given the opportunity to ask questions. I consent voluntarily to be a participant in this study.

Participant's signature…… Date……

Appendix II: Questionnaire

Date.....

Study Site.....

Questionnaire number …….

Instructions to the research assistants

Do not write names on this Questionnaire. Tick only one correct response and multiple responses where applicable. The acronym RHS stands Reproductive Health Services.

Part I: Demographic Characteristics

1. What is your current age (in completed years)? _____
2. What is your marital status?

   Married []

   Single []

   Separated []

   Cohabiting []
3. Which religion do you profess?

   Christianity []

   Muslim []

   Others [] (specify)_____
4. What is your highest level of formal education?

   Primary []

   Secondary []

   College/University []
5. What is your occupation?

   Small scale business []

   Formal employment []

   Informal employment []

Unemployed []

6. Whom do you live with?

Father of your child/children []

Biological parent/s []

Guardian/s []

Parent/s in-law []

Alone []

Part II: Utilization of Reproductive Health Services

Utilization of Antenatal Services

7. Did you attend antenatal care clinic (ANC) during the last pregnancy?

Yes [] No []

8. If yes in the question above how many times did you attend the antenatal clinic during the last pregnancy?

Less than 4 visits []

Attended 4 visits and more []

Utilization of Hospital Delivery Services

9. In the last pregnancy where did you deliver your baby?

Hospital [] Home []

Utilization of Postnatal services

10. When you delivered your last baby, did you attend clinic for check-up within 2 weeks after delivery?

Yes [] No []

11. Is your last vaccination status up to date according to his/her age?

Yes [] No []

Utilization of contraceptive services

12. Have you ever used any contraceptive method?

Yes [] No []

13. Are you currently using any contraceptive method?

Yes [] No []

14. If you are currently using a contraceptive method in the question above kindly indicate which one.

IUD []

Injectable []

Implants []

Pill []

Emergency contraception []

Condom []

Female condom []

Standard days methods []

Lactation amenorrhea method []

Utilization of STI/HIV services

15. Have you ever been tested STI/HIV in the last one year?

Yes [] No []

16. If yes, which ones were you tested for? Tick as many as you were tested for.

Syphilis []

Chlamydia []

HIV []

Others [] (Specify)_____

Part III: Socio-cultural factors influencing utilization of Reproductive Health Services

17. Have you ever lost a baby during delivery?

Yes [] No []

18. Do you usually discuss matters concerning sexuality with your parents/guardian/s?

    Yes [] No []

19. Does your parents/guardian/s approve use of contraceptives for young people like you?

    Yes [] No []

20. Does your sexual partner approve the use of contraceptives for young people like you?

    Yes [] No []

21. Do you discuss with your partner issues concerning RH and RH Services?

    Yes [] No []

22. Do male partners usually accompany their female partners to antenatal clinic during pregnancy?

    Yes [] No []

23. If you answered "No" to the above question, what are the reasons for not accompanying them?

    No time from work []

    According to cultural practices, ANC is for women alone []

    Long waiting at the health facility []

24. Does your partner approve delivering your baby in health facility?

    Yes [] No []

25. Does your community support utilization of family planning methods by adolescent mothers?

    Yes []

    No []

Not sure []

Part IV: Health facility factors influencing utilization of reproductive health services

26. How far is the health facility that provides RH services from where you live?

    Very near []

    One kilometer away []

    More than 2 kilometers away []

27. Are you required to pay in order to access RH services?

    Yes []

    No []

    I do not know []

28. If you indicated yes you pay for RH services in the question above, are you comfortable with the cost?

    Yes [] No []

29. Do you find RH service providers within your area competent in their work?

    I find them competent []

    I find them incompetent []

30. Do you find RH service providers within your area friendly to the adolescents?

    I find them friendly []

    I find them unfriendly []

31. Do you find RH services within your area satisfactory?

    I find them satisfactory []

    I find them Unsatisfactory []

Appendix III: Key informants Interview Schedule

1. What are the common reproductive health services used by adolescent mothers?

   ……

2. What is your opinion on utilization of reproductive health services by adolescents……?
3. According to you, what is the perception of the society on utilization of RH services by adolescent's mothers …….……
4. Do you think adolescents should have access to information about sex?

