UPTAKE OF MODERN CONTRACEPTION AMONG POSTPARTUM WOMEN IN VIHIGA COUNTY, KENYA

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DECLARATION

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

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DEDICATION

This thesis is dedicated to my family, whose unwavering support and encouragement have been my constant source of strength throughout this journey. To my parents, who instilled in me the value of education and the belief that perseverance conquers all challenges. To my partner, for the endless love, patience, and understanding shown in moments both bright and challenging and to my children, who inspire me daily to strive for a better future, not just for our family but for the world we inhabit. This work is a testament to the collective hope, love, and resilience that you represent.

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DEFINITION OF OPERATIONAL TERMS

Contraception	It is an act of intentionally preventing or delaying conception using chemicals, drugs, devices, surgical or sexual methods.
Contraceptive prevalence	Proportion of women or their partner currently using at least one method of contraception, notwithstanding the method.
Contraceptive utilization	A woman in the reproductive age reported to be using at least one method of modern contraceptives.
Side effects	These are unwanted symptoms caused by use of contraceptives, such as nausea, headache, weight gain, and missed periods among others.
Parity	It is the number of pregnancies reaching a viable gestational age.
Family Planning 2020	This is an agreement among UN member countries globally aimed at empowering women and girls through an investment in family planning that is based on human rights.
Postpartum Family Planning	Program developed by WHO in the year 2013 aimed at helping women decide and initiate the contraceptive of choice and sustain the use of contraceptive for two or more years
Postpartum	Period lasting between 6-8 weeks after delivery of the child during which the body assumes its pre-pregnancy

state.

Over-bleeding Menstrual flow during a woman`s monthly period which extends beyond the number of days the woman is used and (or) coupled with heavy blood stains than the woman is used

ABBREVIATIONS AND ACRONYMS

AFIDEP	African Institute for Development Policy
CHA	Community Health Assistant
CPR	Contraceptive Prevalence Rate
DHS	Demographic and Health Surveys
DMPA	Depot-medroxyprogesterone acetate
FGD	Focused Group Discussion
FP	Family Planning
IUCDs	Intrauterine Contraceptive Device
IUD	Intra Uterine Device
KII	Key Informant Interview
KNBS	Kenya National Bureau of Statistics
KUERC	Kenyatta University Ethics Review Committee
LARC	Long Acting Reversible Contraceptive
LMIC	Low and Middle Income Countries
MCH	Mother and Child Health
MCPR	Modern Contraceptive Prevalence Rate
MLE	Maximum Likelihood Estimation
MOH	Ministry of Health
NACOSTI	National Commission for Science and Technology
OR	Odds Ratio
RH	Reproductive Health
SDGs	Sustainable Development Goals
SRH	Sexual Reproductive Health

SRHR	Sexual Reproductive Health & Rights
TFR	Total Fertility Rate
UN	United Nations
WHO	World Health Organization
WRA	Women of Reproductive Age

ABSTRACT

Contraception is achieved by use of modern contraceptives including emergency pills, barriers, oral pills and injectable contraceptives and implants. Vihiga County reported a contraception rate of 53% in 2018, lower than the national rate of 61%. Therefore, the specific objectives of this study were: To find out the level of knowledge on contraception, to determine the rate of modern contraceptive use and to identify factors influencing the uptake of modern contraception by postpartum women in Vihiga Sub-County. To fulfil these objectives, a cross-sectional study design was conducted. Research was based in Vihiga Sub-County, specifically in Central Maragoli and Lugaga-Wamulama Wards. Study respondents were selected using simple random sampling whereas through purposive sampling health facilities were selected. Dispensation of questionnaires, KII and FGD were developed as research instruments for data collection. Qualitative data was analyzed using CITAVI and then categorized into related themes and represented according to the objectives of this study. Quantitative data was analyzed using SPSS version 22. Multiple regression and chi-square tests were used to compare the results between pairs. Knowledge for individual contraceptive methods including o DMPA, implants, pills and coils was high as each method was known by more than 50% of participants. The current rate of contraceptive use in Vihiga Sub-County is 62.8%, an increase from the previously reported 53%. DMPA in 2022 and implants were the most used methods. Age ($p=0.003$), marital status ($p<0.0001$), number of children ($p=0.048$), and period since the last birth (0.003) were the most significant demographic influencers of contraceptive use. Reasons for or against use, duration of use of contraceptives, and future intent to use them were the attitude factors associated with contraceptive use. Social factors influencing contraceptive use were Religion allowing contraceptive ($p=0.044$), the husband agreeing with the use ($p<0.001$), quality of contraceptive services ($p=0.001$).In terms of contraceptive accessibility, quality of contraceptive services best influenced the uptake of contraceptives ($p=0.001$). This study recommends the following: The Vihiga County Department of Health Services, should launch a comprehensive health education and promotion campaign, The Vihiga County Department of Health Services, should initiate and support community-based family planning programs specifically targeting postpartum women, Community leaders and religious organizations should be engaged in dialogue and partnership to co-create and endorse family planning programs

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter gives a brief background of the study, unpacking the meaning and giving some information on the global, regional and local trends. It also describes what problem exists and what the study intends to do to address it, described by the problem statement, research questions and objectives. Further, a conceptual framework is given to easily synthesize how the problem will be addressed by showing the relationship of variables and how they will be measured. Other sections covered in this chapter include the scope of the study, possible limitations of the study and their delimitations, study justification depicting why the study is important and how it will be of help to the relevant study population and the policy makers as well as the study`s significance. Last but not least, hypothesis forms an integral part of this chapter, guiding the researcher to either reject or fail to reject it based on the study findings.

1.1 Background of the Study

Contraception is the act of intentionally preventing or delaying conception using chemicals, drugs, devices, surgical or sexual methods while maintaining an individual`s comfort and minimizing the side effects. Contraceptives can be categorized into two. Traditional means which includes lactational amenorrhea and rhythm method while modern methods include emergency pills, barrier methods, oral contraceptive pills, injectable contraceptives and implants. Surgical, methods include; intrauterine devices and female and male sterilization (United Nations, 2020). Since the year 1994, there has been a remarkable improvement in the reproductive health of

women after a conference was held addressing population in relation to development (Osotimehin, 2015). Africa has the largest gap for unmet need for modern contraception at 24.2% followed by Caribbean and Asia at 10.2% (United Nations, 2020).

To improve these statistics, a global partnership dubbed as ‘‘family planning 2020’’ (Family Planning, 2018) was declared as part of Sustainable Development Goals (SDGs) short-term goals in 2015, with an aim of enabling 120 million women access family planning as of 2020 (Family Planning, 2018). In addition, the ‘‘postpartum family planning’’ program was implemented by WHO in 2013, targeting postpartum women. The aim of the program is to enable women choose and initiate a contraceptive method of choice and sustain its use for two or more years. The recommended birth spacing gap is at least 12 months following childbirth, which among many other advantages gives the woman time to heal and make the uterus ready for carrying another pregnancy.

Globally, an estimated 257 million women have an unmet need for safe, effective contraception, with a significant proportion being in the postpartum period_ a critical window for addressing family planning needs (WHO, 2022). Postpartum women are particularly vulnerable to unintended pregnancies, yet modern contraceptive uptake during this period remains low in many parts of the world, largely due to misconceptions, cultural beliefs, inadequate health system support, and limited access to family planning services (UNFPA, 2021).In sub-Saharan Africa, the uptake of modern contraception remains suboptimal, with a modern contraceptive prevalence rate (mCPR) of approximately 29% among women of reproductive age (Guttmacher

Institute, 2023). The region continues to face challenges such as high fertility rates, low health literacy, and significant barriers to contraceptive access, especially in rural areas. Among postpartum women, cultural norms around breastfeeding and fertility, coupled with health system gaps, contribute to a high unmet need for family planning during the first year after childbirth (Cleland et al., 2019).

Kenya has made notable progress in expanding access to modern contraceptive methods, with a mCPR of 57% among married women as of the 2022 (KDHS, 2022). However, disparities persist across regions, age groups, and socioeconomic strata. Postpartum women in Kenya often delay or miss the opportunity to initiate contraceptive use during the first year after delivery, despite frequent contact with health services during antenatal and postnatal care (MOH Kenya, 2021). Vihiga Sub-County, a predominantly rural area in western Kenya, reflects these national trends. The region has reported relatively low uptake of modern contraceptives among postpartum women, contributing to short birth intervals, high fertility, and maternal health risks (Vihiga County Health Records, 2022).

Kenya implemented the national family planning programme in the year 1967; becoming the first country in sub-Saharan Africa to implement such a programme. This helped to reduce total fertility rate (TFR) from eight children for every woman in the 1970s to five children in the 1990s.Currently, national contraceptive prevalence rate is 61%, above east Africa`s average of 39.5% and sub-Sahara`s 28.4% (Akoth *et al*., 2021). As part of the FP 2020 commitment-making countries, Kenya made a commitment to meet a 58% contraceptive prevalence rate by 2020 and this was achieved in the year 2018 (Akoth *et al*., 2021). As a result, there has been a decline in

TFR nationally from 4.17 in the year 2000 to 3.79 children per woman in 2018 (Knoema, 2020).

1.2 Problem Statement

Contraception is recommended as early as three weeks for non-lactating women and six weeks for lactating women with no medical conditions that may prevent utilization of these services (United Nations, 2018). In Kenya, access to contraception services has been made universal as well as removal of barriers inhibiting access of these services (Family Planning, 2018).

In Vihiga Sub-County, most women wait until menses resume after child birth for them to utilize contraceptives with an average time period being nine months. Apart from delay in utilization, the proportion of women utilizing it is low, evidenced by a lower contraceptive prevalence of 53% in the county (AFIDEP, 2019), against the national average of 61% as of the year 2020 (Family Planning, 2020). This prevalence is the lowest among the western region counties (AFIDEP, 2019)

This has an impact on the health indicators of Vihiga Sub-County such as increased rate on fertility at 4.5 children per woman against the national`s average of 3.8, higher rate of population growth at 2.5% against the national average of 2% and increased incidences of anaemia among infants and expectant mothers among others (AFIDEP, 2019; United Nations, 2020). Thus, the study intended to investigate factors contributing to low contraceptive prevalence as well as delayed postpartum contraceptive utilization in Vihiga Sub-County. Results from the study will be vital in understanding the current contraceptive trend in Vihiga Sub-County and factors that lead to these trends. Negative trends if left unchecked will overstretch the available

resources in the long run, and hamper progress leading to poor living standards in the County. Positive trends on the other hand, will encourage good practices to enhance even better contraception habits. It is for this reason the researcher was interested in this county, to find out the factors affecting the uptake of modern contraceptive in Vihiga Sub-County, Kenya.

1.3 Justification of the Study

The government of Kenya assented to improve access as well as utilization of contraceptives and this was achieved in 2020 when the previous 58% contraceptive prevalence was surpassed in the year 2018 to 61% in 2020 (Family Planning, 2020). This is very important in reduction of total fertility rate and help married couples gain control on the number of children to bring forth and at a time they want them. This research was therefore necessary in Vihiga Sub-County because, despite the investment by the national government in bid to increase access for contraceptives, its prevalence is still below national average in Vihiga Sub-County at 53% against national` 61% (AFIDEP, 2019; Knoema, 2020). In addition, Contraceptive prevalence in Vihiga Sub-County is the lowest among western region counties of Kenya (AFIDEP, 2018). This study sought to find out factors contributing to disparities between the postpartum contraceptive prevalence at the national level and that of Vihiga Sub-County. Being a community-based study, it was important in identifying the enablers and barriers to utilization of contraception services which is important for health education and promotion among women of reproductive age in Vihiga Sub-County to improve utilization.

1.4 Research Questions

1. What is the level of knowledge of postpartum women on modern contraception in Vihiga Sub-County?
2. What is the prevalence of modern contraceptive use among postpartum women in Vihiga Sub-County?
3. What are the factors influencing the uptake of modern contraception by postpartum women in Vihiga Sub-County?

1.5 Hypothesis

$H0_1$: There is no significant relationship between knowledge levels on modern contraception and uptake of modern contraception among postpartum women in Vihiga Sub-County

$H0_2$: There are no significant relation between factors influencing contraception by postpartum women in Vihiga Sub-County.

1.6 Research Objectives

1.6.1 Main Objective

To assess uptake of modern contraception among postpartum women in Vihiga Sub-County, Kenya

1.6.2 Specific Objectives

1. To find out the level of knowledge on modern contraception among postpartum women in Vihiga Sub-County.
2. To determine the prevalence of modern contraceptive use among postpartum women in Vihiga Sub-County.

3. To identify factors influencing the uptake of modern contraception among postpartum women in Vihiga Sub-County.

1.7 Significance of the Study

Health being a devolved function of the County governments, Vihiga Sub-County has the same goal of meeting the national government`s agenda. This study has provided information for the county health management team in charge of reproductive health and other SRH programme partners on the existing gaps that need to be addressed to minimize the vital indicators below the national average and hence promote the realization of government agenda on reproductive health. The study findings will also help to improve Vihiga County government health policy formulation and development for better health services provision and hence achievement of sustainable development.

1.8 Scope of the Study

The study included only those women who have given birth and above 18 years and those who visit the MCH. Questionnaires, KII guide and FGD guides were used as the research instruments during data collection.

The study focused on postpartum mothers in Vihiga Sub-County hence the results could be generalized to areas with similar characteristics.

1.9 Limitations and Delimitations of the study

1.9.1 Limitation of the study

This study utilized a quantitative and qualitative cross-sectional study design thus it did not provide trends on modern contraception among women of productive age

since it only concentrated on postpartum women. Secondly, the study was done in the local community setting with the utilization of the primary healthcare facilities hence there was a need for understanding of the local dialect which was a challenge to the researcher.

1.9.2 Delimitation of the study

Research assistants who were knowledgeable in the dialect helped in translation and administration of questionnaires and any other assistance the researcher needed.

Attrition and decline to participate was addressed by the researcher involving community gatekeepers including the religious leaders, community health volunteers/ assistants and civic leaders to get acceptance and this community entry exercise was done at the initial stage of conducting this study.

1.10 Conceptual Framework

Independent variables included; respondents' socio-demographic factors, knowledge of postpartum women on contraception, rate of modern contraceptive use and factors influencing the uptake of modern contraceptive among postpartum women in Vihiga Sub-County. Intervening variables included communal beliefs and religious beliefs. Dependent variables included uptake of modern contraception.

