DETERMINANTS OF MODERN CONTRACEPTIVE USE AMONG RURAL WOMEN IN KENYA
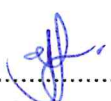
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ADM NO: X53/80758/2015

A Thesis Submitted to the School of Economics for Partial Fulfillment of the Master of Science in Health Economics and Policy.

University of Nairobi

OCTOBER 2021

DECLARATION

This research paper is my original work and has not been submitted for a degree award in any other university.

Signature...Date....9/12/2021....

JOHN OTIENO OGUTU

This research paper has been presented for examination with my approval as a university supervisor.

Signature...Date....9/12/2021....

DR. PHYLLIS MACHIO

DEDICATION

This research is dedicated to my loving parents, my mother, Grace Ogangah, and my late father, Peter Ogangah, who provided the foundation for something they were passionate about – education.

ACKNOWLEDGEMENT

The successful completion of this research project was made possible through effort and support of many individuals. First, I owe my supervisor, Dr. Phyllis Mumia Machio, enormous gratitude for supervising my work. Her wise counsel and scholarly assistance is greatly appreciated.

Secondly, I want to thank my course mates for their support and discourse during the writing of my project. My heartfelt gratitude goes out to my entire family and friends for their consistent inspiration throughout this project. Last but not least, I thank God for seeing me through and keeping my spirit alive throughout this project.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Trends consistently show that the contraceptive prevalence rate in urban areas in Kenya is higher than the CPR in rural areas. Similarly, the unmet need for contraception has been higher in rural areas. Currently, the CPR in rural Kenya is 55.5% compared to 61.8% in urban areas. The unmet need for contraceptives is at 20.2% and 13.4% respectively for rural as well as urban areas. It is important to understand drivers of contraceptive uptake in rural areas. This study investigated determinants of modern contraceptive uptake in rural areas in Kenya using Kenya Demographic and Health Survey data for 2014. Based on study findings, association between age, religion and desire for more children is negative and significant. The study recommends enhanced advocacy and campaign for school completion, religious leaders' involvement in the contraceptive conversation, targeted interventions at the poor, less educated and more contraceptive information availability on media platforms.

ACRONYMS

ANC: Antenatal Care

CPR: Contraceptive Prevalence Rate

KDHS: Kenya Demographic and Health Survey

KNBS: Kenya National Bureau of Statistics

UN-DESA: United Nations Department of Economic and Social Affairs

WHO: World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

1.1.1   Global Contraceptive Use

Modern contraceptives continue to play a critical role as a public health intervention. Contraceptives help forestall unintended pregnancies, reduce infant and maternal mortality, population control as well as enhancing the empowerment of women (Beson et al., 2018). Contraceptives help relieve a woman of the stresses of continued childbirth and expected family care (WHO, 2018). Given the reduced burden to take care of family, contraception increases the time available for women to develop their careers thus improving the economic situation of the family. Thus it is one step on a long continuum of socio-economic facets that could potentially improve the well-being of a woman and ultimately her family (World Health Organization, 2018). There were almost 2 billion women of reproductive age in 2019 with approximately half of them (49%) utilizing a modern contraceptive method. This is an increase from a total of 554 million women representing 42% in 1990 (UN-DESA, 2020). Figure 1 below shows the contraceptive prevalence rate (CPR) trends from 1990 - 2019 and projections for the years 2020 to 2030:
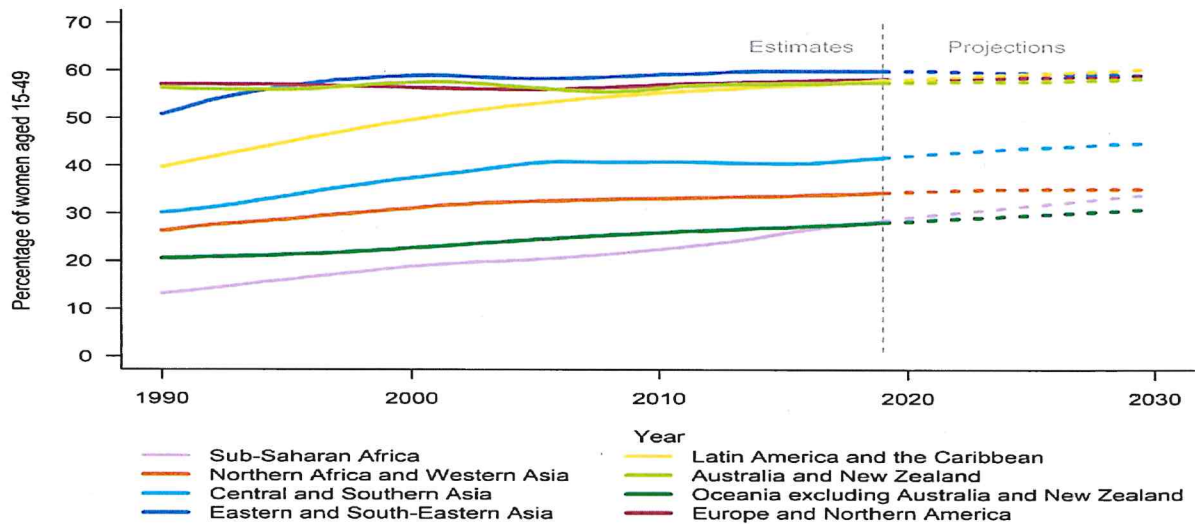
Figure 1.1: Figure 1: Trends In Contraceptive Prevalence 1990 to 2019

Source: (United Nations, 2020):From 2013 to 2019 the CPR for sub-Saharan nations has varied by 0·77% to 3·17% annually (Ahmed et al., 2019). A comparison between West African, Central African, Eastern African, and Southern African countries shows lower CPR in the Central and West African nations while the Southern African and Eastern African nations present a wider range of CPR variations for instance 14 to 71%, 33 to 78% and 26 to 76% seen in presently married women, non-married women at any time and among formerly married women respectively (Wang et al., 2017).