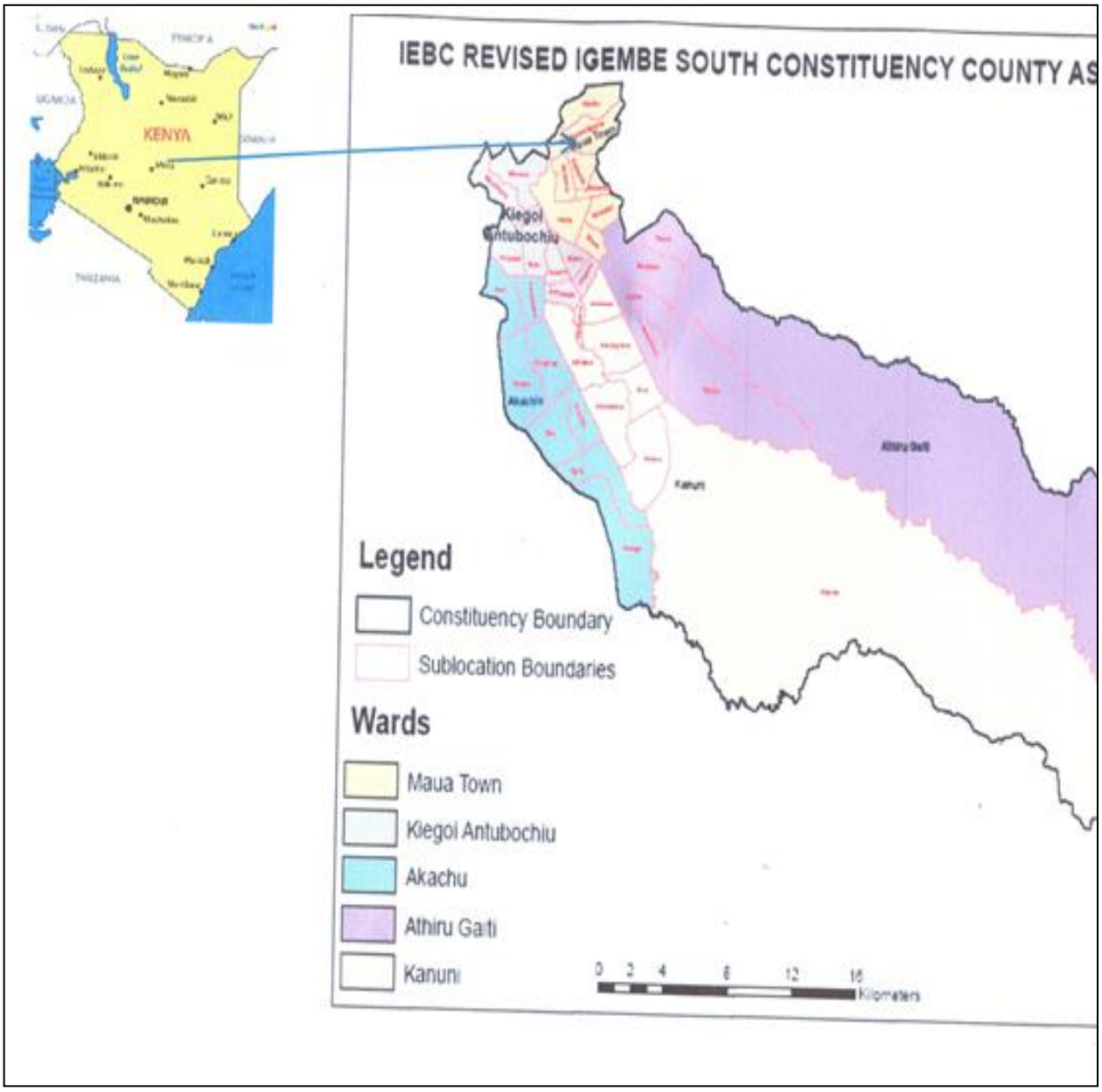
   ……

   Please give explanation for your answer…….....
5. Do you think the reproductive health service providers are competent in providing services……?
6. What challenges do you think adolescent's mothers encounter in utilizing RHS?

   Write as many as possible.……

APPENDIX IV: The Map of the Study Locale

This is the map of Igembe South District showing Maua Township.



