A STATISTICAL APPLICATION OF REGRESSION ANALYSIS TO INVESTIGATE AND DETERMINE THE FACTORS THAT INFLUENCE THE UPTAKE OF FAMILY PLANNING IN SOUTH IMENTI SUB COUNTY - MERU COUNTY

By:

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I56/CTY/PT/23373/2012

A research project presented in partial fulfillment for the award for the Master of Science Social Statistics degree at Kenyatta University's School of Pure and Applied Science.

JULY 2023

DECLARATION

This project is my original effort and has never been submitted for any award in institutions of higher learning.

Signature_____ Date_____

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The project is submitted with my approval as university supervisor.

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DEDICATION

I dedicate this work to my wife Judy, my daughter Emily and my sons Jeremy and Adiel. My dedication also goes to all mothers of South Imenti Constituency. Thank you all for the support and encouragement towards making this project a success.

ACKNOWLEDGEMENT

I thank God, the Almighty, for giving me the physical and mental fortitude required to complete this task. I appreciate everyone who helped make this project a success, both individually and collectively. I also want to express my deepest appreciation to Dr. Kahiri, my dear supervisor at the Department of Statistics and Actuarial Sciences.

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ABBREVIATIONS AND ACRONYMS

GLM	General linear model
UNDP	United Nation Development Program
KDHS	Kenya Demographic and Health Survey
WHO	World Health Organization
MLE	Maximum likelihood Estimator
UNFPA	United Nations Fund for Population Activities.
IRLS	Iterative weighted least square
SES	Socio-economic Status
MDG	Millennium Development Goals
UDHS	Uganda Demographic Health Survey
TDHS	Tanzania Demographic Health Survey
SSA	Sub-Sahara Africa
IGCE	Inter agency Group for Child Mortality Estimation
WRAG	Women Reproductive Age Group
FP	Family Planning
GHS	Green House Gases
MCH	Maternal and Child Health
PHC	Primary Health Care
NGO	Non-Governmental Organization
NCPD	National Council of Population

OPERATIONAL DEFINITION OF TERMS

Fertility: Totality of the live birth to a woman.

Family planning: Methods used to control number of births to a woman.

Induced Abortion: Terminating pregnancy by induction method

Population: It refers to the totality of items/people.

Demography: Study of human population.

Contraception: Application of methods to delay women to conceive.

Sample: Is part of the population chosen for the survey

ABSTRACT

Family planning is one of the mitigation factors adopted by the Kenyan Government in achieving its strategic development goals through reducing child mortality and maternal mortality, thwarting unwanted pregnancies, prevention of STDs, promoting education and the economic empowerment of women. Despite many advantages of family planning, its utilization and adoption in Kenya is still low. Unwanted pregnancies, premature deliveries, illegal abortions and maternal mortality have all resulted from a low uptake of family planning. The low application of family planning methods has been associated with low awareness of existence of family planning methods, lack of information about various forms of family planning methods, negative attitude toward some family planning methods due to lack of counselling/sensitization to mothers on their side effects, difficulty in assessing the family planning services by some rural women, religious beliefs and fear of not being able to bear children again. South Imenti is a Sub County in Meru County associated with low uptake of family planning services despite being offered free of charge in all government clinics. Statistics from the recent census done in the year 2019 indicate that there are more young girls aged between 15-24 years with children, which indicates that teenage pregnancies are rampant. This implies that the uptake of family planning resources is still very low despite numerous sensitization programs. The goal of this study was to apply binary logistic regression method to examine factors that impact on the usage of family planning methods in South Imenti sub-county. The target population was 9,900 women between the ages of 15 and 49. A total of 385 mothers were chosen using stratified simple random sampling for this survey. The study used descriptive and binary logistic regression methods of analysis. The explanatory variables included education level, age, marital status number of children born, Religion, Occupation, household income and frequency of listening to media. In conclusion, the application of binary logistic regression model on the data collected showed that age, education level, marital status, number of children and frequency of mothers in following media were potential explanatory variables that have a significant effect on the utilization of family planning practices.

CHAPTER ONE

INTRODUCTION

1.0 Background

According to the United Nations, an estimation of the world population by November 2020 was 7.8 billion. This has become a global concern since many countries are experiencing challenges in sustaining their population growth. Kenya is one of the developing nations where population has doubled in the last 25 years (United Nations, 2009) Furthermore, the country has a youth age structure in which 45% of the population is underage of 18 years and with high fertility and low use of contraceptive suggesting that the country's population is projected on a continuous growth. According to the South Imenti development Plan report of 2022-2027 the total population of the sub county is 210,900 people. The report further indicates that South Imenti is one of the highly populated Constituencies in the Country and the population is on a continuous growth.

A study done by Kenya Demographic and Health Survey (KDHS2019) shows that knowledge, levels of education, parity (total number of children existing), socio-economic status of the childbearing mothers and site of residence are the primary drivers of family planning uptake in Imenti South - sub county, The study was descriptive in nature and hence used the usual statistical descriptive tools for descriptive studies.

Further, to develop an effective fertility measure control, there is need to understand other factors which are related to high fertility rate in South Imenti and provide education services to address these factors. This study therefore proposes to apply regression analysis to investigate and determine other factors apart from those studied by KDHS2019, that influence the uptake of family planning methods in South Imenti Sub County with a view of giving out the

recommendations of the study findings to relevant authorities in South Imenti to educate mothers on the usage of family planning methods.

1.1 Problem Statement

After independence Kenya was swift in adopting family planning policies and strategies in view of managing its population growth to promote the country's social economic development.

One of the government's policies towards achieving vision 2030 includes National Population Policy for Sustainable Development. This policy aims at enhancing quality life for Kenyans by controlling population growth to maximally benefit from the resources available.

However, Kenya's population growth rate is still very high at 1.98% according to Kenya National Bureau of statistics (KNBS, 2022). A population increase will result in the society suffering problems related to social, health, economic and financials.

South Imenti Sub- County not being exceptional, has a high fertility growth rate and equally suffers the effect of high population growth rate. This implies that family planning methods uptake is not being practiced in South Imenti. The problem is to identify the factors which influence the non-uptake of family planning in South Imenti sub county by applying regression analysis.

1.2 Justification

On 26th September 2018, Meru Health sector together with National Council for population (NCPD) launched two investments strategic plans which comprised an implementation plan for family planning, HIV and TB. One of the main objectives of the investment plan was to

sensitize the public on the importance of family planning in Meru County. Quality of living standards of people partly depends on the population size.

The available resources from the government would be maximally utilized with less population size as compared to large population size. Meru County has largely invested on family planning control measures despite continuous population growth. For the County to have sustainable and economically stable populations, women need to be educated on how to use family planning methods to be able to have a plan for the number of children they will have. This will reduce the upward trend of population growth in South Imenti.

This study therefore proposes to apply regression analysis to investigate and determine factors that influence the uptake of family planning methods in South Imenti Sub County with a view of giving out the recommendations of the study findings to relevant authorities.

1.3 Objective of the study

1.3.1 Main Objective

The aim is to statistically investigate and determine factors influencing use of family planning methods by women in south Imenti sub-county aged between 15-49 years.

1.4.2 Specific Objectives

i. To apply regression analysis to investigate the social-cultural factors that influence women aged between 15-49 years in South Imenti Sub County's use of family planning methods.

ii. To apply regression analysis to determine the demographic factors that influence women aged between 15-49 years in South Imenti Sub County's usage of family planning methods.

iii. To apply regression analysis to establish the economic factors that influence women aged between 15-49 years in South Imenti Sub County's use of family planning methods.

iv. To determine the usage level of family planning methods by women aged between 15-49 years in South Imenti Sub County's use family planning methods.

1.4 Research Questions.

i. What social-cultural factors influence girls or women between the age of 15 to 49 decision to use family planning methods.

ii. What are the demographic parameters that influence women and girls (15-49 years) on family planning usage.

iii. What economic factors influence uptake of family planning among females aged 15 to 49 years.

iv. What determines the extent to which young women (15-49 years) within South Imenti Sub County use family planning methods.