In 2017, an estimate of 214 million women had unmet contraceptive needs. Africa leads globally in unmet need for contraception at 24.2%. Asia and Latin America following closely at 10.2% and 10.7% respectively (Wang et al., 2017). There are several reasons put forth for this unmet need including inaccessibility to contraceptives, unavailable contraceptive choices, unexpected aftermaths, societal and religious opposition, standards of services provided, client and or provider biases, and gender-based barriers (WHO, 2018).

1.1.2 Contraceptive Use in Africa

Access rate for many African countries has been low on almost all contraceptive method mixes (Oumer, et al., 2020). Different contraceptive methods have had varied shifts in utilization with injectables increasing to 8% from 2% in Africa with Sub-Saharan Africa having the greatest shift of 8% to 26%. However, the uptake rate for condoms increased 5%–7% (Tsui, *et al.,* 2017). The method used the least was male sterilization, with an uptake rate of less than 3%.

A 2013 study in Zambia and Kenya indicates a link between use of ANC and post-partum contraceptive use, indicating that by encouraging ante-natal care facilities, contraceptive use may be increased (Riedel, et al., 2020). A study conducted in Zambia in 1996 cites the significance of educating both men and women on contraceptives and notes that the primary target of birth control education should be single mothers and adolescents (Chola, et al ., 2020). Of the 376 women interviewed at a hospital after giving birth, 34 percent had previously used contraceptives, and a year post-delivery, 64 percent had used family planning. A third (39%) of women who were not on modern method of contraception mentioned spousal disapproval as the main reason for nonuse. A significant proportion of single mothers (84%) never used a modern contraceptive technique, and nearly half of teenagers (56%) had little information, awareness, or knowledge about family planning. A study conducted in Kenya in 1996 recommends modern contraception education that emphasizes wellbeing over "traditional reproductive practices (Chimodo, 2018).

Some of the barriers to modern contraceptives adoption in a 2008 study in Nigeria were: supposed negative health side effects, fear of unfamiliar consequences, expense, disapproval of spouses, religious beliefs, and insufficient knowledge (Chimodo, 2018). Equity Analysis: Low education,

3

young age, and rural living are the key factors leading to the inadequate family planning knowledge and uptake of modern methods of birth control.

1.1.3   Contraceptive Use in Kenya

Kenya began its family planning program in 1967 being amongst the first countries in the south of the Sahara to develop a nationwide contraceptive program. This resulted in the CPR improving through the years from 7% in 1978 to 33% in 1993, 46% in 2008–09, and 58% in 2014 (Beguy et al., 2017). This also placed Kenya 3rd amongst the countries with the largest increases in modern contraceptive use between 2010 and 2019 with a 12.0% increase after Lesotho and Malawi with 12.3% and 14.6% respectively (UN-DESA, 2020).

According to the 2014 KDHS, 98% of Kenyan women are familiar with modern contraceptive methods. This knowledge is prevalent in all regions save for Northern Kenya with about 71% knowledge score. However, the contraceptive prevalence rate in urban zones is 61.8% against 55.5% for rural areas. The trend below shows that CPR for rural areas has always lagged behind that of urban areas between 1998 and 2014 as shown in figure 2 (KNBS et al., 2015):
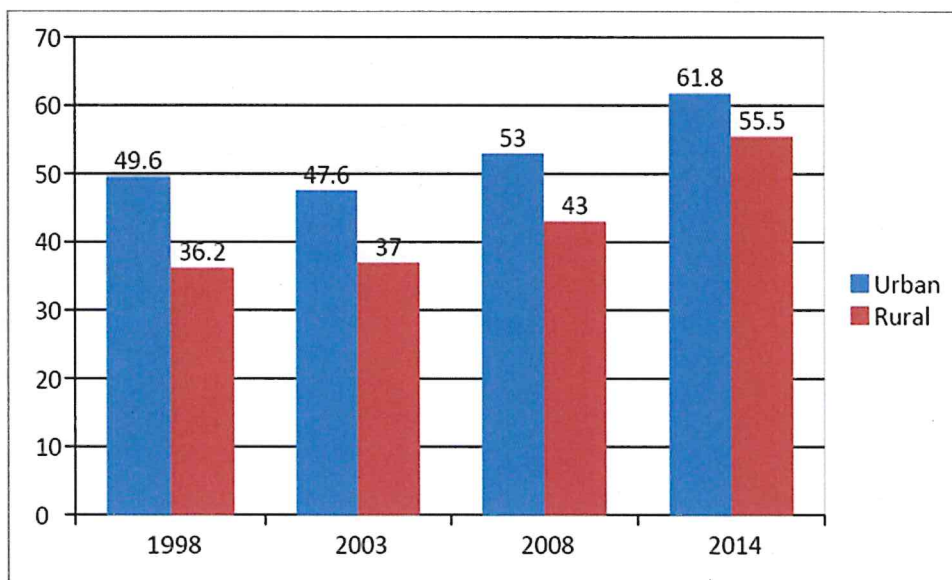
Figure 1.2: Trends in urban versus rural CPR between 1998 and 2014