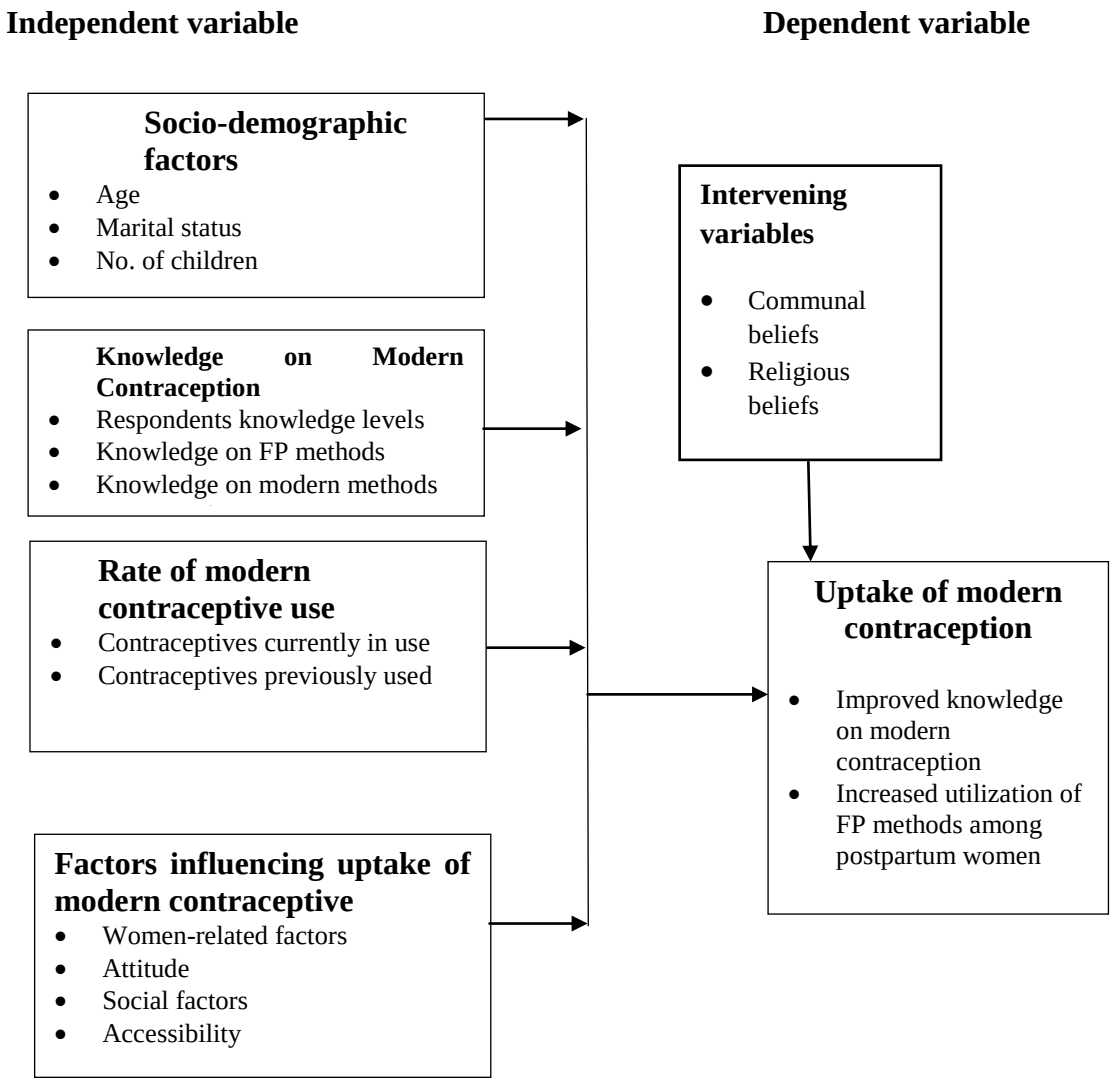

Figure 1.1: Conceptual framework

Figure showing the interaction of independent, dependent and intervening variables in contraception.

Source: Developed by researcher using literature review (2020)

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

The chapter goes deep into the topic of study to unpack what other similar studies have found out. This section is very important as it helps the researcher to widely synthesize the study topic, comprehend it and come up with a research framework. In addition, it enabled the researcher understand how the problem under investigation was tackled by other researchers using different designs and what results were yielded and as such inform the researcher what design will be most suitable for the current study (Mochache et al., 2018). In addition, the review helps to identify gaps existing in the discipline under study and possibly how the current study will address it and or recommend it for further study.

Introduction of modern contraception plays a pivotal role in the reproductive health of postpartum women, offering them the autonomy to plan their pregnancies and spacing between children effectively (Gichangi et al., 2020). By providing postpartum women with contraceptive options, it enables them to make informed decisions regarding their reproductive choices, leading to better maternal and child health outcomes.

Through this exploration, we aim to contribute to the existing body of knowledge and inform strategies for promoting contraceptive use among postpartum women.

2.1 Global Trends in Postpartum Contraceptive Use

The global landscape of postpartum contraceptive use reflects diverse patterns influenced by socioeconomic, cultural, and healthcare factors. Recent studies have highlighted significant variations in contraceptive uptake among postpartum women

across different regions and countries. For instance, while some regions exhibit high rates of contraceptive use postpartum, others face considerable challenges in accessing and utilizing modern contraceptive methods. Studies from 2018 onwards have provided insights into these global trends, emphasizing the importance of context-specific approaches to promote contraceptive use among postpartum women. For example, (Regawi et al., 2018) conducted research in rural Tigray region, northern Ethiopia, identifying predictors of postpartum contraceptive use within the local context. Their findings shed light on factors such as education, socio-economic status, and access to healthcare services, which significantly influence contraceptive uptake among postpartum women in Ethiopia. Similarly, (Akoth et al., 2021) investigated factors associated with the utilization and unmet need for modern contraceptives among urban women in Kenya. Their study highlighted the role of socio-demographic factors and healthcare service quality in shaping contraceptive behaviors among postpartum women in Kenya (Mochache et al., 2018). By analyzing data from specific regions and populations, these studies contribute to our understanding of global trends in postpartum contraceptive use and underscore the need for tailored interventions to address regional disparities.

2.2 Prevalence of Postpartum Contraception Uptake.

On matters of contraceptive prevalence, an ideal situation exists when the utilization is equivalent to its demand. However, this balance has not been stricken even in developed regions which have a 79% CPR against the developing countries` at 69% (Rana & Goli, 2018). Indonesia has a high contraceptive prevalence, especially for the first 12 months postpartum at 74%. However, the rate reduces at 6 months to 50% with an unmet need for contraceptives at 24%

A survey conducted in Thatta Pakistan, showed a very low prevalence of modern contraceptive utilization at 4% whereas that of India in the same study was at 65.5% (Gichangi et al., 2020). In Africa, a survey found most women waiting up to two months postpartum to resume utilization of contraceptives with continuous utilization within the first one year being an average of 30% In the first month, Burkina Faso had 0% utilization of these services in comparison with Zimbabwe`s 44% which was the highest in the survey. Accounting for the first 12 months postpartum, Zimbabwe had the highest utilization levels at 70% the least being Benin at 6% A study conducted in South Sudan reports a national contraceptive prevalence of 6.8% among whom only 2.5% utilize modern methods of contraceptives while 4.1% prefer traditional methods (Obwoya *et al*., 2018). In Ethiopia, the national contraceptive prevalence is at 18%, although this varies from one region to the other, such as in Hossana which had a contraceptive prevalence of 73.9% (Gejo *et al*., 2019).

In Kenya, postpartum women in urban areas have a 65% modern CPR, most of them using injectables (45%), pills (22%) and long-acting or permanent methods (15%). A Kwale County based study, found 52% of women aged 15-45 years using contraceptives while 62% of those not using any method report that they intended to use one in future (Gichangi et al., 2020). The most used method is injectables (45%), implants (23%) and 7% claim using male condoms (Mochache *et al*., 2018).

Trends show a lower CPR in the western region of Africa as compared to Eastern Africa. Developed countries have higher rates, but they also have unmet needs for contraception, which need to be addressed as well. In Kenya, contraceptive prevalence rates are higher as compared to studies within Sub-Saharan countries, in tandem with

national average at 61% (Family planning, 2020). Contraception method of choice for most postpartum women is injectable as has been shown by most studies.

2.3 Socio-demographic Factors

This has been found to influence utilization with variations across the globe. For instance, in Bangladesh middle aged women between ages30-39 utilized the services more than the young and aged (Hossain *et al*., 2018). Age has been suspected to influence uptake of contraceptives with the aged expected to use them more than the young women. This was as well found out to be the case in Bangladesh but women aged 30-34 were the leading utilizers, followed by those aged between 35-39 years. The least users were those aged 45-49 who preferred abstinence.

Parity has been the reason for this disproportion although in this study, a reason was not given (Hossain *et al*., 2018). The same consistency of age was observed in Nigeria where women aged between15-19 had a 4% contraceptive prevalence whereas those aged 40-49 had a17% prevalence.

Education level was found out to influence contraceptive uptake among women in urban Juba, South Sudan, after a study found out a 62% contraceptive prevalence (Obwoya *et al*., 2018) against 6.8%. In this study population, two thirds of the population had secondary level education. In a population survey carried out in Butembo Congo, education level was relatively high with 38% of the participants having attained secondary and 33% primary with a 4.5% university among the participants (Fruhauf et al., 2018). In addition, contraceptive knowledge was found to be as high as 96% meaning they knew at least one contraceptive. However, utilization of modern contraceptives was only 44%. This again raises the validity of education`s

role to influence the use of contraceptives because 72% of the respondents had used calendar method in the past, 62% had used it prior to the recent pregnancy with 26% intending to use it in the future. Similarly, education was found to have little effect as far as contraceptive use is concerned among postpartum women in a Bangladesh survey, but not so among employed women whose utilization was higher than that of the unemployed counterparts(Hossain *et al*., 2018). In Kenya however, level of education was found to positively impacting contraceptive utilization.

Socio-economic status significantly impacts the uptake of contraceptives among postpartum women, as evidenced by several studies. In Bangladesh, Hossain et al. (2018) found that individuals from higher economic classes were more likely to utilize contraception compared to those from lower economic backgrounds. This trend was similarly observed in Ethiopia, as highlighted by Abraha et al. (2018). The study indicated that individuals with greater financial resources tended to have a higher proportion of contraceptive use. Moreover, wealth was identified as a key factor associated with contraception uptake, as demonstrated by (Abraha et al., 2018).Their research suggested that individuals with higher wealth status were more likely to access and use contraceptive methods effectively. This indicates that socio-economic status plays a crucial role in shaping the contraceptive behaviors of postpartum women.

Furthermore, socio-economic status not only influences access to contraceptives but also affects the decision-making process regarding their utilization. Individuals from higher socio-economic backgrounds often have better access to healthcare services, including family planning resources and information (Smith & Johnson, 2018). This access enables them to make informed decisions regarding contraceptive use based on

their preferences and needs (Brown et al., 2019). Conversely, individuals from lower socio-economic backgrounds may face barriers such as limited access to healthcare facilities, financial constraints, and lack of education about contraceptive options (Garcia & Lee, 2020). These barriers can hinder their ability to access and utilize contraceptives effectively, contributing to disparities in contraceptive uptake based on socio-economic status Moreover, socio-economic status can intersect with other factors such as education and employment, further influencing contraceptive use. Studies have shown that individuals with higher levels of education and stable employment are more likely to use contraceptives compared to those with lower levels of education and unstable employment Education and employment provide individuals with the knowledge and financial stability necessary to access and afford contraceptives (Tan & Martinez, 2018). Additionally, individuals with higher socio-economic status may have greater autonomy and decision-making power within their households, enabling them to make choices regarding contraceptive use without facing opposition or coercion from partners or family members (Chen & Kim, 2021).

2.4 Knowledge on Modern Contraception

Knowledge on FP has a positive impact in influencing the utilization of these services as reflected by a study done in India, especially during the postpartum period as mothers are informed while attending their postnatal clinics (Mochache et al., 2018). This is a challenge though because most women are not informed due to insufficient personnel among other reasons .

A survey in Bangladesh also elucidated other reasons women always give for not starting contraception in time after childbirth. These include: Breastfeeding, amenorrhea, abstinence and sexual inactiveness (Hossain *et al*., 2018).

2.5 Side Effects of Contraceptives

Side effects associated with contraceptive use can significantly impact women's decisions regarding continuation or discontinuation of contraceptive methods. In Egypt, research conducted by (Akinyemi, Danfakha, & Easley et al., 2022) revealed that heavy and prolonged bleeding resulting from hormonal contraceptives contributed to a 2-4% discontinuation rate among users. This suggests that undesirable side effects can influence women's adherence to their chosen contraceptive method, potentially leading to discontinuation and subsequent unintended pregnancies. Similarly, in Bangladesh, found that menstrual irregularities prompted up to 59% of implant users to remove the implant prematurely. Such findings underscore the importance of addressing side effects to improve contraceptive continuation rates and ensure effective family planning (Mochache et al., 2018).

Qualitative studies have provided insights into the multifaceted impact of contraceptive side effects on women's lives demonstrated through qualitative research that contraceptives can affect various aspects of a woman's life, including her religious commitment, household responsibilities, sexual intimacy, and productivity in the workplace. These findings highlight the complex interplay between contraceptive side effects and women's daily lives, indicating that side effects can extend beyond physical discomfort to impact emotional, social, and cultural domains. Understanding these

broader implications is crucial for healthcare providers to offer tailored contraceptive counseling and support.

Moreover, the experience of side effects may contribute to women's decisions to shift or discontinue contraceptive use. For instance, the prospect of facing adverse effects on religious practices, such as disruptions to ritual purity or fasting requirements, may lead some women to reconsider their contraceptive choices. Similarly, side effects that interfere with sexual intimacy or increase the burden of household chores can strain relationships and affect overall well-being, influencing women to seek alternative contraceptive options (Fruhauf et al., 2018). By acknowledging and addressing these concerns, healthcare providers can empower women to make informed decisions about their reproductive health.

Furthermore, the impact of contraceptive side effects extends beyond individual women to affect broader societal dynamics. For instance, side effects that impede productivity in the workplace can have economic repercussions, potentially limiting women's participation in the workforce and perpetuating gender inequalities (Akinyemi, Danfakha, & Easley, 2022). Additionally, concerns about side effects may contribute to societal stigma surrounding contraceptive use, further hindering access to family planning services and reproductive rights. Therefore, addressing side effects is not only essential for individual women's well-being but also for promoting gender equity and societal development.In Bangladesh, it was found out that up to 59% of implant users remove the implant before term as a result of menstrual irregularities Qualitative studies have shown that contraceptives can affect a woman`s life in various aspects including

her religious commitment, household chores, sexual intimacy and productivity at work place and hence they opt to shift or discontinue its use

2.6 Rate of Modern Contraceptive Use

In some instances, there can be contraceptives in a facility but still utilization becomes a problem contributed by the healthcare system (Akinyemi et al., 2022). A rural Burundian study found out that despite there being contraceptives in health facilities, there was a 3% contraceptive utilization because of mismatch between available and preferred methods and inexperienced expertise

Quality of care has also been linked to better postpartum contraceptive uptake especially by leveraging on the antenatal care to stress on information on birth space as well as family planning (Gejo, Anshebo, & Dinsa, 2019).