1.5 Null hypothesis

i. **Ho:** In South Imenti Sub County, religion does not influence use of family planning methods among women aged between (15-49 years).

ii. **Ho**: In South Imenti Sub County, education does not influence use of family planning methods among women aged between (15-49 years).

iii. **Ho**: In South Imenti Sub County, frequency of listening to media does not influence use of family planning methods among women aged between (15-49 years).

iv. **Ho:** In South Imenti Sub County, marital status does not influence use of family planning methods among women aged between (15-49 years).

v. **Ho**: In South Imenti Sub County, household income does not influence use of family planning methods among women aged between (1 5-49 years).

vi. **Ho**: In South Imenti Sub County, age does not influence use of family planning methods among women aged between (15-49 years).

vii. **Ho**: In South Imenti Sub County, number of children a mother has does not influence use of family planning methods among women aged between (15-49 years).

1.6 Significance of the study

Through application of regression analysis, the study will determine factors that influence uptake of family planning among women of age between (15-49 years) in South Imenti. Based on the findings, the results will assist South Imenti in formulating policies that will encourage utilization of family planning methods hence curbing high growth rate of population growth. The study findings will also inform the relevant groups to educate or sensitize on usage of family planning methods through chief barazas, churches and marketplaces.

1.7 Scope and target population

This research was conducted in South Imenti Sub- County. The study targeted women of childbearing age between 15-49 years. The sampling frame comprised 9,900 women of childbearing age between (15-49 years) was identified from a population of 81,600 women in South Imenti. The distribution of childbearing women aged between (15-49 years) by location is as follows: Abogeta-1,240 persons, Igoji-1,400 persons, Igoki-1,340 persons, Kanyankine-1,240, Mikumbane-860, Mitiine-1,450, Mitunguu-1,200, Nkuene-1,170. This data was extracted from South Imenti development Plan 2017-2022 report.

1.8 Conceptual framework

The factors that were examined in the study of contraceptives services utilization are listed in this section.

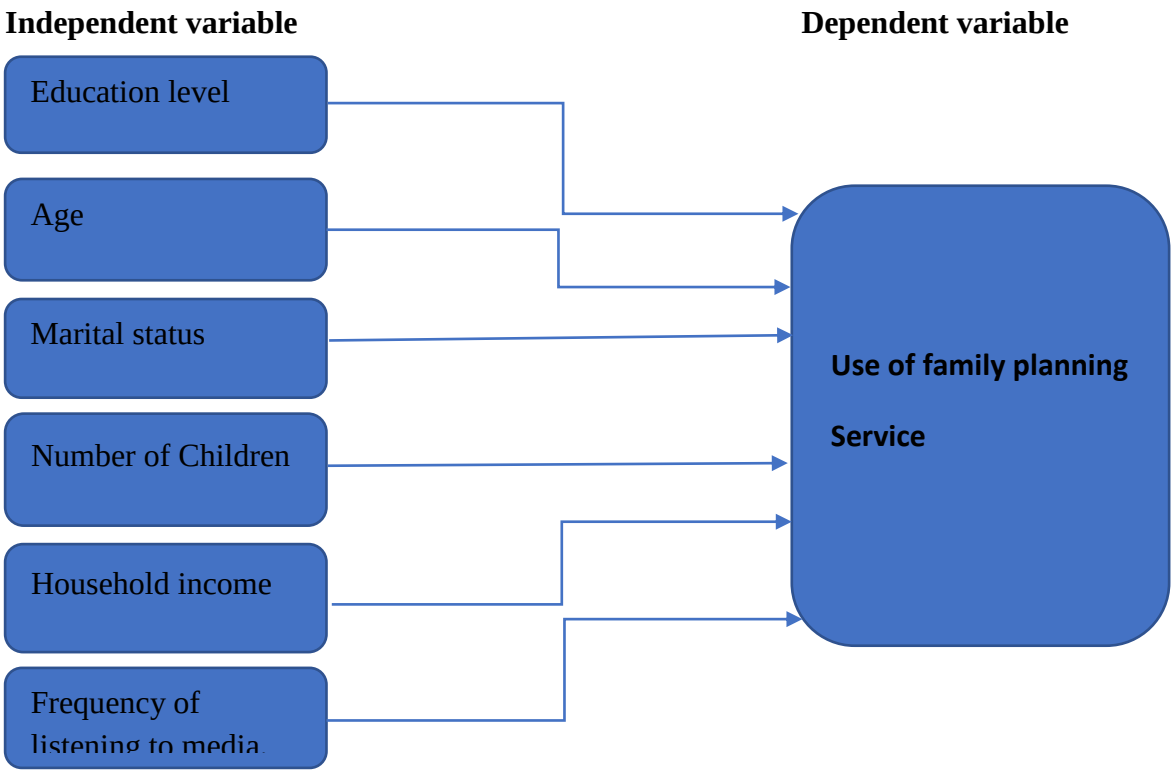


Figure 1. 1: Conceptual Framework

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Chapter two examined contraceptives utilization patterns and trends in different nations, with an emphasis on contraceptive prevalence, techniques used, method dynamics, and family planning aspirations. The examination is from global, regional national and locally (South Imenti Sub County) perspectives.

2.2 Global Contraceptive use.

According to United Nation's world family planning (2022) report, the number of childbearing women aged between 15-49 years rose from 1.3 billion in 1990 to 1.9 billion in 1921 which is 46% increase. The report also indicates that due to this increase in number of childbearing women, there was a much larger increase in number of women in demand of contraceptive use for family planning purposes. The demand for contraceptive use rose from 0.7 billion in 1990 to 1.1 billion in 1921 which is 62% increase. This demand is continuously being catered for by the modern contraceptive methods. The report also indicates that due to increase in contraceptive usage, total fertility declined globally from 3.3 to 2.3 births per woman.

2.3 Modern Contraceptive use.

According to World Health Organization, the number of women of childbearing age 15-49 years who need family planning methods has increased from 73.6 percent in 2000 to 76.8

percent in 2021. These modern family planning methods includes contraceptive pills, injectables, vaginal rings, implants, Intra uterine devices, patches, male and female sterilization, withdrawal, and fertility awareness-based methods among others.

2.4 Contraceptive Prevalence Rate (CPR) among women in Kenya

In line with our objectives to investigate demographic and social-cultural factors, amongst females of childbearing age ranging between (15-49 years) in South Imenti Sub County, a study by Pan African Medical Journal 2015, indicated that married couples utilized family planning methods to avoid unwanted pregnancies and reduce mother-child mortality rate. According to the study, the main motivations of family planning use were (a) to space children 94% percent (47/50) and (b) to avoid sexually transmitted infections and pregnancy 84 % (42/50). Findings showed that those who used family planning methods were largely in-union and aged between 15 - 49. CPR has steadily improved in East Africa during the last three decades. According to UN, Kenya and Rwanda are the most known countries with high prevalence rate of accessing and using contraceptives. Ethiopia and Rwanda made the most rapid gains in CPR between 2000 and 2010, increasing by more than thrice, from 8% and 17% to 29% and 53%, respectively. In addition, contraceptive usage declined in Tanzania and Uganda in the mid-2000s and equally in Rwanda following the catastrophic 1994 genocide. Kenya was in 1967, the first SSA nation to foster a strategy on family planning program.

National Council for Population and Development (NCPD) was formed by the Kenyan government in 1980s to deal with population growth. NCPD expressly formed the National Population Advocacy in 1996 to promote contraception usage among underprivileged populations.

In the years 1980s and 1990s, contraceptive suppliers to government health centers, private medical centers and NGOs increased, as well as the number of health professionals providing community-based FP services. As a result of these efforts, contraceptive use increased from approximately 17 percent in 1984 to 39 percent in 1998. During the 2000s, Kenyan fecundity declined as the country's goals shifted further from FP progress and focused more on prevention of HIV/AIDS. Resurgence of FP plans in the 2010s, combined with new development and population policy implementation in 2012, revived attention to FP as a strategy for attaining long-term population growth.

2.5 Unwanted pregnancy risk and contraceptive utilization

Unwanted pregnancy occurs when a woman becomes pregnant while it was not her intention. The primary cause of unintended pregnancy is the failure to use contraception. Similarly, the techniques of utilizing contraceptive either poorly or inconsistently can lead to an unplanned pregnancy.