Source: KDHS 1998, 2003, 2008, 2014

The Unmet need for contraception in rural areas in Kenya is 20.2%, while that of the urban areas is 13.4%, with the highest unmet needs in North-Eastern at 30% and lowest in Central followed by Nairobi at 9% and 11% respectively (KNBS et al., 2015). Education and unmet need for contraceptives have a negative relationship; for instance, uneducated married women have a higher unmet need at 28% in comparison to their educated counterparts at 23%. Unmet-need also has a negative correlation with household wealth, for instance, the lowest wealth quintile has 29% while the highest has 11% (KNBS et al., 2015). Table 3 below shows the trend in unmet contraceptive needs from 1998 to 2014 has invariably been greater in rural areas in Kenya compared to urban areas.
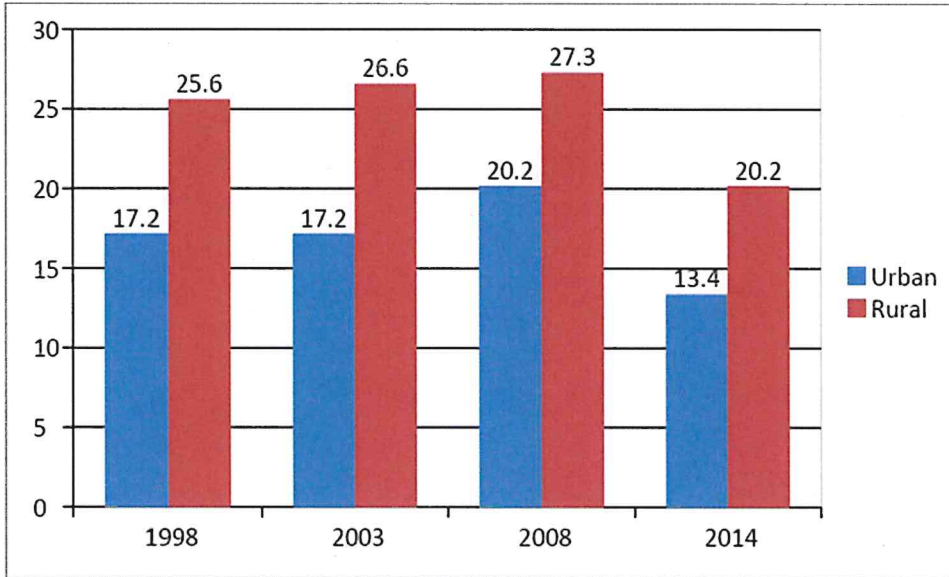
Figure 1.3: Figure 3: Trends in unmet contraceptive need from 1998 to 2014

Source: KDHS 1998, 2003, 2008, 2014

1.2 Statement of the problem

Trends have consistently shown that the CPR in urban Kenya is higher than the CPR in rural areas. Conversely, the unmet need for contraception has remained higher in rural areas. Currently, the CPR in rural Kenya is 55.5% compared to 61.8% in urban areas. The unmet need for contraceptives is at 20.2% and 13.4% respectively for rural and urban areas. (KNBS et al., 2015) The question that abounds is why rural areas lag in uptake and usage of modern contraceptives and additionally high unmet need for contraceptives despite the known benefits.

According to Machiyama et al., (2018), there are misconceptions on the dangers of prolonged contraceptive usage, fertility impairment, and general negative health impacts among rural women. These myths and misconceptions may be a contributing factor to the high rates of discontinuation in rural areas in Kenya and Africa.

6

Several research have looked at determinants of use of contraceptive in Kenya, although few have concentrated on rural areas (Jalang'o et al., 2017; Mutombo et al., 2014; Ogbe and Okezie, 2010). Most studies on rural areas were based on small samples and on specific regions which may not be representative of rural areas in Kenya. Few studies have also distinguished the non-health and health-related determining factors. The determinants of contraceptive utilization in rural areas were investigated using a nationally representative dataset.

1.3 Study Objectives

General study objective is to examine determinants of modern contraceptive use among women residing in rural areas in Kenya.

Specific objectives are.

1. Examining influence of demographic factors on modern contraceptive use in rural Kenya.

2. Examining influence of socio-economic factors on modern contraceptive use in rural Kenya.

1.4 Research Question

1. How do demographic factors influence modern contraceptive use in rural Kenya?

2. How do socio-economic factors influence modern contraceptive use in rural Kenya?

1.5 Significance of the Study

This study served as a valuable source of contributing factors to the use or nonuse of modern contraceptives in rural Kenya. Outcome of the study will help policymakers to design programs that would increase the uptake of modern contraceptives in rural Kenya. Additionally, the study adds to the area of evidence on modern contraceptive use in Kenya.

7

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section presents theoretical and empirical literature on determinants of modern contraceptive use.

2.1 Theoretical literature

This study used the behavioral model of family's consumption of healthcare services by Andersen, 1968. This model uses three postulates to explain the widely differing use of healthcare services. The first postulate is the predisposition to receive medical services, the second is the availability of health care services to the family and the third is the perception of the need for the services. (Andersen, 1968).