Different studies found differing findings on the distance to the health facility and service utilization. In Mozambique, participants near health facilities had a tendency to utilize postpartum FP services more often than those located further distances but not so in Liberia where the opposite was found out (Kaydor *et al*., 2018).

In Pakistani`s urban population, there was a negative association between healthcare provider`s experience and contraceptive uptake (Gejo, Anshebo, & Dinsa, 2019). Mothers less preferred the more experienced contraceptive providers because most at times they were older than their clients. It therefore emerges that health care providers ought to be in the same age gap as the mothers for ease of communication and rapport since most women tend to accord too much respect and fear for aged healthcare providers

Display of information on the various contraceptives available in a health facility through charts and other media has a positive correlation to contraceptive uptake because it stimulates the public interest of postpartum mothers to take up the services (Apanga et al., 2020). In Kisii County in Kenya, a study showed that postpartum women preferred public hospitals to private ones because of availability of this information since they were adequately counselled and given the services. However, frequent stock-outs, long queues and shortage of staff is an inhibiting factor which discourages some women from seeking these services and others opting for private pharmacists who they reported were less experienced as compared to those in public hospitals Lack of contraception access, distance from home to the health facility, healthcare provider bias and high costs of contraceptives have been reported in some parts of India as the reasons for non-utilization of contraceptives

2.7 Factors Influencing Uptake of Modern Contraception

Cultural and religious beliefs wield significant influence over the decision-making processes concerning contraceptive use among postpartum women. These deeply ingrained beliefs often shape individuals' perceptions and attitudes towards family planning methods, thereby impacting their uptake. Adedini et al. (2018) underscored the pivotal role of religious leaders in shaping contraceptive behaviors within communities. Religious leaders, as trusted figures, hold considerable sway over their followers, disseminating messages that align with religious doctrines. Consequently, their endorsement or condemnation of contraceptive methods can significantly influence individuals' decisions regarding their use. In many instances, religious teachings may advocate for procreation.

Furthermore, cultural norms and practices also play a crucial role in shaping contraceptive behaviours among postpartum women (Smith et al., 2018). Cultural values regarding fertility, gender roles, and familial structures can either facilitate or hinder the adoption of modern contraceptive methods (For instance, in patriarchal societies where male dominance prevails, women may face barriers to accessing and using contraceptives without their partner's consent (Brown & Lee, 2019). Moreover, cultural taboos surrounding discussions about reproductive health and sexuality may inhibit individuals from seeking information about contraceptive options or accessing reproductive health services (Nguyen et al., 2020). In addition to religious and cultural influences, socioeconomic factors intersect with cultural and religious beliefs to shape contraceptive use among postpartum women. Economic constraints, such as poverty and unemployment, can exacerbate the challenges associated with contraceptive access and utilization (Apanga et al., 2020). In resource-constrained settings, individuals may prioritize meeting basic needs over investing in family planning, viewing children as a form of economic security or labour force (Robinson & White, 2018). Moreover, disparities in education and awareness levels across socioeconomic strata can further perpetuate misconceptions and barriers related to contraceptive use (Hernandez et al., 2019).

However, it is essential to recognize that cultural and religious influences on contraceptive use are not monolithic and may vary within and across communities (Chen & Wang, 2021). While some religious denominations may adopt conservative stances on contraception, others may endorse family planning as a means to promote maternal and child health Likewise, cultural attitudes towards contraception can evolve over time, influenced by factors such as urbanization, education, and exposure to

external influences Hence, interventions aimed at promoting contraceptive uptake among postpartum women must be sensitive to the diverse cultural and religious contexts in which individuals reside (Tan et al., 2022). In addressing the cultural and religious barriers to contraceptive use, strategies must adopt a multi-dimensional approach that engages various stakeholders, including religious leaders, community influencers, and healthcare providers (Wang & Li, 2020).

Collaborative efforts involving religious institutions, such as integrating family planning education into religious teachings and engaging religious leaders as advocates for reproductive health, can help counteract negative perceptions surrounding contraception (Jones et al., 2018). Moreover, community-based initiatives that leverage cultural norms and values to promote contraceptive use, such as peer education programs and community dialogues, can foster a supportive environment conducive to informed decision-making regarding family planning (Nguyen & Tran, 2019). In conclusion, cultural and religious beliefs exert a profound influence on the contraceptive behaviours of postpartum women, shaping attitudes, perceptions, and access to family planning services (Garcia & Martinez, 2021). Recognizing and understanding these influences are paramount for designing effective interventions that address the unique needs and preferences of diverse communities (Brown et al., 2022). By engaging religious leaders, challenging harmful cultural norms, and promoting culturally sensitive approaches to family planning, stakeholders can contribute to enhancing contraceptive uptake and improving maternal and child health outcomes among postpartum women (Robinson et al., 2023).and discourage the use of contraceptives, particularly among devout adherents.Cultural beliefs and perceptions on contraceptives differ from one community to another, their magnitude being upheld

depending on various variables such as education, religion, westernization, among others (Mutumba *et al*., 2018).

Ideal household parity as determined by a community greatly impacts postpartum contraception utilization (Mutumba *et al*., 2018). Women will want to have a higher number of children so as to prove their fertility and uphold to their communal norms of the desired number of children, leading to low prioritization of contraceptives.

Myths and misconceptions are still held in various communities even in this 21st century about contraceptives. Some of the misconceptions held in different populations include: ``use of contraceptives is more dangerous than pregnancy, contraceptives harm the uterus, contraceptives such as injectables and pills cause permanent disability, '' among others A survey conducted involving several countries found out a high prevalence of these myths (Apanga et al., 2020).

In Senegal, half of the interviewed women believed that use of contraceptives lead to health problems, whereas in Nigeria, a range of 33-57% believed so, rates being even higher in Kenya whereby 65-82% of the interviewed women believed these misconceptions. The studied sample was followed up and two years later, the rates still remained high although there was a slight decline (Yang *et (Akoth et al., 2021).* In Ghana, it was found out that some people held the perception that FP was meant for the married women, hence may have negative implications of early pregnancies among teenagers and that it is harmful to the womb (Apanga *et al*., 2020). This can contribute to unplanned pregnancies and as well raise the question on those who have children but are not married.

Male dominance as the final decision maker of the household was found to be a hindrance as far as postpartum contraception utilization is concerned in Ghana (Apanga *et al*., 2020) but not so in eastern Congo The results from Congo were consistent with what was found out after a Bangladesh health survey in which it was found out that male-headed households had a higher contraception use (65.3%) than the female-headed ones (32.3%) (Hossain *et al*., 2018).

Religion also plays a significant role as far as utilization of contraceptives is concerned. In Nigeria, it was found out that Muslims have a low utilization of the contraceptives as compared to the Christian communities. This is attributed to the fact that Muslim allows polygamy and hence a woman will want to get as much children to gain attention from the husband as possible (Akoth et al., 2021). In a survey conducted by MLE, women were 70% likely to use contraceptives if they heard the message from a cleric than those who hadn't. Similarly, out of the 00% religious women interviewed, two thirds are likely to use contraceptives because they heard it from a religious leader. This therefore underscores the importance of religious beliefs as intertwined with utilization of contraceptives (Adedini *et al*., 2018).

Among the inhibitors in this population could be the role of religion considering the fact that majority were catholic denomination who do not advocate for use of artificial contraceptives (Sherwood, 2018) and low family planning promotion

2.8 Predictors of Postpartum Contraceptive Use

Postpartum contraceptive use is influenced by a myriad of factors, encompassing demographic, socioeconomic, and educational dimensions. Understanding these predictors is crucial for designing effective interventions to enhance contraceptive

uptake among postpartum women. Recent literature has shed light on several key predictors, drawing attention to their significance in shaping contraceptive behavior.

Demographic factors play a pivotal role in determining postpartum contraceptive use. Studies have consistently highlighted age as a significant predictor, with younger women exhibiting lower contraceptive utilization rates compared to older counterparts (Regawi et al., 2018). Additionally, parity, or the number of children a woman has, has been linked to contraceptive decision-making. Primiparous women often demonstrate higher contraceptive uptake rates than multiparous women, possibly due to differences in perceived fertility control needs post-delivery (Gejo et al., 2019).

Socioeconomic status emerges as another critical predictor of postpartum contraceptive use. Women from lower socioeconomic backgrounds tend to face more barriers to accessing and utilizing contraceptives compared to their wealthier counterparts. Factors such as income level, employment status, and urban-rural residence have been identified as influential determinants. For instance, (Akoth et al. 2021) found that urban women in Kenya exhibited higher contraceptive utilization rates compared to their rural counterparts, highlighting the role of urbanization in facilitating access to family planning services.

Educational background also significantly influences postpartum contraceptive behavior. Higher levels of education are often associated with increased contraceptive knowledge and autonomy, leading to higher uptake rates. (Adedini et al., 2018) observed a positive correlation between educational attainment and contraceptive use among Nigerian women, emphasizing the role of education in empowering women to make informed reproductive choices.

Furthermore, contextual factors such as access to healthcare services, cultural norms, and religious beliefs intersect with demographic, socioeconomic, and educational predictors to shape contraceptive behavior among postpartum women. Geographical disparities in access to family planning services, for instance, can exacerbate existing disparities in contraceptive utilization, particularly in resource-constrained settings (Apanga et al., 2020).

In conclusion, an understanding of the predictors of postpartum contraceptive use is essential for tailoring interventions to meet the diverse needs of women during the postpartum period. Demographic, socioeconomic, and educational factors, alongside contextual influences, collectively shape contraceptive decision-making among postpartum women. Future research should delve deeper into these predictors to inform targeted strategies aimed at promoting contraceptive access and utilization in diverse settings.

2.9 The Role of Healthcare Services in Promoting Contraceptive Use

Healthcare services play a pivotal role in promoting contraceptive use among postpartum women (Kwame et al., 2022). The quality of healthcare services directly influences the uptake of contraception by providing information, counseling, and access to a range of contraceptive methods. Studies have shown that women are more likely to utilize contraceptives when they receive comprehensive reproductive health services that address their specific needs and preferences (Regawi et al., 2018). Quality healthcare services ensure that women have access to accurate information about contraceptive options, including their effectiveness, side effects, and suitability for

individual circumstances. This enables women to make informed decisions about their reproductive health and choose the contraceptive method that best meets their needs.

Integration of family planning services with maternal health services has emerged as an effective strategy for promoting contraceptive use among postpartum women. By integrating family planning into routine maternal healthcare visits, women are more likely to receive timely and comprehensive information and services related to contraception (Fruhauf et al., 2018). This approach capitalizes on the existing infrastructure and resources within maternal health services to deliver contraceptive counseling, provision, and follow-up care. It ensures that women have access to contraceptive services during critical periods, such as the postpartum period, when they are most receptive to information and support regarding family planning decisions (Kwame et al., 2022). Additionally, integrating family planning with maternal health services reduces barriers to access by providing a convenient and accessible point of care for women seeking contraception.

Moreover, the integration of family planning services with maternal health services facilitates continuity of care throughout the reproductive health continuum. By addressing contraceptive needs alongside maternal healthcare needs, healthcare providers can offer holistic and comprehensive care that supports women's overall reproductive health and well-being (Gejo et al., 2019). This approach promotes the use of contraceptives as an integral component of maternal healthcare, rather than as a separate and distinct service. It ensures that women receive consistent and coordinated support for their reproductive goals, whether they are planning a pregnancy, preventing pregnancy, or spacing pregnancies.

Effective integration of family planning with maternal health services requires a multi-faceted approach that addresses various dimensions of service delivery. This includes training healthcare providers to offer non-judgmental and client-centered contraceptive counseling, ensuring the availability of a wide range of contraceptive methods, and implementing supportive policies and protocols within healthcare facilities (Akoth et al., 2021). Additionally, it involves strengthening health systems to ensure that contraceptive services are integrated into routine care pathways and are accessible to all women, regardless of their socioeconomic status or geographic location. By addressing these key components, healthcare services can maximize their impact on contraceptive uptake among postpartum women and contribute to improved reproductive health outcomes.

2.10 Policy and Programmatic Factors Affecting Contraceptive Uptake

Policy and programmatic factors exert substantial influence on contraceptive use among postpartum women, with national and local policies serving as pivotal determinants of access to contraceptive methods (Jones et al., 2019). Initiatives prioritizing comprehensive reproductive health services, including access to a diverse array of contraceptive methods, have been shown to positively affect contraceptive uptake among postpartum women (Blumenthal et al., 2020). Moreover, policies ensuring affordability and accessibility of contraceptives through subsidized or free distribution channels have contributed significantly to increased utilization rates (Ali et al., 2018). Task-sharing strategies within healthcare systems have emerged as a notable policy change, allowing lower-level healthcare providers like community health workers to deliver contraceptive services, thereby expanding access, particularly in rural and underserved areas Integration of family planning services with other maternal and child

health interventions, such as incorporating family planning counselling and services into antenatal and postnatal care visits, has demonstrated effectiveness in increasing contraceptive uptake among postpartum women (Tesfaye et al., 2021). Additionally, policies aimed at reducing financial barriers to contraceptive access, such as the removal of user fees or inclusion of contraceptives in national health insurance schemes, have yielded positive outcomes in increasing contraceptive use (Shiferaw et al., 2018). Contraceptive education and awareness campaigns have also played a significant role in dispelling myths and misconceptions surrounding contraception, thereby contributing to increased acceptance and utilization rates among postpartum women Furthermore, rights-based approaches to family planning programming, prioritizing individuals' rights to autonomous decision-making about their reproductive health, have been instrumental in promoting contraceptive use among postpartum women (Dey et al., 2019). These policies emphasize informed choice, confidentiality, and respect for individuals' dignity and autonomy, thereby addressing systemic barriers to contraceptive access (Khan et al., 2020).

2.11 Challenges and Barriers to Contraceptive Use

In understanding the challenges and barriers to contraceptive use among postpartum women, it becomes evident that multifaceted factors contribute to the complexity of this issue. One prominent barrier is limited access to contraceptive services, particularly in rural and underserved areas. Studies such as (Regawi et al., 2018) have highlighted the disparities in access to family planning resources, which hinder postpartum women from obtaining the necessary contraceptives. This lack of accessibility exacerbates the already existing challenge of reaching women during the critical postpartum period, thereby impeding their ability to make informed choices about contraception.