The number of women claiming undesired pregnancies has increased in Uganda and Tanzania, decreased in Ethiopia and Kenya, and remained virtually stable in Rwanda during the early 2000s. At the moment, Kenya, Rwanda, and Uganda have the greatest rates of unintended pregnancy amongst women within the reproductive age, while Ethiopia and Tanzania have the lowest rates.

In the sub-region, the connection between contraceptive use and unwanted pregnancy is complicated. Unwanted pregnancies are on the rise across Uganda and Tanzania, despite rising contraception use. In Kenya, on the other hand, a reduced rate of unintended pregnancies is followed with an increase in contraceptive use.

In 2009/2010, a study was done within Nairobi, Kenya, in two informal settlements and two separate settlements. To evaluate the influence of unexpected pregnancy on the contraceptives use, a sample of 1,259 women aged between 15 to 49 was taken and a logistic regression model was utilized. The study showed that 24% of the women had unintended pregnancy. Employment, type of settlement and marital status were significantly associated with unintended pregnancy.

2.6 Unsafe abortion and contraceptive practice

In SSA, every year over 13,000 women in East Africa die as a result of complications associated with improper abortions. Even though the availability of data is not standard across countries, research suggests that the rate of forced abortion in East Africa is higher than in SSA.

In 2012 a study was done in Kenya where five-focus group discussions were done with 72 ladies participating from the slums in Nairobi. The discussion focused on participants' perspectives on unintended pregnancies, abortion, and community access to sexual health information. The conclusion was that women living in informal settlements in Nairobi encounter a lot of barriers towards regulating their fertility. The outcome also indicated that women lack access to safe abortion.

2.7 Contraceptive method choice based on economic factors

Another goal of this study was to employ regression analysis to investigate economic factors that influence women (15-49 years) in South Imenti Sub County's use of family planning method.

According to a 2015 survey published in the Pan African medical journal, income level of

different families influence the method of family planning chosen. Respondents' parity and educational qualification were favorably associated with their use of family planning

($P<0.05$). Further, a research study was done by Kamadjeu R. (2015) on contraceptive technique

selection, where a sample of 1,873 childbearing women aged between 15 to 49 years from informal and formal settlements were taken. The study focused on the connection between contraceptive method choice, outcome variable, and explanatory variables using multivariate and bivariate logistic regression models. The findings revealed that contraceptive method option was quite common in both formal and informal settlements. Short-term strategies were used by 35% of women living in informal networks and 28% of women living in the formal networks. Long-term approaches were used by slightly more women in formal settlements (9.2% vs. 3.6%) in non-formal groups.

2.8 Knowledge of fertile period

Knowledge of fertility among women is essential in assisting them plan for pregnancies and avoid unintended pregnancies. The 2014 KDHS indicated that only 26% of women know their fertile window. A study done on knowledge of menstruation and fertility among adults in rural Western Kenya shows that women and men in rural Kenya have minimal knowledge of the relationship between a women menstruation cycle, timings and pregnancy.

2.9 Knowledge of vasectomy

Information on vasectomy (male sterilization) and attitudes regarding it have an impact on its uptake. Male sterilization has a lot of bad connotations and there is a lot of resistance to it around the world. In SSA only 0.1 percent of couples rely on vasectomy as a method of FP. In East Africa, men have more knowledge about vasectomy as an FP technique than women.

Nonetheless, in 2010/11, just 19% of Ethiopian males were aware of vasectomy as an FP option.

2.10 Key determinants of family planning uptake in South Imenti Sub-County

A study done by Kenya Demographic and Health Survey (KDHS2019) shows that knowledge, levels of education, parity (total number of children existing), socio-economic status of the childbearing mothers and site of residence are the primary drivers of family planning uptake in Imenti South Sub County. The KDHS study did not investigate other factors that determine uptake of family planning such as Marital status, media exposure, education of husband, type of employment and work environment. This study seeks to investigate these factors and determine to what extent they influence the uptake of family planning in south Imenti among women of age between 15-49 years. The findings of the KDHS 2019 are as here below.

Knowledge: "Knowledge of contraception is widespread in Imenti Sub County," according to the KDHS 2019 family planning chapter, with over 96 percent of presently married men and women knowing at least one method of birth control. Over 80% of women were aware of female sterilization, IUCD, injectables, and the pill; approximately two-thirds were aware of withdrawal and LAM; nearly half were aware of male sterilization and rhythm technique; a third were aware of implants, and only a quarter of women were aware of emergency contraception. Unfortunately, just 26% of people employ current family planning methods.

Education: "Preventative use has a good link with schooling across the board, and take-up increases with level of training, notably for young ladies/ladies training," says one researcher. According to the KDHS 2019, CPR in Imenti South rose from about 30 percentage among

women without an education to 41% among women with a basic or intermediate education, and 44% amongst females with a high school education or higher.

Place of residence: Married women living in urban areas mostly utilize contraception (45%) as opposed to those living in rural regions. Aside from this, in rural regions, 31% married women use contraception. In metropolitan regions, 15% of women use condoms, whereas in rural areas, just 6% of women use condoms.

Socio-economic status wealth: The wealth of a household grows, and so does family planning usage to only 21% of women in lower income quantiles.

Parity: According to KDHS 2019 statistics, a positive association exists in relation to factor of contraceptive usage and number of children. A high percentage of women with no kids used contraceptives, relative to 29% of women with one or two children who use contraceptives.

2.11 Conclusion

From the literature review gathered, it is evident that majority of women aged between 15-49 years are aware of the existence of various family planning methods. It is also clear that global utilization of family planning methods is continuously growing and modern family planning methods are increasingly being preferred. It has also been shown that global fertility is declining. However, in South Imenti Sub County, the fertility of women is increasing and the population is rising despite the government's effort in educating and sensitizing people on utilization of family planning. This implies that family planning methods uptake is not being practiced adequately in South Imenti. This study therefore proposes to apply regression analysis to investigate and determine factors that influence uptake of family planning among women of age 15-49 years in South Imenti Sub County.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the study area, design of the research, targeted population, research method, sampling and sample size selection processes, data gathering method, and analysis techniques.

3.2 Study area

The study was conducted in Imenti Sub- County, Meru County. It has a population of approximately 210,900 people. The sub-county is situated at 0.047035 degrees N and approximately 37.649803 degrees east on the NE slopes of Mount Kenya.

3.3 Research design

Quantitative and Qualitative research designs were used. Respondents comprised of females who responded to the questionnaires with the focus or intention to use or not use family planning methods.

3.4 Target population

The study targeted 9,900 women between the ages of 15 and 49 who are of childbearing age. A sample of 385 females were chosen at random from the target population.

MAP OF SOUTH IMENTI SUBCOUNTY IN MERU COUNTY.