The determinants of contraceptive use as a health care service were categorized into predisposing factors to use contraceptives, these are the individual characteristics that make an individual more likely to use contraceptives and they usually include demographic characteristics of the individuals such as age, educational achievement, etc. Secondly, use of contraceptives could be determined by enabling factors which are the external factors that favor use of contraceptives for example the availability of contraceptive services in context of this study included indicators of accessibility to contraceptive services. Thirdly, there is need for services, which represents actual and perceived needs of the individual to use contraceptives, the individual perceptions of the need for contraception would include factors such as sex of children, number of living children, and other medical conditions (Andersen, 1968).

2.2 Determinants of Contraceptive Use

Njogu (1991) examined shifts and determining factors of modern contraceptive use in Kenya. They noted there was substantial growth in contraceptive use in the period 1977-1978. Using regression decomposition he attributes the increase in contraceptive use to two factors; shifts in population composition especially in better-educated women and among women who no longer want children (Njogu, 1991).

Koc (2000) studied the contributing factors of family planning use in Turkey using the Turkish demographic survey data for 1993. They considered contextual factors, individual, societal, and fertility factors. They noted that with all factors held constant i.e., contextual factors, individual, societal, and fertility factors, women's educational attainment was a strong predictor of contraceptive preference. They concluded that women's schooling was the most effective way to creating positive attitudes towards contraceptive uptake. The study also showed that contraceptive choices depended on the sexes of living children, couples made choices to continue childbirth based on the sex of children they had or did not have (Koc, 2000).

Magadi & Curtis (2003), examined shifts and contributing factors influencing contraceptive choices in Kenya. Utilizing a 2-level multinomial regression they found that utilization of long-term contraceptive methods was greater amongst women in urban areas. Preference for contraceptives among unmarried women was higher than in married women and was steadily increasing. Their study showed that women who preferred injectable were women in rural areas; women who used contraceptives without approval from their partners; women with low educational attainment and women with low exposure to contraception messaging.

A study by Nonvignon & Novignon (2014), examined socioeconomic determinants of contraceptive use in Ghana using Ghana demographic health surveys (1988 to 2008). Using Cross tabulations and logistic regression, study showed an existence of variation in contraceptive use between various groups stratified by socioeconomic groups. They further found out that education and wealth status determined contraceptive choices and were therefore critical in reducing unmet needs and improving uptake of family planning services. Other key determinants of contraceptive choices included the surviving children, awareness of various contraceptive methods, and how accessible they are.

2.3. Determinants of Contraceptive Use in Rural Areas

A study by Ogbe and Okezie(2010) examined contributing factors of modern FP use by women in rural areas in Abia State, Nigeria. Study used primary data obtained by administering questionnaires directly to 200 women. Analysis utilized probit regression and descriptive statistics. The outcome of this study showed that education and mass media messages increased the chance of the use of contraceptives among rural women. Extended family systems and family size were factors that were attributable to the nonuse of contraceptive methods amongst rural women. While the extended family set up promoted large families the family size also dictated use or non-use of contraception especially when desired family size had not been attained. Data on FP uptake was mainly obtained from primary health centers in rural setups therefore women who did not visit these centers had very little information on family planning.

A paper by Jalang'o et al. (2017) on the determining factors of family planning use in rural Kenya among post-partum women revealed that 86.3% had already made a choice to use contraceptives and were already using it by first year of delivery. Government facilities were the main sources of these post-partum contraceptives. The key factors identified in this study to significantly influence the decision to uptake postpartum contraceptives include age, employment, educational attainment, marital status, and availability and accessibility of contraceptive choices. The study further showed that a third of the women interviewed who expressed that they no longer wanted to have children in the future were not on any current method of contraceptive. Rural women reported satisfaction with the quality of services in public facilities as they had been adequately counseled before the selection of a method.

Mutombo et al., (2014), while assessing women's knowledge of gains of contraceptive use in rural Kenya, used primary data from 923 rural women within the reproductive age bracket. An analysis using ordinal logistic regression showed women in rural Western Kenya had a low knowledge score on the perceived benefits of family planning to the child. They concluded that this was a major reason why birth rates in western rural western Kenya were still high. They also established that age, spousal communication, and type of contraceptive were determinants of contraceptive use.

2.3.1 Socio-Economic factors affecting Contraceptive Use

According to Meja-Guevara et al. (2020), behaviors and attitudes play a significant impact in contraceptive use decision-making. As a result, changes in fertility status and population rate are influenced indirectly by attitudes and behavior (DeMaria, et al., 2020). When it comes to choosing

a FP strategy, attitudes and habits play a big role in encouraging people to utilize an effective method. Recognizing behaviors that influence individuals' use of the FP strategy is a crucial aspect that leads to the scheduling of FP programs (Meja-Guevara, 2020).

According to Dozier (2020), having a strong religious individualism affects women's ability to speak to their families/spouses/communities about family planning and their inability to accept obtaining and ultimately using it. Similarly, in most societies that identify the man as the head of the household, institutionalized religious teachings converge with cultural values and such values are necessarily incorporated in a patriarchal system where women have been regarded as a lesser gender and can only express their choices freely within an appropriate context.

In addition, Aviisah, *et al.,* (2018) suggests that the area of residency influences contraceptive usage and leads to higher usage in urban areas compared to rural areas. Better provision of social resources, such as health care access, education, awareness, and family planning services, are the reasons underpinning these disparities. Social variables, such as place of residence, influence the patterns of contraceptive use, according to Olakunle, & Banougnin, (2019).