Moreover, inadequate education and awareness about contraceptive methods pose significant barriers to uptake among postpartum women. (Akoth et al. 2021) underscored the importance of education in influencing contraceptive decision-making among urban women in Kenya. Insufficient knowledge about available options, their efficacy, and potential side effects can lead to misconceptions and hesitancy towards contraceptive use. Without access to comprehensive information and counseling services, postpartum women may be reluctant to initiate or continue contraceptive methods, contributing to unmet needs and unintended pregnancies.

Cultural and societal norms also play a pivotal role in shaping attitudes towards contraception among postpartum women. (Gejo et al., 2019) emphasized the influence of cultural beliefs and gender dynamics on contraceptive decision-making in Hossana town. In many communities, discussions surrounding family planning and contraception remain taboo, perpetuating myths and stigmatization. Cultural pressures to prioritize childbearing and fulfill traditional gender roles may deter women from seeking contraceptive services, fearing judgment or ostracization from their communities.

Furthermore, misconceptions about contraceptive methods and their perceived side effects contribute to hesitancy and discontinuation among postpartum women. (Apanga et al., 2020) conducted a large population-based study across 20 African countries, identifying misconceptions as significant barriers to modern contraceptive use. Common myths surrounding contraceptives, such as fears of infertility, weight gain, or adverse health effects, often deters women from initiating or continuing contraception (Fruhauf et al., 2018). Addressing these misconceptions through targeted education and

counseling interventions is crucial for dispelling myths and increasing contraceptive acceptance among postpartum women.

In addition to these barriers, socioeconomic factors, including poverty and financial constraints, pose considerable challenges to contraceptive access and utilization among postpartum women. (Adedini et al. 2018) explored the role of socioeconomic status in contraceptive use in Nigeria, highlighting the disparities that exist among different income groups. High costs associated with contraceptive methods, transportation to healthcare facilities, and lost wages due to clinic visits present significant barriers, particularly for marginalized populations. Economic empowerment initiatives and subsidized contraceptive services are essential strategies for mitigating financial barriers and ensuring equitable access to contraception for all postpartum women.

2.12 Public Health Importance of the Study

Being one of the milestones made in the 20th century, contraception has helped families' space children, as they prefer, reduced unintended pregnancies, minimized abortions and improved maternal health as well as better infant growth and survival (Adedini et al., 2018). On the general population, slow population growth is attributed to contraception, a factor that helps in better resource planning (Kwame et al., 2022). Women have also been great beneficiaries of contraception as it gives them greater control over their sexuality and reproduction. In addition, it has positive health outcomes by a reduction in risk of developing cancer of the ovary and endometrium, reduction of menstrual disorders among others.

2.13 Summary of Literature Review

Available literature shows that most women prefer long-acting contraceptives especially injectables and implants, regardless of the distance from the health facility. Access to contraceptives has been enhanced in most parts of low- and middle-income countries (LMICs) but utilization still remains a challenge in most parts of these countries. Reasons cited vary also from one region to another elucidating the need for heightened efforts to find out the needs of the respective populations and customizing these contraceptives to the populations in question.

The literature review has provided valuable insights into the factors influencing the uptake of modern contraception among postpartum women. Key findings include the significant role of healthcare services and the integration of family planning with maternal health services in promoting contraceptive use (Akoth et al., 2021). Cultural and religious influences have been identified as important determinants, underscoring the need for culturally sensitive approaches.

2.14 Identified Gaps in Literature Review

Most studies are women centred and less focus given to health system, which also plays a role in hindering accessibility these services. Most studies do not tell the average time that women take after conception or delivery before resuming postpartum family planning. Additionally, policy and programmatic factors have been shown to impact contraceptive uptake, highlighting the importance of supportive policies. Despite progress, challenges such as access barriers and misconceptions persist, emphasizing the need for targeted interventions.

Moving forward, further research is warranted to address existing gaps in contraceptive use among postpartum women. Specifically, studies focusing on marginalized populations and underserved regions could provide valuable insights into overcoming barriers to access (Adedini et al., 2018). There is a need for research exploring innovative approaches to contraceptive education and counseling tailored to the unique needs of postpartum women. Collaboration between researchers, policymakers, and healthcare providers is essential to ensure evidence-based strategies that effectively address the diverse needs of postpartum women.

There was no published documentation on modern contraception utilization among women of reproductive age in Vihiga SubCounty thus an existing literature gap.

Most studies do not show the magnitude of reasons that hinder utilization of FP services in terms of statistical significance such as odds ratio, which can help in decision-making. Most studies also do not focus on the health system factors, which are also vital for service improvement to help realize the FP 2020 short term SDG.

CHAPTER THREE: MATERIALS AND METHODS

3.0 Introduction

This is the methodology section of the study that explains how the study was done, most important being the study design, depicting the nature of the study and for this case it was cross-sectional as well as the variables used and how they were measured. The section also describes where the study was done, among which population with an elaborate sampling frame and sample size, describing who is included and grounds of exclusion. The section also explains how reliable and valid the research is, the research instruments used to collect data and the methods of data analysis. The section also describes how the researcher complies with the ethical requirements as part of the research process.

3.1 Study Design

A descriptive cross-sectional study design was employed because of its ability to measure both exposure and outcome simultaneously considering limitation on time and resources. There was no follow up of participants into the future hence only reported on the status of contraceptive utilization based on collected data during the research period.

3.2 Variables

3.2.1 Independent Variables

The independent variables for this study included: socio-demographic factors (measured in terms of age, marital status, no. of children, occupation, income and education), knowledge on modern contraceptive (measured in terms of: knowledge

level, knowledge of contraceptive methods and knowledge on modern contraceptives), prevalence of modern contraceptive use (measured in terms of contraceptives currently used and contraceptives previously used) and factors influencing uptake of modern contraceptives (measured in terms of women related factors, attitude, social factors and accessibility).

3.2.2 Intervening Variables

Communal beliefs and religious beliefs were the intervening variables measured in terms of whether religion and community allow the use of modern contraceptives.

3.2.3 Dependent Variable

The dependent variable for this study was the uptake of modern contraception among postpartum women in Vihiga Sub-County. It was measured in terms of the proportion of postpartum women on modern contraceptives and proportion of postpartum women utilizing modern contraceptives.

3.3 Study Area

Vihiga Sub-County is located in the western Kenya region (former western province), it is approximately 26 kilometers north of Kisumu City it is on latitude; 0° 4' 0" N to 0° 13' 0" N and longitude; 34° 30' 0" E to 34° 52' 0" E. This Study was based in Vihiga Sub-County, Vihiga County, which has four Wards namely; Lugaga-Wamuluma, South Maragoli, Central Maragoli and Mungoma with a population size of approximately 95,292 people, 49,501 of whom are female, 23,804 households and an average of 4.0 people per household (KNBS, 2019). The fertility rate is 4.5 children above the national`s 3.8, The county`s population growth rate is 2.5% whereas the rate of utilizing contraceptives is at 53% lower than the national average

at 61% (United Nations, 2020). The Sub-County`s economic activities include subsistence farming, quarrying, trade and bee keeping.

3.4 Study Population

Study population were women between 18-49 years, who have had at least one child birth and within one year following childbirth, residing in Vihiga Sub-County. From the Ministry of Health statistics, there were approximately 1726 women aged 18 years and above with at least one child birth who attended the MCH in Vihiga Sub-County in the year 2019 (Ministry of Health, 2019). The study only incorporated women aged 18 years and above for ethical reasons since they can make their own decisions without seeking consent from someone else as is the case with minors.

3.4.1 Inclusion Criteria

The study included individuals with the following characteristics; women above 18 years for research ethical reasons, those women attending MCH clinics, women with at least one child birth within one year following a child birth, women consented to participate and lastly, women in the right state of mind

3.4.2 Exclusion Criteria

This study excluded women of reproductive age who had a child and were not within postpartum period, non-residents of Vihiga Sub-County, women who were attending MCH clinics but below 18 years of age.

3.5 Sampling Techniques

The researcher randomly selected Central Maragoli and Lugaga-Wamulama Wards for study. Purposive sampling was used to pick dispensaries offering MCH and FP

services from each Ward based on the catchment population (Table 3.1). Participants were selected through Simple random sampling from the sampled facilities. This was done through paper picking to limit the number of women participating in the study because the number attending MCH was more than the desired sample size per facility. The study was conducted among 379 postpartum women who were given questionnaires picked from different facilities in the two wards.

3.6 Sample Size Determination

According to the Ministry of Health, the number of women utilizing contraception services from the Central Maragoli is 755 whereas that of Lugaga Wamulama is 710. The minimum sample size was determined based on Fisher's formula shown below. The respective proportions of the sample size for the two wards were derived based on contraceptive utilization.

$n= NZ^2pq/ (E^2(N-1)+Z^2pq)$

Where: n= sample size

N= population size

Z= the value that cuts the area under the normal curve of the desired precision, (95% for this study)

e= desired level of precision (0.05 for this study)

p= the estimated proportion of an attribute present in the population (0.68 for this study population)

q= 1-p

Therefore:

$n = 1465(1.96^2* 0.53*(0.47) / 0.0025 (1402-1) + (1.96^2 *0.53*0.47)$

n=341

Adjusting for non-response: 10% of participants

0.1*341=38

N= 379

Table 3.1: Proportionate Probability based on the Sampling frame

Ward	Target		Sample	Percentage
Central Maragoli	755	755/1465*379	195	51.5%
Lugaga-	710	710/1465*379	184	48.5%
Total	1465			

3.7 Construction of Research Instruments

The study employed questionnaire, KII guide and FGD guide as data collection instruments.

3.7.1 Questionnaire

The questionnaires included closed and open-ended questions based on the research objectives. The questionnaire had four section each addressing questions on a specific objectives. Section A had questions on socio-demographic characteristics of postpartum women in Vihiga Sub-County; age, marital status, socio-economic status, number of children and highest level of education attained. Section B of the questionnaire had questions for assessing the respondents' knowledge levels on modern contraception; contraception method known, benefits, side effects and source of information. Section C had questions on rate of modern contraception use; currently using modern contraception, method utilized in the past, source of modern contraception and lastly the intention to utilize the methods. The last section D, had

questions on factors influencing modern contraception uptake; religion, cultural values, husband involvement, side effects and experience on modern contraceptives.

3.7.2 Key Informant Interview Guide

This was conducted on CHAs of the respective Wards, Nursing Officers in-charge of MCH&FP and program officers whose organizations are implementing SRH programs in Vihiga Sub-County and this was mainly to provide in-depth information on this subject. The KII guide was developed and it had 10 questions with concentration on modern contraception utilization, modern contraception knowledge assessment, factors influencing uptake of modern contraception, attitudes and perceptions towards modern contraception, recommendations to increase the uptake and lastly personal opinions on FP services for the postpartum mothers.

3.7.3 Focus Group Discussion Guide

An FGD was carried out on postpartum women sampled from the various wards, consisting of 9-12 members each and the guide was adopted from the WHO toolkit. The FGD took one to one and half hours and involved a roundtable discussion on the topic of modern contraception with all participants having an equal chance of answering questions. The discussion was moderated by the researcher and recorded for further analysis. FGD guide had questions on modern contraception awareness, utilization of modern contraception methods, factors influencing the uptake, recommendations to enhance the uptake and challenges affecting utilization of modern contraception methods among postpartum women in Vihiga Sub-County. Four FGDs were conducted among postpartum women from the two selected Wards for this study.

3.8 Pre-testing

A pre-test exercise was carried out in Luanda Sub-County because of similarity in living conditions, culture and economic activities, which is necessary to minimize bias and test suitability of research instruments to collect relevant data. This pre-test scheme provided insights on improvement of the tools for them to be consistent with the study objectives. The pre-test was conducted among 20 postpartum women who had passed the inclusion criteria and consented to take part in this study.

3.9 Validity of the Research Instruments

The researcher determined the validity through expert review whereby the instruments were developed with close consultation from supervisors in the Department of Family Medicine, Community Health & Epidemiology. The tools were then pre-tested for effective data collection.

3.10 Reliability of the Research Instruments

This was ensured by developing the data collection tools in consistency with instruments used in a past similar study in other settings. The contraceptive instrument known as knowledge assessment tool was adopted and modified from a study done by Haynes, et al (2017). The Contraceptive Knowledge Assessment (CKA) tool was used to test participants' knowledge on contraceptives. Reliability was also achieved through the test-retest method whereby the tools were administered to a random sample that met the inclusion criteria and later re-administered after three weeks to the same sample and then the results were later subjected to Cronbach's Alpha test to check for correlation for the two data sets

3.11 Data Collection Techniques

Quantitative data from postpartum mothers was collected through questionnaires. The questionnaire had four sections; section A had questions on respondents' socio-demographic characteristics, section B had questions on modern contraception knowledge, section C had questions on rate of modern contraception utilization and lastly section D had questions on factors influencing uptake of modern contraception among postpartum women. Key informant interviews obtained qualitative data from CHAs of the respective Wards that were selected during sampling, A Focus group discussion of nine participants was used to obtain qualitative data from postpartum mothers who conceded to take part in the discussion.

3.12 Data Analysis

Data collected was first cleaned and coded using MS Excel and data analysis was done using the SPSS version 22. Quantitative data from questionnaires was summarized in form of percentages, frequencies, averages and standard deviations (measures of central tendency). Inferential statistics included chi-square analysis in comparison of two variables and multiple logistic regression and analysis of Variance (ANOVA) for more than two variables. Qualitative data was summarized into emerging themes by CITAVI and presented according to the study objectives in form of text.

3.13 Logical and Ethical Considerations

Prior to this study, a research proposal approval was first obtained from Kenyatta University Graduate School. Later the researcher obtained approval from Kenyatta University Ethics Review Committee (KUERC) before proceeding for data collection.

Research permit from NACOSTI was sought before proceeding to the field for actual data collection. Clearance from Vihiga County, Department of Health Services was also done before proceeding to Vihiga Sub-County for the data collection exercise. Privacy of study participants was assured throughout the study. Prior to recruiting a participant, an informed consent was given to the respondents. The participants were not offered any monetary or materialistic reward for having participated in the study thus it was done voluntarily, so as to ensure no coercion was exerted on participants who would otherwise not have participated in the study. However, participants taking part in FGDs and KIIs were reimbursed their fare once the exercise was done.

CHAPTER FOUR: RESULTS

4.0 Introduction

To demographically understand the study, questionnaires collected data about characteristics that would best describe the participants. This data is what is relevant to their position as women using modern contraception among the postpartum women. This chapter represents the study findings.