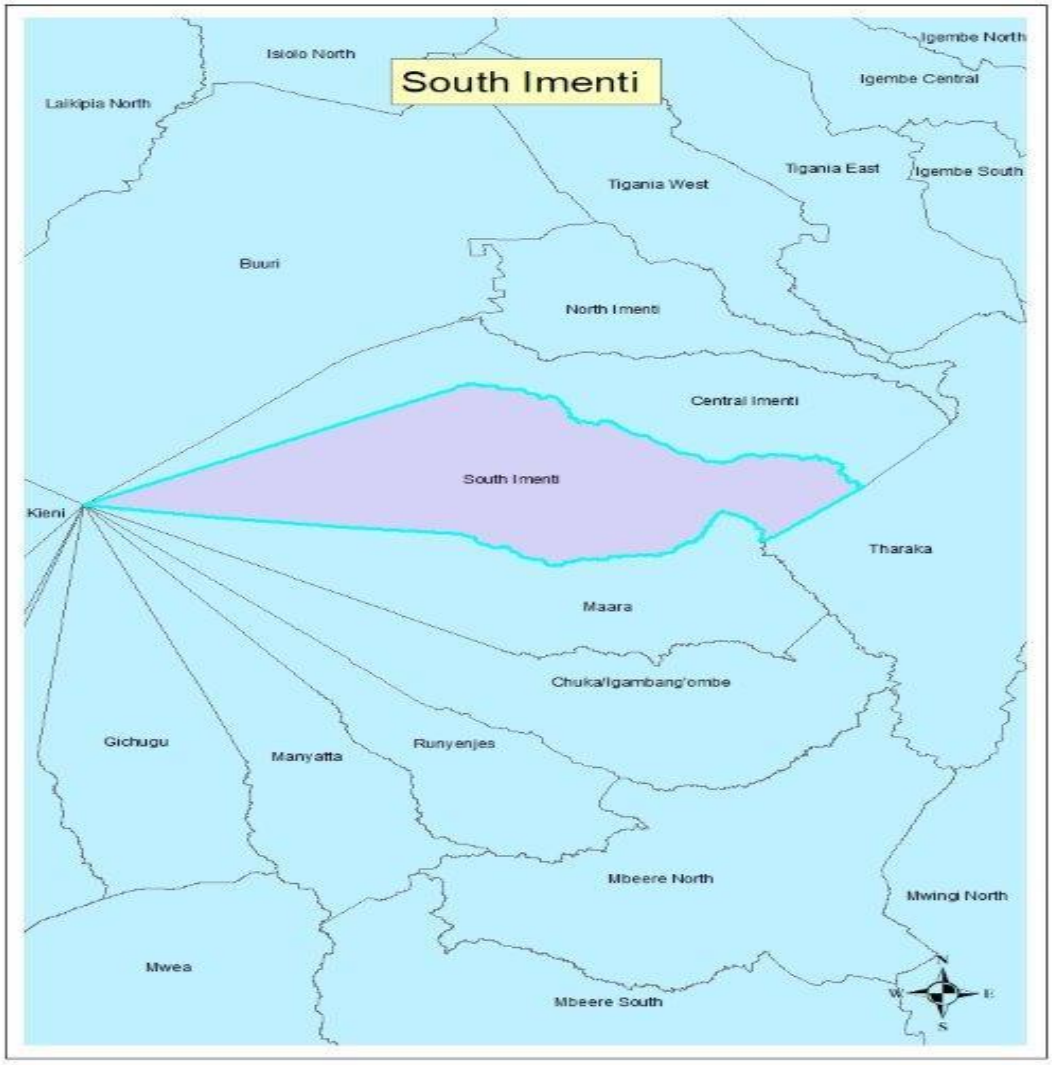


Figure 1. 2: Map of study area

3.5 Sample procedure, Study population and Sample size

3.5.1 Sampling and Sample size determination

To determine the sample size, Yamane (1967) Simple random sampling formula was applied.

The formula is as shown below:

$$n = \frac{N}{\{1+N(e)^2\}}, \textit{ where}$$

N=Population size

n= Sample size

e= level of precision

With the study population consisting of 9,900 women and assuming 95% level of confidence, the required sample size will be:

n=9900/ {1+9900*(0.05*0.05)} =385

The population was stratified by locations and the sub samples from the locations with the location population size are as presented below

Sample Size per location table.

Location	**Population**	**Sample allocation**
Abogeta	1240	48
Igoji	1400	55
Igoki	1340	52
Kanyokine	1240	48
Mikumbune	860	33
Mitiine	1450	56
Mitungu	1200	47
Nkuene	1170	46
Totals	**9900**	**385**

Research instrument

Simple structured questionnaires were used in gathering the data.

It was vital to analyze data collected using appropriate statistical methods after obtaining the data. The analysis entailed data coding and data adjustment for effective analysis by the SPSS software. Assessing the relationship between variables and drawing inferences was done. Binary logistic regression model applied. The data was summarized using tables, graphs, and charts.

3.6 Descriptive statistic

In descriptive analysis frequency distribution tables and cross tabulation tables were used. Under frequency distribution table, the data indicated the frequency or the percentage of respondents using family planning and the percentage not using family planning. The same data was presented using a pie chart. Under cross tabulation tables, data on the first column of each table indicated the various categories of independent variables, and the first row indicated the dependent variables responses (“using” or “not using” family planning method).

3.7 Inferential Statistics

The study applied linear and nonlinear models, probity and logistic regression models to establish the explanatory variables that explain family planning uptake. Specifically, the study applied binary logistic Regression because the dependent variable is measured on a dichotomous scale i.e., “using” or “not using” and the independent variable is categorical in nature as well as continuous. The study also applied Omnibus test of model coefficients to test significance levels of model coefficients. Additionally, the Homers and Lemeshow test was applied, to test the goodness of fit for the fitted logistic regression model. The Binary logistic

regression table was used to present the analyzed data using SPSS. The data is presented in columns where beta(B) indicates model coefficients, while Exp(B) represents the Odds Ratio.

3.7.1 Chi Square Tests

The Chi-square test was used to evaluate if there was any significant relationship between,

i. Religion and use of family planning methods among women aged between (15-49 years).
ii. Education and use of family planning methods among women aged between (15-49 years).
iii. Frequency of listening to media and use of family planning methods among women aged between (15-49 years).
iv. Marital status and use of family planning methods among women aged between (15-49 years).
v. Household income and use of family planning methods among women aged between (1 5-49 years).
vi. Age and use of family planning methods among women aged between (15-49 years).
vii. Number of Children a mother has and use of family planning methods among women aged between (15-49 years)

The testing was done on the null hypothesis Ho: There is no significant relationship between dependent and independent variable at 95% confidence level. If $P<0$ we reject null hypothesis and conclude that there is a significant relationship between dependent and independent variable

The chi square test formular used was:

$$\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{(O_{ij} - E_{ij})^2}{E_{ij}},$$

Where;

X^2 is Chi square test statistic.

r is number of categories of the independent variable.

c is number of categories of the dependent variable?

O is the Observed frequency.

E is the expected frequency.

3.7.2 Odds ratio

The Odds Ratio is a measure indicating the odds that an outcome will occur given a particular exposure, as compared to the odds of the outcome occurring without that exposure. If OR=1 this means the probability of falling in the target group is equal to probability of not falling in the target group. If OR>1this means the probability of falling in target group is greater than the probability of not falling. If OR<1, it means that the probability of falling in target group is less than the probability of not falling. Odds of an event happening is given by:

$$Odds = \frac{P(A)}{P(A')} = \frac{P(A)}{1 - P(A')}$$

Odds of an event is equal to probability of the event occurring, divided by the probability of the event not occurring.

The logistic transformation given by

$$Ln(Odds) = Ln\left(\frac{P(A)}{1 - P(A)}\right) = Ln\left(\frac{p}{1 - p}\right) = Logit\ p$$

links the observations on the binary variable to the linear function of the independent variables. Thus

$$Logit\ p = B_0 + B_1 x_1 + B_2 x_2 + ... + B_k x_k + u\ )$$

Log(odds)=Logit (P) = ln ($\frac{P}{1-P}$) then a regression equation was added to the independent variables to get the following logistic regression equation.

Logit(P) = b_0+b_1x_1+b_2x_2…….

3.8 Model fit

3.8.1 Likelihood ratio test

Likelihood ratio test is a statistical test in regression analysis for comparing goodness of fit of two models. It involves the chi-square difference between the null model (i.e., model with only the constant) and the model containing predictor variables.

$$G = -2ln\frac{l_0}{l_1} = -2(\ln l_0 - lnl_1)$$

Chi square test was used to test the null hypothesis Ho: There is no significant difference between the null model (constant) and the model containing predictor variables.

If P value <0.05, we reject null hypothesis and conclude that we have enough evidence that the model containing predictor variables is better than the null model. This implies that the model containing predictor variables, fits the data significantly better than the null model. The less the P- Value, the higher the evidence that the null hypothesis is not true.