Singh, (2020) noted that education for women has a significant effect on various health indicators. Education is one of the most studied contributing factors of contraceptive usage and unmet need. Experiences such as education and pregnancy (Blackstone and Iwelunmor, 2017) affect the attitudes of women towards family planning. Women who had attained post-secondary education or had less than 3 children did not want more children in the future. They were also found to have

higher scores on favorable attitudes towards modern contraception. The desire for more children decreases as education attainment rises (Blackstone, 2016).

2.3.2 Demographic factors affecting modern contraceptive use

Based on an analysis of 51 surveys conducted in the Caribbean, African, Latin American, and Asian countries from 2006 to 2013, Tepper's (2017) study cited two key explanations underpinning unmet need: worries about body reactions to contraceptive use and subsequent risks to health. Moreover, another Kenyan empirical analysis using rural women's DHS data found that factors such as health risks related to the use of contraceptives were significantly related to unmet needs.

Starbird, *et al.,* (2016) emphasizes the key role of contraceptives in avoiding unwanted births, maintaining women's physical and emotional wellbeing, and reducing maternal and infant mortality, amid several controversies regarding the harms and benefits of contraceptive usage in various cultures across the globe. In Afghanistan, with regards to all facility types and levels, contraceptive services have been institutionalized (Ajmal, et al., 2018). Ajmal, et al., (2015) noted that the understanding of the ideal family size is one of the challenges in Afghanistan since the society believes the bigger the family the more joy it brings, and many children bring economic benefits, care for parents, and compensate for potential losses due to war and disease. Furthermore, modern contraceptive methods have been viewed as unsafe by people, leading to various health and physical effects such as discomfort and so on.

2.3.3 Reproductive Health Status of a Woman and Contraceptive Use

In contrast to urban women, studies have shown poor reproductive health status among rural women affects their contraceptive choices (Khaleghinezhad, 2018; Ayalew, 2017). Rural areas had a higher mortality (60.4 percent) than urban areas (Khalili, 2020). Another significant reproductive health problem is the unavailability of a wide array of methods of family planning. Due to its detrimental effects on fetal and maternal health, unwanted pregnancy is viewed as a major general health issue. The rate of unintended pregnancy in Iran has been estimated to be 30.6 percent, according to estimates, and this has a direct correlation with the low use of contraceptives.

Almost half (42%) of women based in rural areas in Najafabad city encountered unintended pregnancy (Khaleghinezhad, *et al.,* 2018), that is an indication of the universal incidence of this issue in rural women. In addition, Ahinkorah (2020) noted that teenage girls from rural areas have a higher fertility rate compared. An upsurge in HIV and other sexual reproductive health risks has been attributed to early marriage, a lack of education, and a lack of information about sexual and other reproductive health. All of the aforementioned factors result in major indicators of reproductive health concerns in rural women.

2.4 Summary of Literature

Over the last 30 years, several studies have been focusing on determinants of modern contraceptive use by women of reproductive age. Key determinants that emerged included education, residence, societal acceptance, availability of services, and access to contraceptive information. Deficiency of these studies on rural areas is twofold; small sample involved and focus on specific sub-regions. This paper used a nationally representative dataset to estimate determinants of modern contraceptive use in rural Kenya.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

Chapter outlines methodological approaches that this study adopted.

3.1 Theoretical Framework.

This study adopted Ajakaiye & Mwabu's, (2007), model which is a modification of Rosenzweig and Schultz's (1982) model. In this model, health is taken to be part of the utility-maximizing behavior of an individual. The utility can be assumed to be a function of non-health-related commodities, health-related commodities (which in this case is contraceptive use), and the health status of an individual. It is expressed as:

$$U = U(X, Y, H) \qquad (1)$$

Where:

      U is the utility

      X - is a non-health-related commodity.

      Y - is health-related commodities.

      H is the reproductive health status of a woman

The function for reproductive health is:

$$H = F(Y, Z. \mu) \qquad (2)$$

Where:

Z is the purchased market inputs that directly influence reproductive health status such as modern contraceptive use.

μ is the component of health uninfluenced by behavior

A woman maximizes equations 1 and 2 subject to budgetary constraints given as

$$I = XP_x + YP_y + ZP_z \qquad (3)$$

Where:

I = income

P_x = price of X

P_y = price of Y

P_z = price of Z

We, therefore, manipulate expressions 1-3 to produce health input demand functions as below

$$X = Dx\ (Px, Py, Pz, I, \mu) \qquad (4.1)$$

$$Y = Dy\ (Px, Py, Pz, I, \mu) \qquad (4.2)$$

$$Z = Dz\ (Px, Py, Pz, I, \mu) \qquad (4.3)$$

Equation 4.3 shows demand for modern contraceptives and it is a function of price and income.

3.2 Empirical model

This study estimated a Logit model because the dependent variable, contraceptive use was measured as a binary variable taking value 1 if a woman was using a modern contraceptive method and 0 if otherwise.

According to Wooldridge (2010), binary response model is,

$$P(y=1|x) = G(x\beta) \equiv p(x) \quad\quad\quad (4.4)$$

This gives the probability of a woman using modern contraceptives given a set of control variables. Where G is the cumulative density function, it is assumed that the underlying observed use or non-use of contraceptives is an unobserved (latent) variable given as;

$$y^* = x\beta + e, \quad y = 1(y^* > 0) \quad\quad\quad (4.5)$$

Women used modern contraceptives if y* is greater than 0 and if otherwise, they used modern contraceptives.