APPENDIX V: Ethical clearance letter

KENYATTA UNIVERSITY
ETHICS REVIEW COMMITTEE

Email: chairman.kuerc@ku.ac.ke
secretary.kuerc@ku.ac.ke
crcku2008@gmail.com
Website: www.ku.ac.ke

P. O. Box 43844 - 00100 Nairobi
Tel: 8710901/12
Fax: 8711242/8711575

Our Ref: KU/R/COMM/51/791

Date: 30th August, 2016

Sabera M. Muriuki
Kenyatta University
P.O. Box 43844 – 00100
NAIROBI

Dear Sabera

APPLICATION NUMBER **PKU/538/I631** – "UTILIZATION OF REPRODUCTIVE HEALTH SERVICES BY ADOLESCENT MOTHERS IN MAUA TOWNSHIP, MERU COUNTY"

1. IDENTIFICATION OF PROTOCOL
The application before the committee is with a research topic, "Utilization of Reproductive Health Services by Adolescent Mothers in Maua Township, Meru County" received on 21st June, 2016.

2. APPLICANT
Sabera M. Muriuki

3. SITE
Maua Township

4. DECISION
The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines AND APPROVED that the research may proceed for a period of ONE year from 30th August, 2016.

5. ADVICE/CONDITIONS
i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
ii. Serious and unexpected adverse events related to the conduct of the study are reported to this board immediately they occur.
iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
iv. Submit an electronic copy of the protocol to KUERC.

When replying, kindly quote the application number above.
If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.

5 OCT 2016

DR. TITUS KAHIGA
CHAIRMAN ETHICS REVIEW COMMITTEE

I SABERA M. MURIUKI accept the advice given and will fulfill the conditions therein.

Signature..... Dated this day of 05/10/2016 2016.

cc. Vice-Chancellor
DVC-Research Innovation and Outreach

APPENDIX VI: Authority letter (NACOSTI)

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email:dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

NACOSTI/P/17/82606/14947

Date:

9th March, 2017

Sabera Makena Muriuki
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Utilization of reproductive health services by adolescent Mothers in Maua Township Meru County,"*** I am pleased to inform you that you have been authorized to undertake research in **Meru County** for the period ending **9th March, 2018.**

You are advised to report to **the County Commissioner, the County Director of Education and the County Director of Health Services, Meru County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. STEPHEN K. KIBIRU, PhD.
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Meru County.

The County Director of Education
Meru County.

APPENDIX VII: Authorization letter (Meru County)

THE PRESIDENCY
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telegrams:
Telephone:
Email: ccmeru@yahoo.com
Fax:

When replying please quote
Ref: ED.12/3 VOL.II/57

COUNTY COMMISSIONER
MERU COUNTY
P.O. BOX 703-60200
MERU.

13th June 2017

And Date

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION – Sabera Makena Muriuki

This is to inform you that **Sabera Makena Muriuki** of Kenyatta University has reported to this office as directed by the Commission for Science, Technology and Innovation and will be carrying out Research on "**Utilization of reproductive health services by adolescent Mothers in Maua Township, Meru County, Kenya".**

Since authority has been granted by the said Commission, and the above named student has reported to this office, she can embark on her research project for a period ending 9th March, 2018.

Kindly accord her any necessary assistance she may require.

COUNTY COMMISSIONER
MERU COUNTY
P. O. Box 703 -60200, MERU

MAINA GEORGE
For: County Commissioner
MERU

APPENDIX VIII: Ministry of Education approval

REPUBLIC OF KENYA
MINISTRY OF EDUCATION
State Department For Basic Education

Telegrams: " ELIMU " Meru
EMAIL: cdemerucounty@gmail.com
When Replying please quote

COUNTY DIRECTOR OF EDUCATION OFFICE
MERU COUNTY
P.O. BOX 61
MERU

Ref: MRU/C/EDU/11/1/

13th June, 2017

TO WHOM IT MAY CONCERN

RE: RESERCH AUTHORIZATON - SABERA MAKENA MURIUKI

Reference is made to letter Ref:NACOSTI/P/17/82606/14947 dated 9th March, 2017.

Authority is hereby granted to **Sabera Makena Muriuki** to carry out research on "***Utilization of reproductive health services by adolescent mothers in Maua Township, Meru County***" for a period ending 9th March, 2018.

The authorities concerned are also requested to accord her the necessary assistance.

For: COUNTY DIRECTOR OF EDUCATION
MERU COUNTY
P.O. Box 61 - 60200
Tel 064 - 30372 MERU

SARAFINO SAMUEL
For: COUNTY DIRECTOR OF EDUCATION
MERU

/fm