3.8.2 Wald test

Wald test is used to determine whether a predictor variable is statistically significant or not. It is calculated by dividing the maximum likelihood estimate (MLE) of the slope parameter (B1) by the estimate. If the test indicates that the P-Value is greater than 0.05, we fail to reject the null hypothesis, and conclude that the coefficient of the variable under consideration is zero hence omitted from the model. It assumes the following Chi-square distribution $W_j = \frac{{\beta_j}^2}{{SE_{\beta j}}^2}$

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

Data was collected from a sample of 385 mothers aged between 15-49 years in South Imenti Sub County. The data collection period was 12th – 30th June 2022. The uptake of family planning by mothers (using or not using) was the dependent variable in the study. The aim of this chapter is to discuss study results or findings. The objective was to apply binary regression analysis to investigate and identify factors that influence family planning uptake in South Imenti Sub County. The dependent variable in the study is a binary, having two possible expected outcomes coded as "0" for mothers not using family planning method and "1" for mothers using family planning method. The results of Descriptive and Inferential Statistics are summarized and described in this chapter. The data was analyzed using SPSS package.

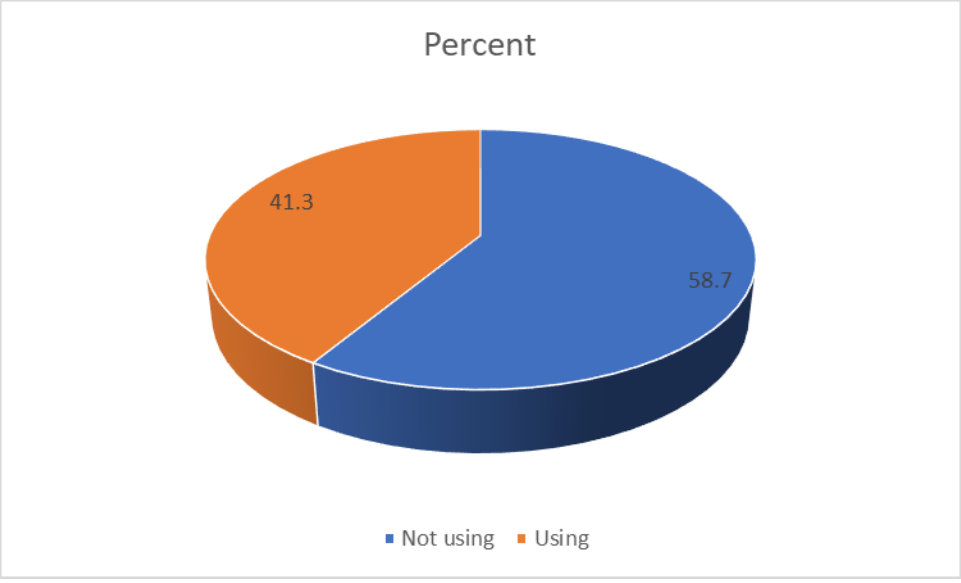
4.1. Descriptive Statistics Results

Table 4. 0: Family Planning usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not using	226	58.7	58.7	58.7
	Using	159	41.3	41.3	100.0
	Total	385	100.0	100.0	

From the targeted population, 100% of women responded. The above table shows most of the respondents 226(58.7%) don't use any family planning method while 159(41.3%) use a family planning method.

Figure 4.1 shows the same data represented in form of a Pie Chart.



4.2 Cross tabulation of explanatory variables and uptake of family planning

This section shows the analysis of each explanatory variable in terms of the female percentage using and not using family planning. The section also shows analysis of the chi square statistic test of relationship between each explanatory variable and family planning use. The section presents a descriptive analysis of the data on the variables with respect to female percentages using and not using family planning. Also included in the section are the statistical chi square test results on the relationship between each explanatory variable and family planning usage

The null hypothesis statement is, "There is no relationship between the variables (age, education level, marital status, number of children and frequency of mothers in following media and wealth index) and the explanatory variable (use of family planning)" at 95% confidence level. If the chi square test shows that the P value is less than 0.05, we reject the null hypothesis and conclude that there is a relationship between the variable under consideration and the dependent variable.

Table 4.2 Age and uptake of Family Planning

Count		Family Planning		
		Not using	Using	Total
AGE	15-24	54	27	81
	25-34	64	21	85
	35-44	63	65	128
	+45	45	46	91
Total		226	159	385

Table 4.2 above indicates cross tabulation summary statistics of age and uptake of family planning. The result shows that the majority users of family planning 65(40.8%) are in the age

group 35-44. This is attributed to the fact that this age group is considered sexually active. Those with age above 45 years are least in using Family planning method 45 (19.9%). The high number of women above the age of 45years not using family planning methods can be attributed to old age. The findings reveal that at the age bracket of 15-34 years, women not using family planning methods are 118 (52.2%).Women above 35 years not using family planning methods are 108 (47.8%) This calls for more sensitization of mothers especially those that are sexually active (15- 40 years).

Table 4.3 chi-square Test. Age and uptake of Family Planning

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.733[a]	3	.000
N of Valid Cases	385		

The above table (4.3) shows results from the Pearson Chi-Square test of the relationship between family planning usage and age. Results indicate existence of a significant relationship between family planning use and age at 95% confidence level. The P-value determined is 0.000 which is less than 0.05 at 3 degrees of freedom.

Table 4.4 Education level of mother and family planning uptake

Count		Family Planning		
		Not using	Using	Total
Mother Education	illiterates	58	72	130
	Primary	56	14	70
	Secondary	81	50	131

	Higher	31	23	54
Total		226	159	385

The table above shows mother's educational level. It indicates that 72/159 (45.3%) illiterate mothers are using family planning, 14/159 (8.8%) Mothers with primary level of education are using family planning, 50/159(31.5%) Mothers with secondary education level are using family planning and 23/159 (14.5%) higher education level mothers are using family planning. Further, the table shows that most mothers not using family planning have secondary education level at 81/226(35.8%). Illiterate women are majority users of family planning at 72/159(45.3%).

Table 4.5 Chi square test. Education level of mother and family planning uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.305[a]	3	.000
N of Valid Cases	385		

The above table (4.5) shows the results from the Pearson Chi-Square test of relationship between family planning usage and education level. Results indicate a significant relationship between family planning use and education at 95% confidence level. P-value determined is 0.000 which is below 0.05 at 3 degrees of freedom.

Table 4.6 Marital status and uptake of Family Planning

Count		Family Planning		
		Not using	Using	Total

Marital status	Single	50	34	84
	Married	50	52	102
	Widowed	70	27	97
	Divorced	56	46	102
Total		226	159	385

The table above shows Marital status influence on uptake of family planning methods. Based on the table, out of 159 female respondents using family planning, the majority are married at 52/159(32.7%) Out of 226 women respondents not using family planning methods, the majority are widowed at 70/226(31%) Out of 97 widowed women, 70(72.1%) are not using family planning. Only 27(27.9) are using.

Table 4.7 Chi-square test. Marital status and uptake of Family Planning

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.828[a]	3	.008
N of Valid Cases	385		

The above table shows Pearson Chi-Square test results of the relationship between family planning usage and marital status. Results indicate the existence of a significant relationship between family planning use and marital status at 95% confidence level with the P-value determined at 0.008 which is less than 0.05 at 3 degrees of freedom.

Table 4.8 Husband level of education and Family Planning uptake

Count		Family Planning		
		Not using	Using	Total

Husband Education	illiterate	61	53	114
	Primary	95	38	133
	Secondary	40	41	81
	Higher	28	29	57
Total		226	159	385

The table above shows husband educational level and uptake of family planning. 53 out of 159(32.9%) respondents are illiterate and are the majority using family planning method. 95 out of 226(42.4%) have primary education level and the majority not using family planning. The results also shows that husbands with higher education levels are the least not using family planning 28/226(12.5%) and also the least in using family planning 29/159(18%)

Table 4.9 Chi square test. Husband level of education and Family Planning uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.437[a]	3	.001
N of Valid Cases	385		

The above table shows results of Pearson Chi-Square test of the relationship between family planning usage and husband education. Results indicate a significant relationship between family planning use and age at 95% confidence level with a P-value determined at 0.001 which is less than 0.05 at 3 degrees of freedom.