Therefore, the probability of women using modern contraceptives can be expressed as,

$$P(y=1)|x) = P(y^* > 0 | x) = P(e > -x\beta | x) = 1 - G(-x\beta) = G(x\beta)$$

Where

$$G(z) \equiv \varnothing(z) \equiv \int_{-\infty}^{z} \varnothing(v)\, \partial v \quad\quad\quad (4.6)$$

Where $\varnothing(z)$ = standard normal density

$$\varnothing(z) = (2\pi)^{-1/2} \exp(-z^2/2) \quad\quad\quad\quad$$

3.3. Variables

3.2.1 Dependent Variable

Contraceptive use is a dependent variable, which is a binary variable that takes a value 1 if a woman is using a modern contraceptive method and 0 if she is not.

3.2.2 Independent Variables

Independent variable included in model and these measurement are indicated in table 3.1 below

Table 3.1: Variables Measurements

Variable	Measurement
Contraceptive Use	1 denotes users of modern contraceptives while 0 denotes nonusers of modern contraceptives
Age	In years (15-49)
Marital Status	Dummy marital status takes value 1 if married, widowed, divorced or separated and 0 if otherwise
Religion	Dummy religion takes value 1 if catholic, Muslim, other religion and no religion and 0 if otherwise
Women's Education	Education dummy takes value 1 if attained primary, secondary or tertiary and 0 if otherwise
Employment Status	Dummy variable assumes value 1 if currently employed and 0 otherwise
Fertility	Dummy variable assumes value 1 if currently desires to have a child and 0 otherwise
Wealth Index	Dummy variable takes 1 if middle class and above and 0 otherwise
Number of Living Children	Dummy continuous variable
Knowledge of Modern Contraceptives	Dummy variable taking value 1 if one has knowledge of modern contraceptive and 0 otherwise
Access to Mass Media	Dummy variable taking value 1 if one has access to mass media and 0 otherwise

3.4 Data Source

Data for this study came from Kenya Demographic and Health Survey of 2014 (KDHS). This is a data set that is typical of entire nation. A total of 40,300 households were surveyed (31,079 women of reproductive age). Data was acquired by selecting 5,360 clusters from 96,251 enumeration areas using a stratified probability proportionate to size sampling methodology (KNBS et al., 2015).

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter presents study results and it begins with a description of variables used followed by the result and discussion of results.

4.1 Descriptive Statistics

This study included a total of 31079 women. Women aged 15 to 49 are included in this category (Women of reproductive age). Participants in this study were 19465 rural women. Modern contraceptive use was ab outcome variable, and 34% of women used one. The average age of participants was 29.1. Majority of women in this study sample were married at 62.83% while 26.8% were never married. The widowed respondents were 4.3% while divorced/separated were 6.0%.

The religious affiliations were distributed as protestant 65.8%, catholic 20.4%, Muslim at 11.5%. While other religions/no religion accounted for 20.4% of the sample. Majority of the respondents 48.3% either had no formal education or didn't complete primary school. Approximately 37.4% had completed primary school, 9.6% had completed secondary school while 4.7% had completed tertiary school

A significant proportion of the women were not employed (73.5%) and over half were from poor households (55.7%) 23.5% were from middle class households while 20.8% were from rich households

A number of living children during study timeline ranged from 0 to 12 children. About 76.5% of the population had 4 children or less while 23.5% of the population had more than 4 children. In terms of desire to have another child, 20.3% of the rural women did not desire another child while majority 79.7% desired another child. Looking at the preferred waiting time before having another child 2.7% of the women in rural areas wanted to have a child within the next 12 months, 7.6% wanted to wait from a year to 3 years, 1.4% wanted to wait for 4 years, 3.5% for 5 years, 5.3% for more than 6 years. The knowledge of contraceptives among rural women of reproductive age was high at 96.1% with about 3.9% not knowing about modern contraceptives. About 61.5% had access radio/TV.

Table 4.1: Description of Background Characteristics of respondents

Variable	%	N
Modern contraceptive use		
Not using any modern method	66.4	12921
Using modern method	33.6	6544
Age in 3-year groups		
10-19	21.2	4131
20-24	16.0	3114
25>	62.8	12220
Religion		
Protestant	65.6	12766
Catholic	20.4	3975
Muslim	11.5	2230
Other religion	0.2	47
No religion	2.2	419
Missing	0.1	28
Knowledge of modern contraceptive method		
No knowledge of modern method	3.9	755
Knows modern method	96.1	18710
Access to media (radio/tv)		
No access to radio/tv	38.5	7495
Access to radio/tv	61.5	11970

Employment Status	26.5	5162
Employed	73.5	14303
Non-employed		
Fertility (Desire for another child)		
Want no more children	20.3	3952
Want more children	79.7	15513
Number of living children		
0	23.1	4511
1	12.2	2373
2	14.5	2821
3	14.0	2737
4	11.9	2317
5	9.0	1752
6+	15.2	2954
Education level		
No formal education	48.3	9395
Primary level	37.4	7285
Secondary level	9.6	1866
Tertiary level	4.7	919
Wealth Index		
Poor	55.7	10847
Middle	23.4	4566
Rich	20.8	4052
Marital Status		
Never married	26.8	5220
Married	62.8	12230
Widowed	4.3	842
Divorced/Separated	**6.0**	**1173**