4.1 Summary of Demographic Characteristics

The study participants consisted of individuals between 18 and 49 years. Majority of participants were between 21 and 30 years (N=209, 55%), followed by 31–40-year-olds (N=110, 29%). 8.7% were aged 18-20-years-old, with the least number of participants being between 41-49 years (N=27, 7%) as summarized in Table 4.1 below. Education level was also assessed. Majority of participants had attained secondary education (N=160, 42%) followed by primary education at 29.3% (N=111). Master's degree level had the least number of participants at 1% (N=4) followed by degree, certificate, and diploma holders (N=23, 6%; N=40, 10.5%; N=41, 10.8% respectively. (Table 4.1). Unemployed participants formed the largest portion of participants at 35.9% (N=136) followed by self-employed individuals (N=119, 31.4%). Participants engaged in casual jobs formed 17.9% of the participants (N=68) and those employed were the least at 13.7% (N=52), (Table 4.1).

Majority of the participants earned below KES 5, 000 per months (N=227, 59.9%), while a few earned between KES 31,000 and KES 40,000 (N=9, 2.4%) followed by those earning between KES 21,000 and KES 30,000 (N=11, 2.9%). The other income brackets were KES 5,000-10,000, KES 10,000-20,000, and above KES 40,000 (N=88,

23.2%; N=23, 6.1%; N=16, 4.2% respectively, Table 4.1). The study also collected data on participants' marital status. Out of the women recruited into the study, 81.3% were married, (N=308), 16.1% single (N=61), and 10% separated (N=10), as shown in Table 4.1. Participants had a range of number of children, between one to eight children. The majority of participants had one or two children (N=118, 31.1%; N= 102, 26.9%, respectively), while the least had eight children (N=1, 0.3%). The remaining participants had between three and six children. The participants were also assessed for the period of time since their last birth. 41.1% of the participants had their last birth more than a year before the time of data collection (N=156). The remaining participants ranged below one year N=46; 12.1%, 9 months N=62, 16.4%; and 3 months N=52, 13.7%, respectively, Table 4.1). Finally, the study participants were made up of a majority of Christians (N=363, 97.8%) and minority Muslims (N=16, 4.2%) in Table 4.1 below.

Table 4.1: Respondents Demographic Characteristics

	Category	Frequency (N=379)	Percentage
Age	18-20	33	8.71
	21-30	209	55.15
	31-40	110	29.02
	41-49	27	7.12
Education	Primary	111	29.29
	Secondary	160	42.22
	Certificate	40	10.55
	Diploma	41	10.82
	Degree	23	6.07
	Masters	4	1.06
Occupation	Casual jobs	68	17.94
	Employed	52	13.72
	Self employed	119	31.4
	Not employed	136	35.88
	No response	4	1.06
Income	Not employed	5	1.32
	Below 5000	227	59.89
	5000-10000	88	23.22
	10000-20000	23	6.07
	21000-30000	11	2.9
	31000-40000	9	2.37
	Above 40000	16	4.22
Marital status	Married	308	81.27
	Separated	10	2.64
	Single	61	16.09
No. of children	1	118	31.13
	2	102	26.91
	3	67	17.68

	Category	Frequency (N=379)	Percentage
	4	42	11.08
	5	27	7.12
	6	13	3.43
	7	9	1.85
	8	1	0.26
Last birth	Above 1yr	156	41.16
	Below 12 months	46	12.14
	Below 3 months	52	13.72
	Below 6 months	62	16.36
	Below 9 months	62	16.36
	No response	1	0.26
Religion	Christian	363	95.78
	Muslim	16	4.22

Summary of demographics showing the frequency in numbers (N) and percentage proportion of participants in each descriptive category including age, education, occupation and income. (N=379)

4. 2 Level of Knowledge of Postpartum Women on Modern Contraception

Knowledge levels was assessed through the structured questionnaire and encompassed various aspects of contraception utilization: basic contraceptive knowledge, knowledge of side effects and risks, mechanism of action and emergency contraception. Basic knowledge assessed whether participants understood the different nine modern contraceptive methods based on their categories: barrier, hormonal methods, IUDs, sterilization and emergency contraception. Side effects evaluated participants` knowledge on possible side effects associated with different contraceptive methods. The result of each participant was tallied in form of a percentage of the total score. This is also evident from the focused group discussion

> *"…We are aware of several methods; the facility usually organizes for a health education session facilitated by the nurses and CHAs. Our CHPs also guide use on how to choose a preferred method during their home visits…"* (Postpartum woman, 2022)

Although the government is advocating for long-acting reversible contraceptives (LARC), this study assessed all the modern contraceptive methods for purpose of research just to ascertain whether these methods are known by women. High level of knowledge was categorized as a score of more than 50% of the total score while low knowledge was a score of 50% or less of the total score. Results showed majority of the respondents (86.8%, N=329) had high knowledge levels while only 13.2% (N=50) had low knowledge as shown in Figure 4.1 below.

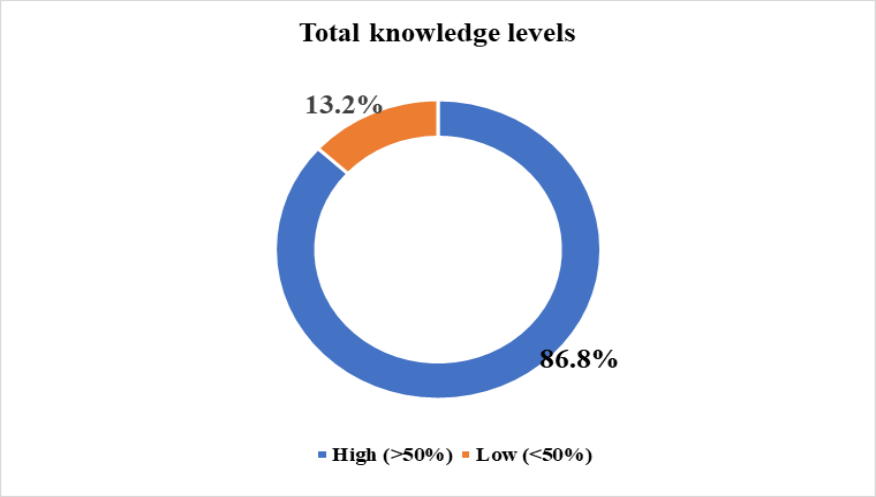

Figure 4.1: Postpartum Women's Knowledge on Different Types of Contraceptives

The most known contraception method as assessed in the various categories was DMPA (depot-medroxyprogesterone acetate, mostly known as Depo Provera) at 86% (N=326) followed by implants at 81.3% (N=308). Pills and the coil were the next most known at 69.4% and 54.9% respectively (N=263, N=208 respectively). The least

known methods were the use of Levonorgestrel at 1.8% (N=7) and natural methods/withdrawal at 2.6% (N=10). Analysis of variance (ANOVA) showed that these differences were statistically significant ($p < 0.0001$, $r^2 = 0.4786$),as in Figure 4.2 below.

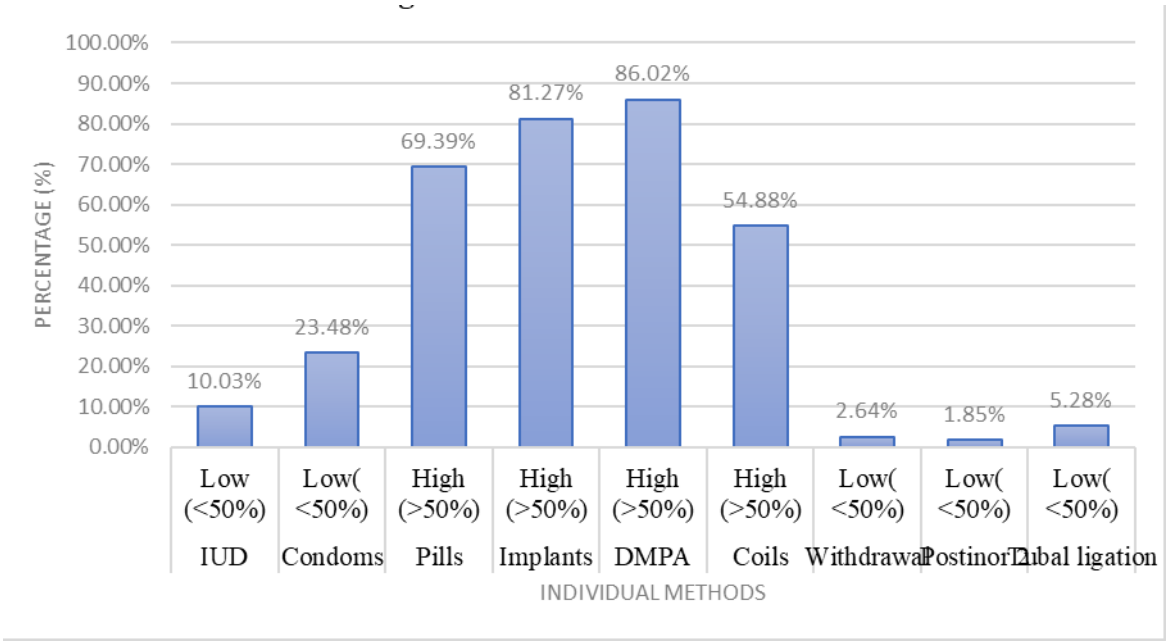

Figure 4.2: Awareness Levels for Individual on Modern Contraceptives Methods

Figure showing knowledge level of participants on contraceptive methods. It shows the level of knowledge as high (>50%) or low (<50%), frequency in absolute numbers and percentage frequency. (N=379)

4.2.1 Hypothesis Testing

$H0_1$: There was no significant relationship between knowledge levels and uptake of modern contraception among postpartum women in Vihiga Sub-County

Verdict: Fail to reject the hypothesis

4. 3 Prevalence of Modern Contraceptive Use

4.3. 1 Postpartum Women Currently Using a Modern contraceptive in Vihiga Sub-County

The questionnaires administered collected information regarding the contraception method currently in use by the study respondents. (N=141, 37.2%) mentioned that they did not use any contraceptive method while the remaining percentage utilized modern contraceptives this translates to a usage rate of 62.8% (N=238) as shown below in Figure 4.3 below. This was also covered in a key informant interview.

> *"…There is an improved uptake of modern contraception methods among women here in Vihiga Sub-County, this is a great milestone and it's due to the health education exercise that usually happens when the postpartum women come for MCH clinics. We address the myths and misconceptions on family planning. Also, our development partners implementing SRH program have played a key role for this improved uptake, providing technical and commodity supply in the past one year…"* (CHA, 2022)

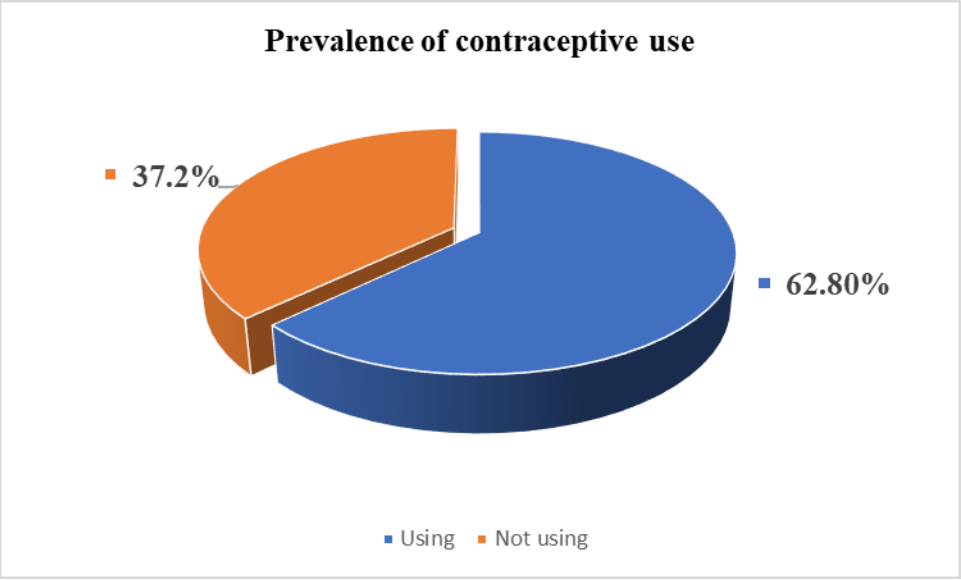

Figure 4.3: Prevalence of Contraceptive Use (N=379)

Pie chart showing contraceptive use among postpartum women in Vihiga Sub- County.

Out of those using contraceptives, DMPA was the most commonly used at 25.33% (N=96) followed by Implants at 23.75% (N=90). Pills and the coil were also used by participants though not very frequently (N=25, 6.6%; N=14, 3.69% respectively). The least used methods were IUCDs and condoms both at 1.06% (N=4) followed by tubal ligation at 1.32% (N=5).