Table 4.10 Number of children and uptake of Family Planning

Count		Family Planning		
		Not using	Using	Total
No of Children	None	43	41	84
	1-2	51	39	90
	3-4	77	37	114
	>= 5	55	42	97
Total		226	159	385

From the above table, the results shows that 42/159 (26.4%) of the respondents are the majority using family planning and have more than 5 children. Most of the respondents not using family planning 77/226(30.1%) have between 3-4 Children. The lowest group in not using family planning 43/226(19%) have no children. Out of 114 women respondents having 3-4 children, 77(67.5) are not using family planning and only 37(32.5%) are using family planning. This could be attributed to the fact that couples are young and they want more children.

Table 4.11 Chi-square test. Number of children and uptake of Family Planning

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.945	3	.114
N of Valid Cases	385		

The above table shows results of Pearson Chi-Square test of the relationship between family planning use and number of children. Results indicate no significant association between family planning use and number of children at 95% confidence level. P-value determined is 0.114 that is greater than 0.05 at 3 degrees of freedom.

Table 4.12 Religion and uptake of Family Planning

Count		Family Planning		
		Not using	Using	Total
Religion	Protestant	70	96	166
	Catholic	130	20	150
	Others	26	43	69
Total		226	159	385

From the table above, out of 150 surveyed Catholics, the majority 130(86.6%) were not using family planning methods. Only 20/150(13.4%) of Catholics were using family planning. Out of 166 protestants surveyed 70(42%) were not using family planning. 96(58%) protestants were using family planning. Out of 69 respondents from other religion surveyed, the majority 43(62%) were using family planning, while 26(28%) were not using family planning. Findings review that most Catholics do not use family methods. This could be attributed to the belief of catholic church on family planning.

Table 4.13 Chi Square test. Religion and uptake of Family Planning

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	79.681[a]	2	.000
N of Valid Cases	385		

The above table shows results of Pearson Chi-Square test of the relationship between family planning use and religion. Results indicate a significant association between family planning

use and religion at a 95% confidence level where P-value determined is 0.000 less than 0.05 at 3 degrees of freedom.

Table 4.14 Income and uptake of Family Planning

Count		Family Planning		
		Not using	Using	Total
Income	<5000	24	21	45
	5001-15000	57	21	78
	15001-25000	64	38	102
	25001-35000	49	30	79
	Above 35000	32	49	81
Total		226	159	385

The table above shows the relationship between income and family planning uptake. The highest percentage of family planning usage is observed in income intervals above 35,000 (30.8%). The lowest percentage of family planning usage is observed in the income interval 5001-15000 at 21/159(13%) and income below 5000 at 21/159(13%). It is also observed that most of the respondents not using family planning 64/226(28.3%) have income between 15001-25000.

Table 4.15 Chi square test. Income and uptake of Family Planning

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.543[a]	4	.000
N of Valid Cases	385		

The above table shows results of a Pearson Chi-Square test of the relationship between family planning use and income. Results indicate a significant relationship between family planning use and income at 95% confidence level where P-value determined is 0.000 which is less than 0.05 at 3 degrees of freedom.

Table 4.16 Work environment and uptake of Family Planning

Count		Family Planning		
		Not using	Using	Total
Work environment	Very poor	52	32	84
	Poor	49	36	85
	Average	68	28	96
	Good	35	52	87
	Very good	22	11	33
Total		226	159	385

From the table above 68 /96 (70.8%) respondents from average work environment are the majority not using family planning and only 28(29.2%) are using family planning. Out of 87 respondents from good work environment 52(59.7%) are the majority using family planning. It's evidenced that the least category using family planning come from very good work environment 11/159(6.9%) 36/85(42.3%) women from poor occupation area are using family planning.

Table 4.17 Chi square test. Work environment and uptake of Family Planning

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.331[a]	4	.001
N of Valid Cases	385		

The above table shows results of Pearson Chi-Square test indicating the association between family planning use and work environment. Results indicate a significant association between family planning use and work environment at 95% confidence level where P-value determined is 0.001 which is less than 0.05 at 4 degrees of freedom.

Table 4.18 Type of Employment and uptake of Family Planning

Count		Family Planning		
		Not using	Using	Total
Type of Employment	Government Employed	57	78	135
	Self Employed	94	45	139
	Housewives	75	36	111
Total		226	159	385

The table above shows that 78/135 (57.8%) respondents working in government institution are the majority using family planning methods. Out of 159 respondents using family planning method, housewives are the least at 36/159(22.6%) Out of 226 respondents not using family planning method, 94(41.6%) are housewives and they are the majority.

Table 4.19 Chi-Square test. Type of Employment and uptake of Family Planning

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.288[a]	2	.000
N of Valid Cases	385		

The above table shows results of Pearson Chi-Square test result indicating the relationship between family planning use and type of employment. Results indicate a significant

relationship between family planning use and type of employment at 95% confidence level where P-value determined is 0.000 which is less than 0.05 at 3 degrees of freedom.

Table 4.20 Media exposure and uptake of Family Planning

Count		Family Planning		
		Not using	Using	Total
Media frequency	None	56	73	129
	Rarely	82	19	101
	once a week	60	30	90
	Every week	28	37	65
Total		226	159	385

The table above shows the exposure of women to listening to mass media as another variable that affect usage of family planning methods. 73/129(56.5%) use family planning method and do not listen to media. 19/101(18.8%) are using family planning and they rarely listen to media. 30/90(33.3%) use family planning and they listen to media once per week. 37/65(56.9%) use family planning and listen to media every day. 82/226(36.3%) are most women not using family planning and they rarely listen to media.

Table 4.21 Chi-Square test. Media exposure and uptake of Family Planning

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	42.408[a]	3	.000
N of Valid Cases	385		

The above table shows results of Pearson Chi-Square test indicating the relationship between family planning use and media frequency. Results indicate a significant relationship between

family planning use and media exposure at 95% confidence level where the P-value determined is 0.000 which is less than 0.05 at 3 degrees of freedom.

4.3.0 Result of test of association between predictor variable and family planning use in South Imenti Constituency

From table 4.3.1 below it is observed that explanatory variables including age of the females, educational level of mothers, husbands' level of education, marital status, average monthly household income, wealth index and frequency of listening to media, are statistically significant in usage of family planning at 95% confidence level where P-value is 0.05.

Table 4.3.1 Summary result of test association between predictor and the use of family planning

v a r ia b le s	**Value**	**df**	**p -v a l u e**
Age of women	19.733	3	0.000
Educational level of mother	24.305	3	0.000
Educational level of husband	17.437	3	0.001
Marital status	11.828	3	0.008
Number of children	5.945	3	0.114
Religion	79.681	2	0.000
Average monthly household income	20.543	4	0.000
Type of employment	23.288	2	0.000
Frequency of listening to the media	42.408	3	0.000

The Table above shows a summary of Chi square test results of association between dependent and independent variables. From the results it is only the number of children a mother that is

not associated with use of family planning in South Imenti sub-County. The P value is greater than 0.05 at 95% confidence level.

4.3.2 Analysis of binary logistic Regression results

Under this section, the binary logistic regression results, significance and impact of each of the explanatory variable present on the response variable are presented.

Table 4.3.3 Omnibus test of model coefficients

		Chi-square	df	Sig.
Step 1	Step	42.836	8	.000
	Block	42.836	8	.000
	Model	42.836	8	.000

The above table shows the model that comprises of all predictor variables. All the values shown in the Omnibus Tests of Model Coefficients are given under Chi-Square column as 42.836 which shows significance at 0.05. The model is significantly different from a constant. Therefore, we conclude that adding the predictors variable to our model improves the ability to predict family planning use. Likelihood ratio test is considered as the most common method of assessment of the overall fit in logistic regression model, which is regarded as the chi-square difference between the null model (i.e., with only the constant, whose Chi square statistic is 522.004) and the model that has the predictor variables. In the Model Summary table below, it is evident that adding the predictor variables reduced the -2Log Likelihood statistics by 522.004 - 479.168 = 42.836.

Table 4.3.4 Goodness of fit Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	479.168[a]	.105	.142

Cox & Snell R^2 and Nagelkerke R^2 is a logistic regression coefficient of determination (R^2). From the above table, Cox and Snell R^2 is 0.105. This implies that the explanatory variable explains the 10.5% of variation occurring in the dependent variable. Nagelkerke R^2 in table above is 0.142, This shows the explanatory variable explains 14.2% of variation occurring in the dependent variable. The formular for coefficient the formular for coefficient of determination (R^2) is given as follows. $R^2 logistic = \frac{(-2LL\ null - 2LL\ k)}{(-2LL\ null)}$ Where the null model is the logistic model with only the constant and the k model with all independent variables in the model.