Source: Author, 2021

4.2 Empirical Results

4.2.1 Logit model

Table 4.2: Logistic *coefficient* output

Modern Contraceptive use	Coef.	Std. Err.	P>|z|
age	-.021*	.003	0.000
Number of living children	.093*	.012	0.000
Knowledge of method	0	(omitted)	
Access to media	.145*	.041	0.000
Employed status	.632*	.0545	0.000
Fertility	-.303*	.0590	0.000
Waiting time	.108*	.009	0.000
education_dummy2	.515*	.041	0.000
education_dummy3	.472*	.064	0.000
education_dummy4	.573*	.087	0.000
wealthindex_dummy2	.515*	.0456	0.000
wealthindex_dummy3	.508*	.0528	0.000
maritalstatus_dummy2	2.192*	.061	0.000
maritalstatus_dummy3	1.204*	.107	0.000
maritalstatus_dummy4	1.667*	.086	0.000
religion_dummy2	-.126*	.0426	0.003
religion_dummy3	-1.392*	.081	0.000
religion_dummy4	-1.079*	.424	0.011
religion_dummy5	-.956*	.139	0.000
religion_dummy6	.334	.431	0.439
_cons	-3.392*	.103	0.000

The results show association between an outcome variable modern contraceptive use and independent variables is statistically significant for variables age, current number of living children, knowledge of a modern method, employment status, access to media, desire for more children, waiting time for more children, education attainment, wealth status and religion at significance level of 0.05. Age, desire for more children and religion are negatively associated with modern contraceptive uptake. As women in rural areas advance in age, they are less likely to adopt a modern contraceptive method. Likewise, for women who desire more children, they are

24

also less likely to use a modern contraceptive method. Religion is also negatively associated with uptake of a modern contraceptive method with all the religion affiliations, protestant, catholic, Muslim, other religion having a negative sign. The more religious one is the less likely they will use a modern contraceptive method.

The number of living children is linked to use of modern contraception. The more children a woman has in a rural region, the more likely she is to use a modern contraceptive method. Positive uptake of a modern contraceptive technique is influenced by media access. Rural women are informed and empowered by the media about contraceptive methods, allowing them to make an informed decision about which method to use. Increased media access increases the likelihood of using a modern contraceptive method. An adoption of a modern method is favorably correlated with employment. Women who have secured jobs are more likely to use a contemporary contraceptive method.

Waiting time is positively associated with modern contraceptive methods usage, thus women who desire to wait longer to have children are more likely to use one. In rural places, having attained certain level of education is linked to having a better chance of using a modern contraception. The more educated a lady is, the more modern contraceptive methods she uses. The likelihood of utilizing a modern contraceptive method is influenced by one's financial situation. A woman in the rural will utilize a modern way if she achieves a higher wealth position. The use of a modern approach is favorably related to marital status. Women in rural relationships who are married, widowed, or divorced are more likely to utilize a modern contraceptive method.

Table 4.3: Logistic *Odds Ratios* output

Modern Contraceptive use	Odds Ratio	Std. Err.	P>|z|
age	.979*	.0028	0.000
Number of living children	1.097*	.0127	0.000
Knowledge of modern method	1	(omitted)	
Access to media	1.155*	.0473	0.000
Employment status	1.881*	.1027	0.000
Fertility	.739*	.0436	0.000
Waiting time	1.114*	.0104	0.000
Education level_dummy2	1.674*	.0679	0.000
Education level_dummy3	1.603*	.102	0.000
Education level_dummy4	1.771*	.154	0.000
Wealth index_dummy2	1.673*	.076	0.000
Wealth index_dummy3	1.662*	.088	0.000
Marital status_dummy2	8.954*	.545	0.000
Marital status_dummy3	3.332*	.356	0.000
Marital status_dummy4	5.299*	.456	0.000
Religion_dummy2	.882*	.0374	0.003*
Religion_dummy3	.249*	.020	0.000*
Religion_dummy4	.339*	.144	0.011*
Religion_dummy5	.384*	.053	0.000*
Religion_dummy6	1.397	.603	0.439*
_cons	.0336*	.003	0.000*

Source: Author, 2021

In the above table, odds ratios greater than one show that as the predictor increases, uptake of a modern contraceptive method becomes more likely. When odds ratio is less than 1, it means that as the predictor increases, the likelihood of using a modern contraceptive method falls. For all predictors, the p values are significant (less than 0.05). Therefore, predictors' age, number of living children, knowledge of modern method, access to media, employment status fertility, waiting time for more children, education attainment, wealth index and all religion subcategories are significant predictors of woman in rural areas in Kenya using a modern contraceptive method. For negative predictors, whereby the odds ratio is less than 1; we have age (.979), fertility (.738), catholic religion (.881), Muslim religion (.248), No religion (.384). A unit increase in age reduced odds of

26

using a modern contraceptive method by 0.979. Younger women in rural areas are more likely to use modern contraceptives than older women. Probability of using a modern contraception falls by 0.739 for every unit rise in desire to have more children. In Kenya's rural communities, women who want additional children are less likely to adopt a modern contraceptive method. As a result, there is a negative relationship between modern contraceptive usage age, fertility, and certain religious subcategories such as catholic, Muslim, and also no religion.

The number of living children (1.097), knowledge of a modern contraceptive method (1), and access to media (1.156), employment (1.881), and waiting time for more children all have a positive relationship with uptake of a modern contraceptive method (1.114). Any attainment in education level increase chances of using a modern contraceptive as shown in the following odds ratios for education attainment subcategories; primary school completion (1.168), secondary school completion (1.603) and tertiary school completion (1.771). Tertiary education completion has higher odds for modern contraceptive uptake than the other education attainments. Women and girls who have completed a tertiary education in rural areas are more likely to use a modern contraceptive technique.