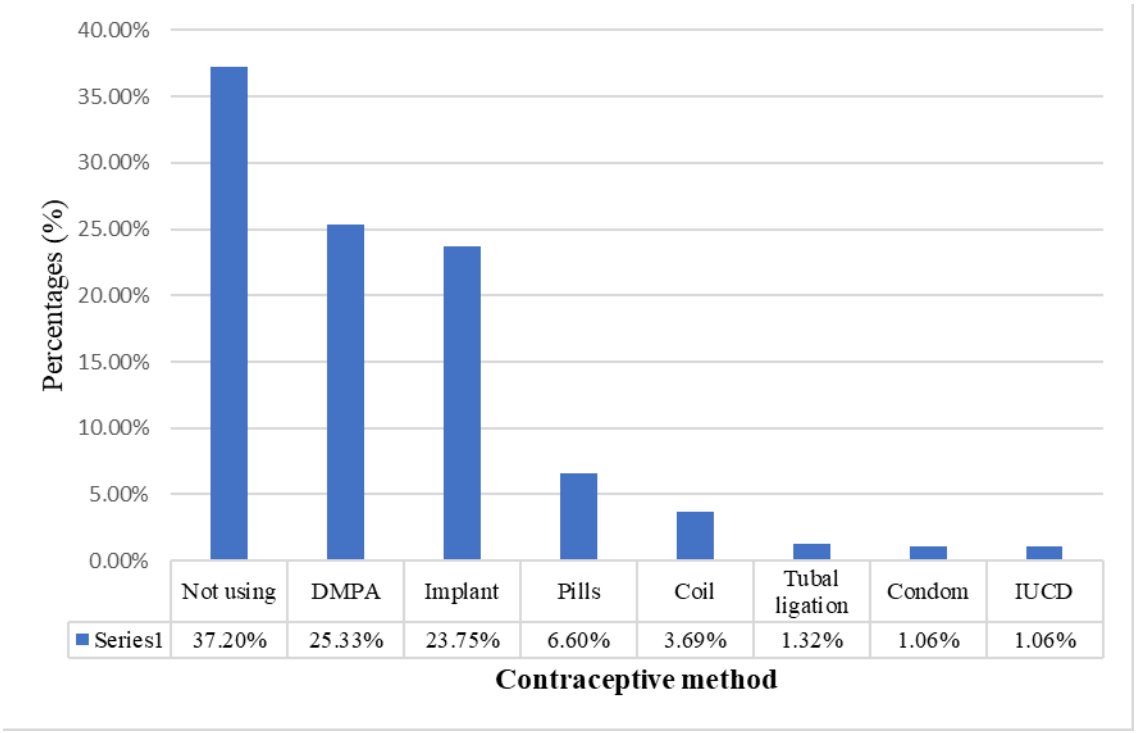

Figure 4.4: Contraceptive Currently in Use

Figure showing the rate of current contraceptive use by postpartum women in Vihiga County. Each bar represents the percentage of participants using each of the mentioned contraceptive methods. (N=379)

4.3.2 Contraceptive Method Previously Used

To compare the current status of contraceptive use, data was also collected regarding the methods that the participants had used prior to their current method. From the study participants, 17.94% (N=68) had never used contraceptives. DMPA and the implant were the most used methods at 31.93% (N=121) and 27.18% (N=103) respectively. Pills followed at 14.51% (N=55), then IUCD/coil 3.96% (N=15) and condoms at 3.43% (N=13) while the least used methods were Postinor 0.53% (N=2), Calendar method 0.27% (N=1) and lastly Herbal 0.27% (N=1). This is also supported by the focused group discussion.

> *"…At the health facility we were told about 'Depo-provera' contraception method which was readily available and those who accepted the method were injected and they go for follow-ups after every three months…"* (Postpartum mother, 2022)

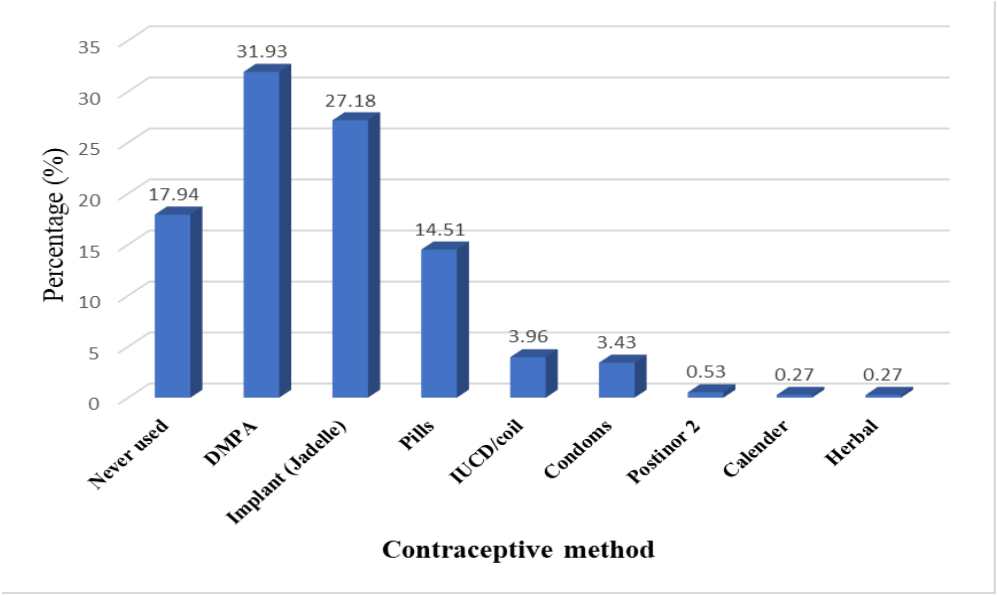

Figure 4.5: Contraceptives Previously used by the Respondents (N=379)

Figure showing the percentage of participants who had previously used each contraceptive method. Each bar represents the percentage of participants that used each of the mentioned contraceptive methods. Value above each bar shows the number (N) of participants using each method.

4. 4 Factors Influencing Uptake of Contraceptives

4.4. 1 Women-related Factors

4.4.1. 1 Demographics

To understand the influence of demographic factors on contraceptive usage, multiple logistic regression was applied on demographic characteristics to understand whether any of them had a statistical significance on uptake of contraceptives. Data was also categorized to analyze the differences in the categories for each variable. Some notable results show that women earning above KES 40,000 were three times more likely to use contraceptives compared to those earning KES 5,000 to 10,000. Women who gave birth more than a year ago were three times more likely to utilize contraceptives than those who got children less than 12 months ago (Table 4.3).

Table 4.2: Multiple Regression Analysis of Social-Demographic Factors Influencing Modern Contraceptive Uptake in Vihiga Sub-County

Variable	Categories	Odds Ratio	95% CI	P-value
	Intercept	**5.53**	**1.136 - 27.77**	**0.036**
Age	Age	0.94	0.896 - 0.977	**0.003**
Education	Education	1.03	0.798 - 1.327	0.833
Occupation	Self employed			
	Not employed	0.65	0.311 - 1.332	0.242
	Employed	0.70	0.2645 - 1.890	0.482
	Casual jobs	0.90	0.432 - 1.897	0.782
Income	5000-10000			
	Below_5000	1.79	0.898 - 3.614	0.100
	10000-20000	0.74	0.242 - 2.282	0.592
	31000-40000	0.93	0.183 - 5.234	0.936
	Above_40000	3.08	0.625 - 16.95	0.177
	21000-30000	1.16	0.262 - 5.550	0.851
	Not employed	0.16	0.007 - 1.408	0.138
Marital Status	Married			
	Single	0.23	0.117 - 0.439	**<0.0001**
	Separated	0.34	0.072 - 1.508	0.158
No. of Children	Number of Children	1.24	1.005 - 1.549	**0.048**
Period since last birth	Below_12months			
	Below_3months	0.46	0.193 - 1.094	0.081
	Above_1year	3.12	1.469 - 6.683	**0.003**
	Below_9months	2.53	1.077 - 6.067	**0.035**
	Below_6months	1.97	0.837 - 4.690	0.122
Religion	Christian			
	Muslim	0.81	0.241 - 2.976	0.732

Table showing multiple logistic regression for contraception use and categories of demographic characteristics. (N=379)

4.4.1. 2 Attitude towards modern contraception among postpartum women

This study also investigated factors specific to the attitude women had toward contraceptives and whether or not they predicted the use or lack thereof, of contraceptives. The data was unable to generate multivariate logistic regression due to

linearity of some of the variables. The data was therefore analyzed using multivariate linear regression. The regression analyses generated an analysis of variance (ANOVA) which showed that the reasons for or against contraceptive use, duration of use, and future intent to use contraceptives ($p<0.001$, $p<0.001$ and $p=0.04$, respectively) accounted for the most significant difference between the participants who used or did not use contraceptive methods. This is also supported by the KII

> *"…The women who come here for maternity services are educated on the available family planning methods but when it comes to making informed decision on what is their preferred method, the postpartum women will always tell us on the negative impact of the available methods and at the end they say this methods interferes with their menstrual cycle while others complain of the missed or heavy menstrual bleeding and I think this has attributed to the low uptake of the hormonal contraceptives based on what the women experience or have seen someone on family planning goes through especially hormonal imbalances…"* (MCH Nurse In-charge, 2022)

Table 4.3: Multiple Linear Regression of Contraceptive Attitudes Towards Contraceptive Use.

Analysis of Variance	**SS**	**DF**	**MS**	**F (DFn, DFd)**	**P value**
Regression	**79.23**	**39**	**2.03**	**73.91**	**<0.001**
Contraception Benefits	0.05	5	0.01	0.357	0.878
Contraception Information Source	0.02	6	0.00	0.148	0.989
Reasons for/against use	4.22	16	0.26	9.606	**<0.001**
Use duration	13.12	5	2.63	95.50	**<0.001**
Future intent	0.18	2	0.09	3.245	**0.040**
Contraceptive source	0.09	5	0.02	0.624	0.682
Residual	9.32	339	0.03		

Table of multiple linear regression showing the variance in contraceptive use based on contraceptive factors mentioned by the participants such as contraception benefits, source of contraception information, reasons for or against use, duration of contraceptive use, future intent of use, and source of contraceptives. (N=379)

Some of the contraceptive attitudes and factors had more than one response and had to be analyzed separately. For instance, perceived side effects had more than one

response from some participants. The results showed that of the 18 side effects mentioned by the participants, over bleeding significantly doubled the odds of using or lack of use of contraceptives (OR=2.029, p=0.004). Dizziness also increased the odds by almost two times (OR=1.932, p=0.03). Side effects categorized as ‘others’ included myths, break marriage, conflict, permanent disability, disabled children, difficulty breathing, moods, enlarged breasts, milk loss, fibroids, rashes, oedema. This was highlighted during a focused group discussion.

> *“…After my first pregnancy, I decided to try to use family planning method so as to control the spacing of my children. After the Depo injection, I started to experience the side effects which were so uncomfortable for instance; heavy menses, painful cramps and sometimes missed periods…”* (Postpartum woman, 2022)

The frequency of these responses was too small (<3 participants) and were therefore clustered together. These ‘other’ factors also increased the odds three times (OR=3.132, p=0.026).

Table 4.4: Multiple Regression Analysis of Perceived Contraceptive Side Effects Influencing Contraceptive Use.

Variable	Odds Ratio	95% CI	P value
Intercept	**0.678**	**0.388 - 1.179**	**0.170**
Irregular periods	1.154	0.667 - 2.022	0.613
Backache	1.575	0.830 - 3.084	0.173
Weight changes	1.333	0.798 - 2.248	0.276
Over-bleeding	2.029	1.258 - 3.293	**0.004**
Appetite change	1.536	0.717 - 3.486	0.284
Blood pressure	0.413	0.149 - 1.080	0.077
Headache/feeling sick	2.054	1.007 - 4.413	0.055
Failure	1.274	0.681 - 2.439	0.455
Miscarriage/delayed conception	0.644	0.301 - 1.362	0.250
Libido changes	1.020	0.431 - 2.496	0.964
Fatigue	1.741	0.913 - 3.442	0.100
Cramps/Stomach ache	0.482	0.167 - 1.404	0.173
Dizziness/nausea	1.934	1.078 - 3.566	**0.030**
Displaced IUD	2.454	0.472 - 18.80	0.318
Cancer	3.133	0.903 - 12.92	0.086
Others	0.660	0.321 - 1.357	0.256
None/unknown	3.132	1.171 - 8.921	**0.026**

Table of multiple logistic regression of perceived contraceptive side effects mentioned by participants such as irregular periods, backache, weight changes, over bleeding, appetite change, blood pressure, headache, miscarriage, fatigue, cramps ,dizziness , displaced IUD and cancer against contraceptive use. (N=379)

Another factor with multiple responses was how the participants dealt with side effects. A multiple logistic regression could not be run on this analysis due to some linearity therefore a multiple linear regression was carried out. The model through an AMOVA showed that women who assumed the side effects and continued their use, those who used painkillers, those who discontinued the method and those who changed methods significantly varied between those using and not using contraceptives. The data showed that participants who dealt with the side effects by assuming and continuing, using pain killers, discontinuing the method, or changing

the method accounted for the most significant variance between individuals using or not using contraceptive methods (p<0.001 for each).

Table 4.5: Multiple Linear Regression of How Participants Dealt with Contraceptive Side Effects Against Contraceptive Use.

Analysis of Variance	SS	DF	MS	F (DFn, DFd)	P value
Regression	**15.81**	**7**	**2.258**	**11.52**	**<0.001**
Assume and continue	4.634	1	4.634	23.64	**<0.001**
Painkillers	3.709	1	3.709	18.92	**<0.001**
Discontinued	2.307	1	2.307	11.77	**<0.001**
Changed method	3.201	1	3.201	16.33	**<0.001**
Exercise	0.056	1	0.056	0.287	0.592
Regular eating	0.275	1	0.275	1.401	0.237
Water/Rest	0.545	1	0.545	2.778	0.096

Table of multiple linear regression table showing the variance in contraceptive use based on methods for dealing with contraceptive side effects. (N=379)

4.4.2 Social Factors

A multivariate regression analysis of social factors was carried out to understand their influence on contraceptive use. Social factors included whether the participants' religion allowed contraceptive use, whether they discussed the decision with their husbands and if they allowed their use, and lastly whether their communities allowed contraceptive use. Religion had a significant influence on the use of modern contraceptives. Religion allowing contraceptive use doubled the probability of using them (OR=2.32, p=0.044). The husband agreeing with the use also significantly influenced the use, compared to discussing with the husband (p<0.001 vs 0.147 respectively). This information was also reported during the FGD.

> *"…I started to utilize a modern contraception method, without my husband's knowledge because I didn't want to give birth again since I already had four children, when he realized that I had an implant, he totally disagreed with me and this lack of male involvement caused conflicts and misunderstanding. Luyha men don't like controlled child spacing and this was a challenge for me…"* (Postpartum mother, 2022)

Statements that were true to the community's take on contraceptives were also significantly associated with contraceptive use (p=0.004).

Table 4.6: Multivariate Regression Analysis of Social Factors Influencing Contraceptive Use.

Variable	Odds Ratio	95% CI	P value
Intercept	**5.869**	**2.496 - 14.85**	**<0.001**
Religion allows	2.320	1.047 - 5.434	**0.044**
Religion truth	0.612	0.433 - 0.844	**0.003**
Discuss with husband	1.717	0.833 - 3.612	0.147
Husband agrees	0.510	0.375 - 0.683	**<0.001**
Community allows	1.017	0.737 - 1.411	0.918
Community truth	0.623	0.447 - 0.852	**0.004**

Table of multivariate regression analysis of social factors and their influence on contraceptive use. (N=379)

4.4. 3 Contraceptive Accessibility

The study also collected information regarding the accessibility of contraceptives by women either using or not using modern contraceptive methods in Vihiga Sub-County. Accessibility was assessed by investigating whether modern contraceptives were available at the nearest health facility, whether contraception services were free of charge, if the service providers were friendly, participants feared the service providers, and whether participants were given all the valid contraception

information. The study also collected data on the frequency of contraceptive stock-out at the nearest health facility, whether these stock-outs discouraged the respondents from using contraceptives, and whether the contraception services were considered of quality by the postpartum women. Results showed that the quality of contraceptive services contributed to the most significant variance between participants using and not using contraceptives (p=0.001)

> *"…Sometimes we experience stock-outs and this is has affected our services provision here in Vihiga Sub-County since we are a donor funded organization and sometimes we experience inadequate funding thus we can't procure enough family planning commodities while there's a high demand for modern contraception…"* (SRHR Program Officer, 2022)

Table 4.7: Multiple Linear Regression of Contraceptive Accessibility Against Contraceptive Use.