Table 4.3.5 Hosmer and Lemeshow Test

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig
1	21.040	8	0.01

The above table shows P-value = 0.01 which is less than the level of significance α=0.05. We therefore reject the null hypothesis which states that "There is NO significant difference between the null model (constant) and the model containing predictor variables, at 95%

confidence level" We therefore conclude that the model containing predator variables is significantly better than the null model.

Table 4.3.6 Binary logistic regression results

							95.0%C.I for EXP(B)	
	B	S.E.	Wald	d.f	Sig.	Exp(B)		
Age			**10.877**	**4**	**.012***			
15-24	3.041	1.326	5.25	1	.002*	20.93	1.56	282.46
25-34	1.112	1.216	5.26	1	.107	3.04	0.09	10.92
35-44	.153	1.065	0.00	1	.037*	1.17	0.14	9.41
+45)	.155	1.022	0.02	1	.004*	1.17	0.16	8.67
Husband education			**14.488**	**3**	**.002***			
Primary	5.103	2.413	4.47	1	.001*	164.51	1.4531	18,745.
Secondary	1.223	2.11	0.34	1	.094	3.40	0.054	213.14
higher	3.661	.392	87.22	1	.006*	38.90	18.074	84.10
Mother education			**8.872**	**3**	**.034***			
Primary	5.233	5.331	1.25	1	.035*	187.35	0.06	24,906
Secondary	3.223	2.224	0.16	1	.056	25.10	0.00	6,379.0
higher	0.224	2.221	1.35	1	.013*	1.25	4.84	58,459
Marital status Single			**12.65**	**3**	**0.004***			
Married	3.672	3.288	8.129	1	.783	39.33	3.13	495.
Divorced	1.472	3.716	0.076	1	.028*	4.36	2.055	46.35
windowed	6.273	5.396	4.843	1	.023*	530.07	2.781	21373.76
Religion			**6.355**	**2**	**.313**			
Protestant	.071	.372	0.04	1	.087*	1.07	0.52	2.23
Catholic	.108	.218	0.25	1	.621	1.11	0.73	1.71
Income<5000			**24.331**	**4**	**.482**			
5000-15000	.522	.233	5.02	1	.013*	1.69	1.07	2.66
15001-25000	.278	.305	0.83	1	.011*	1.32	0.73	2.40
25001-35000	.092	.310	0.09	1	.765	1.10	0.60	2.01
Above 35000	-.344	.208	2.74	1	.132	0.71	0.47	1.07
Work enviro.			**55.99**	**2**	**.006***			
Poor	.137	.539	0.06	1	.040*	1.15	0.40	3.30

Good	.729	.603	1.46	1	.0312	2.07	0.64	6.77
Type of Employment			**23.3435**	**6**	**.082***			
Govt employ	-.128	.257	0.25	1	.698	0.88	0.53	1.46
Self-employ	-.573	.395	2.10	1	.816	0.56	0.26	1.22
Housewife	-.133	.476	0.08	1	.069*	0.88	0.34	2.23
Media exposure			**12.316**	**4**	**.034***			
Non	.213	.113	3.55	1	.073	1.24	0.99	1.54
Rarely	.487	.332	2.15	1	.003*	1.63	0.85	3.12
Once a week	.321	.365	0.77	1	.002*	1.38	0.67	2.82
Every week	.687	.209	10.80	1	.384	1.99	1.32	3.00

4.3.8 Interpretation of Logistic Regression Analysis.

From table 4.3.6 above, B column indicates the Coefficients of each independent variable. Exp(B) column shows the odds ratios for each independent variable. Significant column indicates the P- Values for the coefficients of the independent variables. When you look at the results for AGE, there is a significant overall effect (Wald=10.997, df=4, $p<0.05$). The Coefficients for AGE categories (except 25-34) are significant and positive, indicating that increase in age is associated with increase in the odds of using family planning. For example, age group 15-34 (p-value = 0.002) which is less than 0.05, indicating that it added significantly to the model. Age group 25-34 (p-value is 0.107) that is greater than 0.05, indicating it didn't add significantly to the model.

Coefficient and Odds Ratio

Family planning use and Age.

One unit increase in age (15-24 years) will increase use of family planning by 3.014 holding other variables in the model constant. The odds of mothers who were using family planning in the age interval 35-44 is increased by 1.17 as compared to the age interval 15-24 years (Coefficient = 0.153, OR=1.17, P=0.037, CI= [0.14, 9.41]).

Use of family planning and Education

One unit increase in Primary education level by women will increase use of family planning by 5.233 holding other variables in the model constant. The odds of women using family planning in higher levels of education is increased by 187.35 as compared to those who are illiterate (Coefficient = 5.233, OR=186.35, P=0.035, CI= [0.06, 24,906]).

The odds of family planning usage among women whose husbands had primary education is increased by 3304 in comparison to those whose husbands are in illiterate (Coefficient = 5.103, OR=164.51, P=0.001, CI= [1.5, 18,745]).

Family planning use and marital status.

One unit increase in Married Women will increase use of family planning by 3.672 times holding other variables in the model constant. The odds of women who were using family planning and married is increased by 39.33 as compared to those who are single. (Coefficient=3.672, OR=39.33, P=0.783, CI= [3.13, 495])

Family planning use and Religion.

One unit increase in women who are protestant, will increase use of family planning by 0.071 holding other variables in the model constant. The odds of women who were using family planning and are protestants is increased by 1.07 as compared to Catholics. (Coefficient=0.071, OR=1.07, P=0.013, CI= [0.52, 2.23])

Use of family planning and Income.

One unit increase in income (5000-15000) will increase use of family planning by 0.522 holding other variables in the model constant. The odds of women who were using family planning with income between 15001-25000 is increased by 1.69 as compared to those who income is less than 5000 (Coefficient=0.522, OR=1.32, P=0.013, CI= [1.07, 2.66])

Use of family planning and work environment.

One unit increase in poor work environment will increase use of family planning by 0. 137 holding other variables in the model constant. The odds of women who were using family planning in poor work environment is increased by 1.15 as compared to good environment (Coefficient=0137, OR=1.15, P=0.04, CI= [0.4, 3.3])

Use of family planning and Type of employment.

One unit increase of Government employed women will decrease use of family planning by 0.128 holding other variables in the model constant. The odds of women who were using family planning and are housewives is decreased by 0.877 as compared to those employed by government (Coefficient=-0.128, OR=0.877, P=0.069, CI= [0.53, 1.46])

Use of family planning and listening to media

One unit increase in media exposure to women who rarely listen to media, will increase use of family planning by 0.487 holding other variables in the model constant. The odds of women using family planning method and rarely listen to media, is increased by 1.63 as compared to those who don't listen at all (Coefficient =0.487, OR=1.63, P=0.003, CI= [0.85, 3.12])

From the study findings, one can now be able to deduce factors that determine family planning use in South Imenti Sub-County. Results indicate, about 59% of the respondents don't use family planning methods. The most important variables identified in the binary logistic regressions are age, marital status, education, Religion, Income, Wealth and frequency of listening to media.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter contains an overview of the findings together with the inferences derived from the data analysis. It also includes conclusions and recommendations made as a result of the study of statistical application of regression analysis to determine factors influencing uptake of family planning.

5.1 Summary

The goal of this study was to apply binary logistic regression method to examine factors that determine the usage of family planning methods in South Imenti sub-county. A sample of 385 mothers was chosen from the study population with a sample size of 9900 females). The study used descriptive and inferential statistics. In descriptive statistic, pie chart and cross tabulation tables were used to indicate the level of family planning usage. In inferential statistics the study used Binary logistic regression model to predict the response to family planning uptake. The explanatory variables included education level, age, marital status, number of children born, religion, type of employment, household income and media exposure. The results of applying binary logistic regression model on the data collected showed that age, education level, marital status, number of children and frequency of mothers in following media were potential explanatory variables that have a significant effect on the utilization of family planning practices. active (15-34 years).