This is in agreement with study by Koc (2000) which indicated that women and girls in rural areas who are classified as either middle class or rich are more likely to obtain a modern method, A unit change in middle class will results in a 1.673 change in modern contraceptive use and unit change in rich class will result in 1.662 modern contraceptive use. Marital status is also a positive predictor of modern contraceptive use with married women leading in highest chances among the marital status subcategories; married (8.954), widowed (3.332) and divorced/separated (5.299). Unit

27

change in Married women represents the highest unit increase in modern contraceptive use compared with the other marital status subcategories.

4.2.2 Percent Correctly Predicted for Models

Table 4.4: Mean of predictive probabilities for logit model

Variable	Obs	Mean	Std dev	Min	Max
Modern Contraceptive use	19465	.3361932	.472418	0	1
Modern contraceptive use - logit model	18710	.3497595	.1662641	.0090265	.8710179

Source: Author, 2021

The mean of predictive probabilities for the logit model is 35%. In hindsight 35% of the observations in the model is equal to 1 therefore they use modern contraceptive. The mean of predictive probabilities for the sample data is 34% is the proportion of modern contraceptive users in our sample dataset before modelling. We see the closeness of the mean of probabilities for the model and the sample observations.

4.2.3 McFadden pseudo r^2

Table 4.5: The Mc Fadden's pseudo r^2 is low showing the goodness of fit is poor.

Mc Fadden	0.170

Source: Author, 2021

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

Chapter five includes an overview of research, a conclusion based on findings, and recommendations for policymakers, proponents of contraception, as well as programmers. It also identifies topics where more study may be conducted.

5.2 Summary of Findings

Study's major purpose was to establish what factors influence Kenyan women in rural areas to use modern contraception. The study estimated and examined the importance of numerous predictors of modern contraceptive use. A binary logistic regression model was employed to estimate study determinants. The KDHS 2014 provided the study's data. The usage of modern contraceptives by rural women is strongly correlated with completion of primary, secondary, and tertiary education. Completion of university education, on the other hand, is a greater predictor of modern contraceptive use than other subcategories of education. Similarly, women in rural areas who are middle-class or wealthy are more likely to use a modern contraceptive.

Rural women who are employed are much more likely to use a modern contraceptive method. Any rural women who are aware of a modern method are more likely to use it. Access to media, whether through television or radio, was found to be a major predictor of modern contraceptive use. Various media disseminate a huge amount of information on these methods. Rural women who are married, widowed, or divorced have a higher likelihood of utilizing modern contraceptive. Married women, on the other hand, had the best prospects of all the marital subcategories.

Determinants that negatively influence modern contraceptive use among rural women are age, desire for more children and religion. The more rural women advance in age the less likely they use a modern contraceptive. The need for more children also lead more rural women not to use a modern contraceptive method. In terms of religion affiliation, all forms of religion significantly negate use of a modern contraceptive with Muslims having least chances of using a modern contraceptive than the other religion affiliations. This confirms study by Dozier (2020) who assessed that strong religious individualism affects women's ability to speak to their families/spouses/communities about family planning and their inability to accept obtaining and ultimately using it.

5.3 Conclusion

Study revealed that age, marital status, religion, educational level, employment, as well as wealth index, fertility preference, and access to media are important predictors of modern contraceptive usage both between rural and urban Kenyan women. Younger women in rural regions are more likely to use contemporary contraceptives than older women, while women in rural Kenya who want more children are less likely to use one. As a result, there is a negative relationship between modern contraceptive use and age, fertility, and specific religious affiliation subcategories such as Catholic, Muslim, and no religion.

There is a positive association between uptake of a modern contraceptive method and specific predictors: Number of living children, knowledge of a modern contraceptive method, access to media, employment and waiting time for more children. Any attainment in education level increase

usage of modern contraceptive as shown in odds ratios for education attainment subcategories; primary school completion, secondary school completion and tertiary school completion. Women and girls in rural areas who are classified as either middle class or rich are more likely to obtain a modern method. This is in agreement with Nonvignon & Novignon (2014) who outlined education and wealth status as strong determinants of modern contraceptive use. Marital status is also a positive predictor of modern contraceptive use with married women leading in highest chances among the marital status subcategories.

5.4 Implications for Policy

The disparity between contraceptive use for women in urban and rural areas is very clear and this needs to be bridged by carrying out some campaign programs that can help rural women to embrace utilization of contraceptive.

More educated women were found to adopt modern contraceptive methods compared to educated women. In order to increase contraceptive use among rural women in Kenya, education among all women of all ages should be emphasized. Besides, education regarding population and the family should also be taught in schools. Education should also be emphasized to men of all ages as well, in order to increase modem contraceptive use rates by changing their attitudes towards family planning and therefore leading to higher rates of approval and discussion of family planning.

Mass media such as Radio and TV should also be enhanced in promoting family planning. Information, education and communication campaigns carried out through the media should be

done using a simple language and at a time when it reaches a greater audience. Such campaigns should be intensified by increasing the number of family planning messages in the media. Contraceptive campaigns should target poor women who are disadvantaged in using modern methods. Likewise, outreaches should be targeted towards women who have not completed various levels of education. There is need to have a national conversation on the role of religion and use of modern contraceptives. Policies and programs aimed at increasing contraceptive uptake should involve religious leaders.

5.5 Recommendations for Further Research

A similar study on determinants to modem contraceptive utilization should be done using more current data in order to compare results. Also, a more detailed research which takes into consideration other variables that may affect modem contraceptive use should be done.

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