Analysis of Variance	SS	DF	MS	F (DFn, DFd)	P value
Regression	**6.672**	**16**	**0.417**	**1.955**	**0.015**
Contraceptives available in nearest facility	0.429	2	0.214	1.005	0.367
Get contraceptive services free of charge	0.150	2	0.075	0.351	0.704
Contraceptive service providers are friendly to me	0.035	2	0.017	0.081	0.922
Contraceptive service providers give all information	1.085	2	0.543	2.544	0.080
I fear contraceptive service providers	1.045	2	0.523	2.450	0.088
Frequent stock out of my choice contraceptives	0.396	2	0.198	0.928	0.396
Frequent contraceptive stock outs discourage me	0.177	2	0.088	0.414	0.661
Contraception services I get are of high quality	3.280	2	1.640	7.690	**0.001**

Table of multiple linear regression table showing the variance in contraceptive use based on factors defining contraceptive accessibility. (N=379)

4.4.4 Hypothesis Testing

Verdict: Fail to Reject the hypothesis

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This section discusses in detail the study findings, comparing what other studies have found out and what has been found in this study. It also gives insight on what could be the reason for variation in findings compared to other studies while deducing why some factors could be statistically significant as compared to other factors. The chapter also bears the conclusions of the whole study, summarizing what was found out and the possible reason behind the findings. The recommendations section gives further insights on the study recommendations, further research recommendations and lastly, policy recommendation.

5.1 Discussion

Women aged 18-49 years were recruited for study, majority of participants being 21-30 years followed by those between 31-40 years. This is supported by data that has shown that the age bracket between 21 to 40 years was the most ideal for child birth. Most women start giving birth at around 22 years and end in their late 30's since fertility goes down after the age of 35 (Jensen *et al*., 2018).

Educational level of study participants varied from Primary education to Master's level. The majority having attained Secondary education is a good indicator of the improved statistics for education of women from rural Kenya. Free primary education has encouraged many individuals to complete primary education and may have an effect on their progression to secondary education. The introduction of free day secondary education could also have a role to play in the observed distribution The

larger portion of participants were unemployed followed by the self-employed. Majority of women in rural Kenya have remained stay-at-home wives with their husbands serving as the sole family bread-winner. However, this has been changing with changes in economic needs of families, women's education, and increased opportunities owing to open-mindedness (Macharia, 2020). This explains the growing number of self-employed women in this study. The minimum wage in Kenya reached an all-time high of KSh. 15,201 in 2022 (Trading economics, 2022), a time when this study was conducted. However, this was not replicated among the participants in this study as majority of the women were below the KES 5000 per month income mark. This is explainable by the number of unemployed individuals, and those involved in casual jobs, or are self-employed in small enterprises.

Married women were the most amongst the study participants as is expected with postpartum women in rural Kenya. Most of the women had either one or two children with lesser women having more than two children. This is supported by the dropping fertility rate that has been recorded in Kenya. Kenya is said to have the least rate of fertility within East Africa, with 3.9 births per female compared to 5.6 in Uganda, 5.0 in Tanzania, 6.3 in Somalia and 4.2 in Ethiopia (Chen *et al.*, 2022). Additionally, majority of the participants being below 30 years of age could justify this parity. Most participants reported to have their last birth more than 1 year ago. Considering most women say they begin birth control methods after the return of women's menses post-birth, menses will mostly return after six months of exclusive breast feeding (Chen *et al.*, 2022). This therefore meant that for most women, resumption to contraceptives would begin earliest at the sixth month after their last birth, as observed in this data.

Christians made up 96% of the participants compared to 4% Muslims because Christianity is the dominant religion in Kenya, and in Vihiga County.

Knowledge on modern contraceptive methods among postpartum women in Vihiga Sub- County was high. 86.81% of the women scored more than 50% of the total score in this study. Knowledge on modern contraceptive methods among postpartum women in Vihiga Sub- County was high. 86.81% of the women scored more than 50% of the total score in this study. This knowledge is higher than was found among Lebanese women whose knowledge level regarding Oral Contraceptives was rated 41%. This was as a result of a great proportion of women failing to know the uses of oral contraceptives, apart from preventing pregnancy (Samaha et al, 2025). Knowledge on contraceptives was also low among women in Jamaica, 30% of the women being able to acknowledge the effectiveness of IUDs as compared to oral contraceptives and male condoms in prevention of pregnancy (Hylton-Kong et al, 2021). However, among Ghana women, the knowledge level of women on contraceptives was relatively high at 80.6% attributed to media influence which was the main source of information about contraceptives (Lumor et al, 2023). In another study among Ghana students, they were found to have relatively adequate knowledge, at 78.5%, the school being the main source of information (Debuo & Tarkang, 2023).

A Kenyan based study revealed high knowledge levels regarding contraceptives, attributed to education, in which oral, emergency pills, injections and male condoms were correctly identified by more than 80% of the participants for each method (Chepkwony et al, 2023).

The biggest percentage of participants were aware of depot-medroxyprogesterone acetate (DMPA). This is supported by many other studies that has shown injectable contraceptives such as DMPA being the most preferred method among adolescents and adult women (Akinyemi *et al*., 2022; Wernick *et al*., 2022). Due to its low rate of adverse effects, it is even preferred by sickle cell patients (Roe *et al*., 2022) and breastfeeding women because it does not alter or stop production of breast milk (FHI, n.d.). The knowledge of DMPA was followed by implants, pills and the coil respectively. The same trend has repeated itself in Kenyan-based studies (Lunani *et al*., 2018) and in other countries (Apanga *et al*., 2020; Nagendran & Godakandage, 2021). Condoms, despite being provided for free at public health centers, had a low level of knowledge. This could be due to the percentage of married women in this study. Male condoms are rarely a birth control method offered to married women because they are meant for males, and they are not used by married couples since they could be a sign of infidelity. The current study showed the use of *Levonorgestrel* (Emergency contraceptives) as the least known contraception method. Emergency contraceptives and other emergency contraceptive pills are administered after unprotected sex to prevent conception. Studies have shown that its uptake in Africa and Kenya has been low either because of lack of knowledge or concerns of failure and adverse effects (Kwame *et al*., 2022)

The study`s prevalence of contraceptive utilization (62.8% ) was slightly higher than the national prevalence at 61%. This is also higher than Vihiga County`s prevalence of 53% previously reported in the recent past (AFIDEP, 2019). The rate is also higher than a previous survey done by the KNBS on the prevalence of modern contraception utilization, in which it was found that only 39% of the women reported to have ever

used a modern contraceptive (LunaniIet *et al,* 2019). Compared to other studies, this rate was lower than was found among youths in Ghana where it was found that 78% of the study sample reported to be on contraception (Amoah *et al,* 2023). The findings were higher than were found among Tanzanian women, among whom a survey was conducted and 34.6% of the women were found utilize the contraceptive (Yussuf *et al,* 2020). The rate was equally higher than was found among Ugandan women where it was found out that the overall contraceptive prevalence was 33.7% whereas modern contraceptive prevalence was 30.86%.

Contraceptives have become more popular and prevalence rate is increasing Africa-wide This increase could be attributed by increased flow of contraception information through technology that has its reach in rural areas (Ndung'u, 2019). DMPA and implants were the most used methods respectively, which agrees to the data collected regarding knowledge of contraceptives. These methods are the most used across the world in current times (Akinyemi *et al*., 2022; Apanga *et al*., 2020; Lunani *et al*., 2018; Nagendran & Godakandage, 2021; Wernick *et al*., 2022). The same methods were the most popular among participants in the past used contraception methods. They are mostly preferred due to the lower rates of adverse effects, and the long-term effectiveness therefore requiring less frequent attention and maintenance (Godakandage, 2021; Wernick *et al*., 2022).

These contraceptives were mostly sourced from public facilities, and only 16 participants reported obtaining them from chemists and other sources. They also reported that contraceptives were accessible in the nearest facilities, were free of charge, service providers gave them information and services were of good quality.

This is in line with the aims of SDG's short-term goals to increase contraceptive uptake through the family planning 2020 global partnership (Family Planning, 2018).

Marital status, age, period since the last birth and number of children were statistically significant among women from Vihiga County, upon application of multiple logistic regression model. The regression was performed for individual groups in some demographic characteristic. In marital status, single women had 77% lower chances of using contraceptives when compared to their married counterparts. This has been the trend since the 1980's in Kenya (Kamuyango *et al*., 2020) and can be justified by the rate of consistent sexual intercourse in married couples. There is higher likelihood of getting pregnant when a woman lives with her husband, therefore necessitates a need to plan their family. Marital status has also been shown to influence contraception uptake in other studies (Akoth *et al*., 2021). The period since the last birth also showed significant association with contraceptive use. Women whose last birth was over a year ago were thrice more likely to use contraceptives compared to those whose last birth was less than 12 months ago. On the contrary, those whose last birth was less than three months ago had 54% reduced chances of contraceptive use compared to those less than 12 months ago (though not statistically significant). Education is evident as a major driver of contraceptive use in Kenya and in the world, where higher levels of education show increased rates of using contraceptives but this was not the case for this study. This aligns with other studies that have not observed any significance (Apanga et al, 2020). Contraceptive accessibility also influenced contraceptive use as highlighted in the section 4.4 above. The most significant factor of accessibility that influenced contraceptive use was quality of contraceptive services as supported by previous research studies.

The study further assessed the effects of attitude towards contraceptive use. The attitude was based on contraception beliefs, source of information on contraceptives, reasons for or against their use, duration of use, future intent to use, and source of contraceptives. The results showed that the most significant variance between participants using or not using contraceptive methods were based on their reasons for or against contraceptive use, duration of use, and future intent to use. Reasons for or against use have a predictable correlation with use or lack of use since these reasons determine the contraceptive use. Duration of use was also significantly different between participants using or not using contraceptives. Studies have shown that most women only use specific birth control methods for short periods of time, usually 36 months or less as observed in a Saudi Arabia-based study (Bahamondes et al, 2015). This could be because of the need to space children where three years could be viewed as enough space. Women who are just starting the use of contraceptives are likely to adhere more to the use than those who have used them for longer periods. Future intent to use contraceptives was also significantly different in the use groups because future intent indicated that the participants did not currently use the modern contraceptive methods. Finally, the source of contraceptives also showed significant difference between the use groups. From this study, public health facilities were more preferred as a source of contraceptives compared to private facilities and chemists. This could be due to the free service delivery on issues pertaining maternal health given by the Kenyan government in public facilities (Akoth *et al*., 2021) towards achieving the SDGs (Family Planning, 2018). Free contraceptives have incentivized women from rural areas of Kenya such as Vihiga Sub- County to utilize the services. However, the contrary was found in some studies where private facilities were the

preferred source of contraceptives in Nigeria and Indonesia where the burden of contraception services had not yet been successfully transferred to the government.

Other attitude factors were analyzed separately including perceived side effects and methods of dealing with side effects. Of the perceived side effects, over bleeding and dizziness or nausea were significant determinants of use or lack of use of contraceptive methods. Over bleeding was the most frequently expected side effect, followed by weight changes and dizziness or nausea. Over bleeding also known as menorrhagia usually results in dizziness since blood loss leads to lower oxygen levels that lead to dizziness. Over bleeding is a common side effect of different contraceptive methods across the world (Amat *et al*., 2018) . It remains a major cause for concern in pharmaceutical and device companies and methods that avoid over bleeding are in development. The method used to deal with side effects also showed significant variance between participants using and not using contraceptive methods. Those who assumed and continued with the methods, or used painkillers, or changed methods were mostly those who used the contraceptive methods. This is either because they tolerated or mitigated the side effects, or use an alternative method. Consequently, for those opting to discontinue the use of contraceptives due to side effects were those who did not use the methods.

Social factors that were assessed to influence utilization of contraceptives included religion, the husband as well as community. Religion allowing contraception use and statements that were true about religion factors including ‘my religion allows’, ‘my religion does not allow’, and I use despite my religion not allowing’. Religion allowing increased chances of using contraceptives. In this study, most participants

classified as Muslim did not use contraceptives, and a few of these said they used despite their religion not allowing contraceptive use. Religious groups like Catholicism, Hinduism and Islam prohibit the use of contraceptives, while Protestants are more liberal regarding contraceptive use. Contraception use was also influenced by whether or not the participants' husband agreed with it. Spousal support and communication with them is a factor that largely influences contraceptive use across Africa

Finally, contraceptive use was assessed based on factors that define contraceptive accessibility. The quality of contraceptive services accounted for the most variation in use of contraceptives among the participants. Several studies have confirmed this association. For instance, a study in urban Kenya assessed that quality of contraceptive services in terms of availing patient preferences, assisting in selecting of methods, informing in regard to side effects, and providing treatment were most associated with uptake of contraceptive use (Tumlinson *et al*., 2015). Another study showed that quality services tripled the odds of contraceptive use in three different countries (Fruhauf *et al*., 2018). A Philippines-based study elucidated the significance of quality contraceptive services and recommended standardization of a quality assessment tool that could be used across the board to ensure women receive quality services without discrimination

The impact of side effects on contraceptive use is profound, significantly influencing women's decisions regarding the continuation or discontinuation of contraceptive methods (Shiferaw et al., 2018). The literature review has revealed various studies highlighting how side effects, ranging from heavy bleeding to menstrual irregularities

and other adverse effects, contribute to contraceptive discontinuation rates, which can vary from as low as 2% to as high as 59% (Khan et al., 2020). These findings underscore the imperative to address side effects effectively to enhance contraceptive adherence and mitigate the risk of unintended pregnancies.

Moreover, it's essential to recognize that the repercussions of side effects extend beyond individual experiences, impacting broader public health endeavors aimed at promoting effective family planning. The prevalence of side effects can undermine the efficacy of contraceptive programs, leading to decreased uptake and increased discontinuation rates. Such trends not only compromise individual reproductive autonomy but also impede efforts to achieve population-level reproductive health goals (Jones et al., 2019).

Understanding the implications of side effects is crucial for healthcare providers and policymakers alike. Armed with this knowledge, they can develop targeted interventions to support women in managing side effects and sustaining contraceptive use (Jones et al., 2019). These interventions may encompass a range of strategies, including improved counseling protocols, enhanced access to alternative contraceptive options, and the development of innovative methods with reduced side effect profiles..