5.2 Conclusions

From the problem statement, it was indicated that South Imenti Sub- County has a high fertility growth rate and it is among those sub counties with high population growth rate. Which points out that use of family planning methods is not being practiced in South Imenti. The aim of this study was to statistically investigate and determine factors influencing use of family planning by women in south Imenti sub-county aged between 15-49 years.

The findings have indicated the factors that influencing use of family planning in south Imenti sub-county. These are age, education level, marital status, number of children and frequency of mothers in following media. 24They all have a significant effect on the utilization of family planning methods. Results have also shown that majority of women (59%) were not using any form of family planning. The findings indicate that at the age bracket of 15-34 years, there are still many women not using family planning. Similarly, many women above 35 years are not using family planning methods which calls for more sensitization of women especially those that are sexually active.

5.3. Recommendations

This study recommends formulation of a policy by the County Government of Meru whose aim is to encourage husbands and mothers in South Imenti Sub County engage actively in family planning education programs. These programs could be conducted through the media. The policy should also aim at encouraging husbands and mothers to listen to the media more frequently.

5.4. Areas of further study

Knowledge in this study can further be improved by doing a study on:

1. **Types and effectiveness of family planning methods used in south Imenti sub county and level of preference**. This is in support of this study's findings and recommendations. Once the policy to encourage usage of family planning methods in South Imenti is formulated and implemented, the numbers of mothers and husbands using family planning will be expected to increase. To effectively sustain this, there is need to know the type, effectiveness and choice preferences of the family planning methods used by Mothers and Husbands in South Imenti Sub County.
2. **Effects of alcoholism and drug abuse on uptake of family planning methods.** South Imenti Sub County being an agricultural rich area, there is a lot of cash flow which has contributed to increased alcohol and drug abuse. This outcome may have some effect on the usage of family planning methods and hence the proposal to carry out the above-mentioned study.
3. **Effects of Economic, Social and Cultural factors on children aged between 10-14 years pregnancies.** In South Imenti Sub County, there is evidence of underage children between 10-14 years bearing children. The study findings will assist the County Government in addressing this problem of underage pregnancies.

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APPENDICES

Appendix 1: Questionnaire for women aged between (15-49)

My name is **Thomas Bundi**. I am pursuing a Master of Science degree in Social Statistics at Kenyatta University. Currently I am carrying out a study on factors influencing use of family planning methods in south Imenti sub-county, Meru County".

You have been selected to participate in a family planning survey and I humbly request you to assist in providing the required information by filling in the questionnaire here below. Your assistance is highly appreciated.

NOTE:

All information given will be strictly confined for the purpose of this study and will be treated as private and confidential.

SECTION 1: HOUSEHOLD INFORMATION

By use of a tick, indicate the right information as applies to you.

1. Gender: Male ☐ Female ☐

2. Age: below 15 years ☐ 15-19 ☐ 20-24 ☐ 25-29 ☐

30-34 ☐ 35-39 ☐ 40-44 ☐ 45-49 ☐ 50 and above ☐

3. What is your present marital status? Married ☐ Divorce ☐ Separated ☐

Never Married ☐ Cohabitant ☐ Others ☐

4. Any religion affiliations? Catholic ☐ Protestant ☐ Muslim ☐ Non-Religious ☐

Others

5. How long have you lived in South Imenti?

Since Birth ☐ Years/Months-

_____ ☐

6. Have you ever attended school? Yes ☐ No

7. What is the highest-level education?

Primary ☐ Secondary ☐ Diploma ☐ Degree and higher ☐

8. Do you have any technical or professional training? Yes ☐ No ☐

9. Are you attending school or continuing with professional training? Yes ☐ No ☐

10. What is your profession? Un-skilled ☐ skilled ☐ Business ☐

Professional ☐

11. What is your level of income per month?

Less than 10,000 ☐ 10,000-20,000 ☐ 20,000-40,000 ☐ 40,000-80,000 ☐

80,000-120,000 ☐ Above 120,000 ☐

12. Apart from profession, what is other source or sources of income you have?

None ☐ Business ☐ Farm produce ☐ Investment in shares ☐ others

14. Did you aim to have specific number of children from this union?

Yes ☐ No ☐

15. If yes, how many boys and girls?

Boys ☐ Girls ☐

16. How many children have you given birth from this union?

Number of children_____

Boys ☐ Girls ☐

17. What spacing have you had between your children in this union?

Spacing in months_____

18. Have you ever had an infant death in this union?

Yes ☐ No ☐

19. If yes, how did it affect your fertility?

Conceived soon after the death of the infant ☐ Delayed conception ☐

Was not affected ☐ Others (specify)_____

20. What is the importance of your careers compared to childbearing?

High ☐ Medium ☐ Low ☐

21. Do you listen to media….Yes ☐ No ☐

22. If yes how often ☐ Low ☐ Average ☐ High ☐

23. Do you have any knowledge about family planning? Yes ☐ No. ☐

24. if yes, how did you here about it? Media (specify) ☐ people ☐

25. How far is your home and the nearest Government clinic. ☐ Km

SECTION 2: CONTRACEPTION USE

1. I request to inquire about the different techniques couples can utilize to delay pregnancy.

Please indicate using tick if you have ever heard of or used the following:

	Have you heard of this method		Have you ever used this method	
	YES	**NO**	**YES**	**NO**
1. Female Sterilization:				
2. Pills:				
3. Intrauterine device (IUD):				
4. Injectable:				
5. Implants:				
6. Condom:				
7. Female Condom:				
8. Lactation Amenorrhea Method (LAM): Women can prevent pregnancy by doing intense breastfeeding accompanied with abstinence.				

9. Rhythm Method:				
10.Withdrawal:				
11. Emergency Contraception:				
12. Have you heard of any other method that a woman or man can use to avoid pregnancy ?				

2. In the methods that you have used, did you used the methods to space or stop childbearing?

Space ☐ Stop ☐

3. Are you still using the methods you have named above? Yes ☐ No ☐

4. In your opinion should women use family planning methods? Yes ☐ No ☐

5. If your answer is Yes in 4 above ,then why?

Enable one to stop child bearing ☐ Enable one to space children ☐

Allow one to have better health ☐ others (specify)_____ ☐

6.If your answer is No in 4 above, then why? Causes sterility ☐ Against religion ☐

Make women unfaithful ☐ Cumbersome ☐ Impairs health of women ☐

Others (specify) _____

7. How many children did you have when you started using contraceptive ? number of children_____

8. Are you satisfied with the family planning services that you receive? Yes ☐ No ☐

9. If Yes why?

Profession service given ☐ Supply promptly ☐ Good rapport with the clients

Side effect explained at first pregnancy ☐ Others (specify)

_____

10. If your answer in 8 above is No, then why?

No Professional service given ☐ Lack Supply ☐ No rapport with the clients ☐

No precise explanation of side effect ☐ Others (specify) _____

11. Would you like to have another child in future? Yes ☐ No ☐

12. How often have you talked to your husband about family planning in the past years?

Never ☐ Once or twice ☐ More ☐

Appendix 2: Budget

The following budget was utilized.

ITEM	TOTAL COSTS
JOURNALS, BOOKS, OTHER READING MATERIALS	100,000
TRAVELS COSTS TO COLLECT DATA	50,000
SOFTWARE, PURCHASE, ELECTRONIC DEVICES	50,000
PRINTING AND BINDING, TYPING OF PROJECT	60,000
PERSONAL UPKEEP AND ACCOMMODATION	50,000
INTERNET	30,000
COMMUNICATION	30,000
MISCELLANEOUS	30,000
TOTAL COSTS	**400,000**

Appendix 3: Work Plan

The timelines for the project.

ACTIVITY	MONTH
Proposal writing and submission	MAY- 2022
Data collection and analysis	JUNE/JULY- 2022
Data Editing	AUGUST/SEPTEMBER- 2022
Discussions with supervisor and Submission of the project for examination.	OCTOBER/NOVEMBER - 2022
Examiner comments review	APRIL/MAY-2023