5.2 Conclusions

The levels of knowledge on modern contraception assessment among postpartum women in Vihiga Sub-County revealed significant insights pivotal to understanding contraceptive use dynamics. The findings indicated a diverse range of knowledge levels, with a substantial portion of the women demonstrating a moderate to high

understanding of various contraceptive methods. However, a notable fraction of the study population still exhibited gaps in their contraceptive knowledge, particularly regarding LARCs and emergency contraception. Women with higher levels of knowledge were more inclined to use modern contraceptive methods, as they were better informed about the options available to them and the benefits of using such methods for spacing births and planning their families.

The investigation into the rate of modern contraception use among postpartum women in Vihiga Sub-County revealed that a considerable proportion of postpartum women were utilizing modern contraceptive methods, with injectables and implants being the most preferred choices. However, the overall rate of modern contraceptive use remains below the potential, indicating significant room for improvement. Several factors play a critical role in shaping these rates; cultural beliefs and norms emerged as substantial influences, with the Luyha community still harboring reservations about modern contraceptives, often due to misconceptions about their safety and side effects.

Healthcare-related factors, such as the availability of and access to contraceptive services, further influenced modern contraception uptake. The study pointed out that despite a general availability of services, barriers such as distance to health facilities, service delivery hours not accommodating women's schedules, and occasional stock-outs of preferred methods deterred optimal utilization of contraceptives.

5.3 Recommendations

5.3.1 Recommendations from the Current Study

This study gives the following recommendations.

1. The Vihiga County Government Department of Health Services, should launch a comprehensive health education and promotion campaign. This campaign should focus on improving knowledge about family planning, emphasizing the benefits, safety, and variety of modern contraceptive methods available. This can be achieved through capacity building of healthcare workers to ensure effective communication and counseling skills, as well as leveraging local media and community gatherings to disseminate information.
2. The Vihiga County ministry of Health, should initiate and support community-based family planning programs specifically targeting postpartum women. These programs should offer free or subsidized contraceptive services, mobile health clinics in remote areas to improve access to postpartum family planning.
3. Community leaders and religious organizations should be engaged in dialogue and partnership to co-create and endorse family planning programs. By involving these influential figures in the design and delivery of culturally sensitive and acceptable family planning information, communities can achieve a greater understanding and acceptance of modern contraceptive methods.

5.3.2 Recommendations for Future Studies

1. Future studies should explore the specific knowledge gaps that exist among postpartum women regarding LARCs and emergency contraception to understand the misconceptions that prevents women from considering these interventions.

2. This study further recommends for a qualitative study delving into the personal opinions and experiences of postpartum women and their partners regarding contraceptive use to provide deeper insights into the cultural and relational dynamics at play.

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APPENDICES

Appendix I: Informed Consent Form

KENYATTA UNIVERSITY

OFFICE OF THE CHAIRMAN ETHICS REVIEW COMMITTEE

My name is **Obobe Judith Ariri**. I am a Masters student from Kenyatta University. I am conducting a study titled "**Uptake of Modern Contraception among Postpartum Women in Vihiga Sub-County, Kenya'**". The information will be used for academic purposes and inform the ministry of health policies on contraception service delivery in Kenya.

Procedures to be followed

Participation in this study will require that I ask you some questions and record the information you provide in a questionnaire.

Voluntarism

You have the right to refuse participation in this study. You will get the same services and care whether you agree to join the study or not and your decision will not change the care you will receive. Please remember the participation in this study is voluntarily. You may ask questions related to the study at any time. You may refuse to respond to any questions and you may stop an interview at any time. You may also stop being in the study at any time without any consequences to the services you receive here or any other organization now or in the future.

Discomforts and Risks

Some of the questions you will be asked are on intimate subject and may be embarrassing or make you uncomfortable. If this happens, you may refuse to answer these questions if you so choose. You may also stop the interview at any time. The interview may add approximately half an hour to the time you wait before you receive your routine services.

Benefits

If you participate in this study you will help us to learn how to provide effective services that can improve modern contraception uptake among women in Vihiga County.

Reward

There are no rewards or any payment to you if you participate.

Confidentiality

The interviews will be conducted in a private setting within the clinic. Your name will not be recorded on the questionnaire. The questionnaires will be kept in a locked cabinet for safe keeping at Kenyatta University. Everything will be kept private and only shared with the study team.

Contact Information

If you have questions about the study call **Mrs. Ariri Judith Obobe**.(investigator) **+254722659941** or Supervisor **Dr John Paul Oyore, +254722335878.**

However, if you have questions about your rights as a study participant: You may contact Kenyatta University Ethical Review Committee Secretariat on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke,

Participant's statement

The above information regarding my participation in the study is clear to me. The study has been explained to me and I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept private and that I can leave the study at any time. I understand that I will still get the same care and medical treatment whether I decide to leave the study or not and my decision will not change the care that I will receive from the clinic today or that I will get from any other clinic at any other time.

Name of Participant……

Signature or Thumbprint Date

Name of Representative/Witness (where necessary) Relationship to Subject

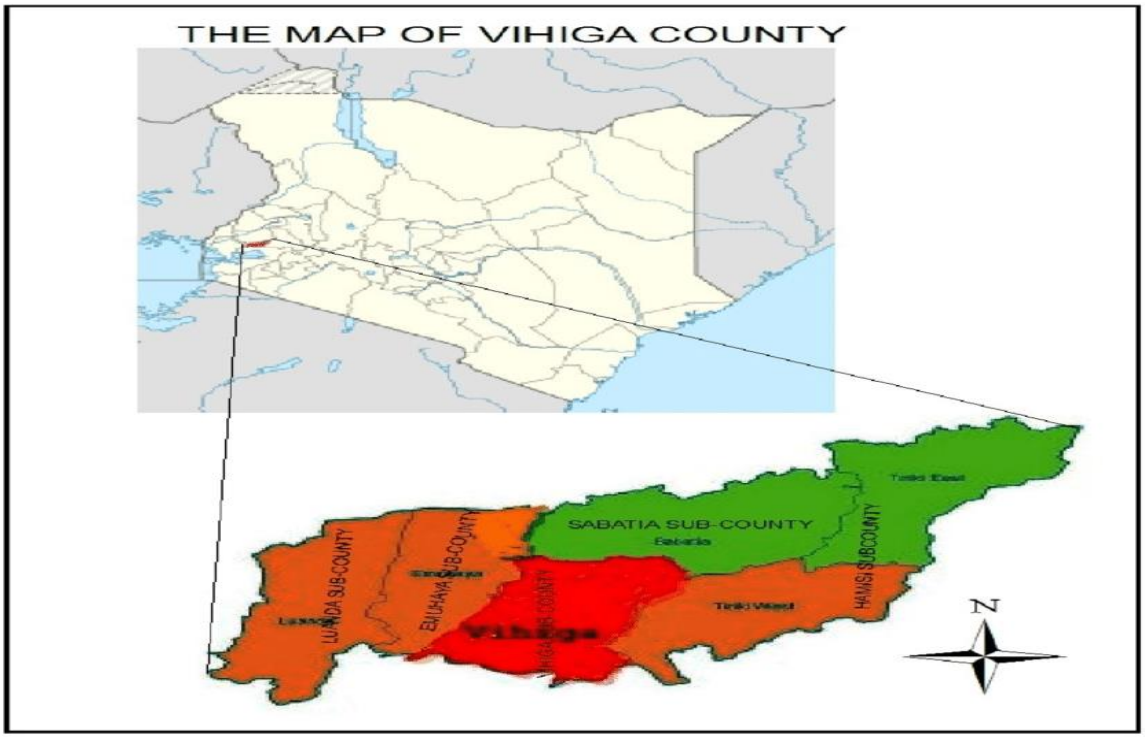
Investigators statement

I, the undersigned, have explained to the volunteer in a language s/he understands, the procedures to be followed in the study and the risks and benefits involved

Name of Interviewer ……

Signature:…… Date:……

Appendix II: Map of Study Area



SCALE: 1:20KM

Appendix III: KUERC Letter

KENYATTA UNIVERSITY
CENTRE FOR RESEARCH ETHICS AND SAFETY

Fax: 8711242/8711575
Email: chairman.kuerc@ku.ac.ke
Nairobi, 00100

P. O. Box 43844,

Tel: 8710901/12

Website: www.ku.ac.ke
Our Ref: **KU/ERC/APPROVAL/VOL.1**

Date: 14th /02/2022

Obobe Judith Ariri
P.O Box 43844, 00100
Nairobi.

Dear Ms. Ariri,

APPLICATION NUMBER: PKU/2382/I1219 - UPTAKE OF MODERN CONTRACEPTION AMONG POSTPARTUM WOMEN IN VIHIGA COUNTY, KENYA

This is to inform you that ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** has reviewed and approved your above research proposal. Your application approval number is **PKU/2382/I1219.** The approval period is **14th /02/2022 to 14th /02/2023**

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.

vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.

vii. Submission of an executive summary report within 90 days upon completion of the study to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

To serve you better, researchers are kindly requested to access and complete a customer feedback form and sent it back online as you continue with research and upon completion of data collection found on the following website link; ;(https://docs.google.com/forms/d/1ytWefDwvyz5h1oz_VIn0xbxg3uGdlDzMXFWNDsMrRPQ/edit?usp=sharing

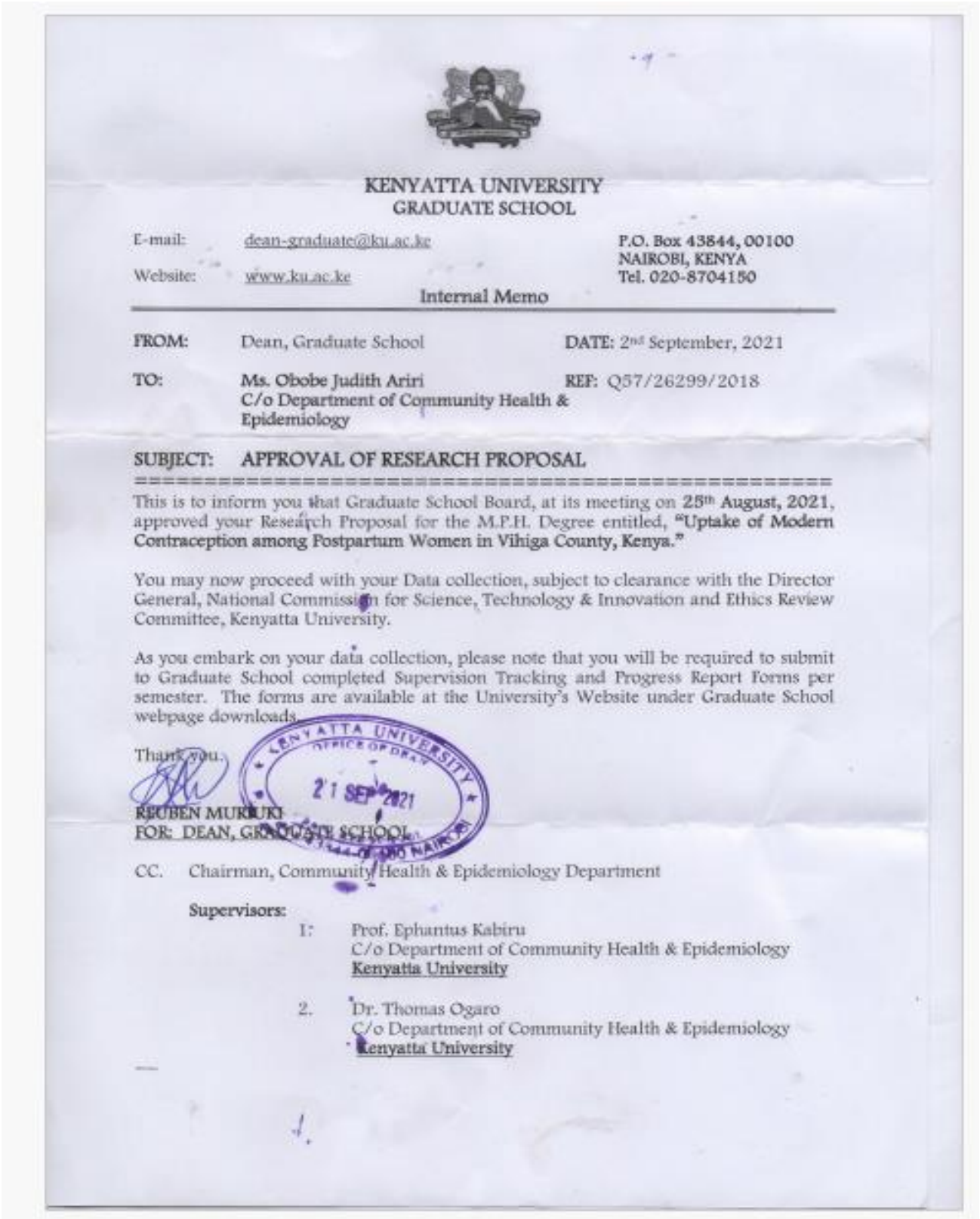
Yours sincerely

Yours sincerely

Prof. Judith Kimiywe

Director: Centre for Research Ethics and Safety

Appendix IV: Research Approval



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Internal Memo

FROM: Dean, Graduate School
DATE: 2nd September, 2021

TO: Ms. Obobe Judith Ariri
C/o Department of Community Health & Epidemiology
REF: Q57/26299/2018

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that Graduate School Board, at its meeting on 25th August, 2021, approved your Research Proposal for the M.P.H. Degree entitled, **"Uptake of Modern Contraception among Postpartum Women in Vihiga County, Kenya."**

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation and Ethics Review Committee, Kenyatta University.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

KENYATTA UNIVERSITY OFFICE OF DEAN 21 SEP 2021 P.O. BOX 43844-00100 NAIROBI

REUBEN MUKRUKI
FOR: DEAN, GRADUATE SCHOOL

CC. Chairman, Community Health & Epidemiology Department

Supervisors:

1. Prof. Ephantus Kabiru
C/o Department of Community Health & Epidemiology
Kenyatta University

2. Dr. Thomas Ogaro
C/o Department of Community Health & Epidemiology
Kenyatta University

Appendix IV: NACOSTI Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 408446

Date of Issue: 21/February/2022

RESEARCH LICENSE

This is to Certify that Miss.. Judith Ariri Obube of Kenyatta University, has been licensed to conduct research in Vihiga on the topic: UPTAKE OF MODERN CONTRACEPTION AMONG POSTPARTUM WOMEN IN VIHIGA COUNTY, KENYA for the period ending : 21/February/2023.

License No: NACOSTI/P/22/15835

408446

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code

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