UTILIZATION OF MALE TARGETED SHORT MESSAGE SERVICE TO ENHANCE FAMILY PLANNING UPTAKE AMONG SPOUSES IN MARSABIT 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

I dedicate this thesis to my late Dad Joseph Matoke whose desire for academic excellence motivated me. I also dedicate it to my lovely daughters Joy, Kayleenjoy, Kaysha and Kayana.

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ABBREVIATIONS AND ACRONYMS

ANC: Antenatal care

CHA: Community Health Assistant

CHU: Community Heath Unit

CHVs: Community Health Volunteers

CPR: Contraceptive Prevalence Rate

FP: Family Planning

KDHS: Kenya Demographic and Health Survey

KII: Key Informant Interviewee

MC: Modern Contraceptive

mCPR: Modern Contraceptive Prevalence Rate

MMR: Maternal Mortality Rate

MOH Ministry of Health

NACOSTI: National Commission for Science, Technology and Innovation

NGO: Non-governmental Organizations

RH: Reproductive Health

SDGs: Sustainable Development Goals

SMS: Short Message Service

SPSS: Statistic Package for Social Sciences

SRH: Sexual and Reproductive Health

UNDESA: United Nations Department of Economic and Social Affairs

UNFPA: United Nations Population Fund

USA: United States of America

WHO World Health Organization

WRA: Women of Reproductive Age

WWD: Women with disability

DEFINITION OF OPERATIONAL TERMS

Community Health Unit: "is a health service delivery structure within a defined geographical area covering a population of approximately 5,000 people. Each unit is assigned one Community Health Assistant/Officer and 10 community health volunteers who offer promotive preventative and basic curative services."

Family planning Service: "refers to a education, counseling and access to contraceptive methods to assist individuals and couples to regulate the number of children and determine healthy spacing and timing of births between pregnancies (WHO, 2020)".

Health System factor: refer to factors which are related to delivery of family planning service, health financing and workforce as well as those linked accessibility to family planning commodities, governance and leadership, and the information system (Gbenonsi *et al*., 2021)

Male involvement in family planning: refers to men's participation, acceptability, communicating with their spouses, giving them support and permission to seek and use contraceptive (Anyango, 2019).

Marriage: The Marriage Act, 2014 defines a marriage as a voluntary union of a man and a woman whether in a monogamous or polygamous union and registered under this Act.

Reproductive Age: Refers to woman's age between menarche and menopause, roughly from ages 15 to 49 (WHO, 2023).

Spouse: someone's spouse is the person who they are married to (their partner in marriage). For this case a spouse will be defined as a female partner in marriage (Oxford dictionary).

Unmet meet for family planning: "refers to those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child (WHO, 2023)."

Uptake of family planning: refers to usage of family planning commodities to regulate the number of children and determine healthy spacing and timing of births between pregnancies (WHO, 2020).

ABSTRACT

Family planning helps in regulating the number of children and determine healthy spacing and timing of births between pregnancies. The global contraceptive prevalence stands at 49.0%, Sub-Saharan Africa accounting for 29.0 %, Kenya at 56.9% and in Marsabit County stands at 5.6%. Low contraceptive prevalence has also been associated with increased maternal, neonatal, infant and child mortality as well as reduced opportunities for education and employment for women who are unable to delay initiation of childbearing. Male spouse involvement on matters of family planning deserves attention. Male spouses can be involved through providing culturally friendly health education with child spacing messages rather than family planning itself. This study aimed to evaluate the utilization of male targeted short message service in enhancing family planning uptake among their spouses in Marsabit County. This study adopted a pre-test and posttest quasi experimental study design involving randomly selected 220 couples from Laisamis and Moyale sub-counties. Intervention of male targeted short message service was offered to male spouses from Moyale sub-county while Laisamis subcounty was used as a control at a ratio of 1:1 for a period of 4 months. The data collection instruments used included a questionnaire and key informant interview guides. Quantitative data analysis was done using SPSS version 22.0 while qualitative were categorized and analyzed thematically. At baseline, descriptive statistics, chi-square and Fischer's exact were used to analyze socio-demographic factors, level of knowledge, nature of attitude and health system factors at a confidence interval of 95% and an error of precision of 0.05. At evaluation, logistic regression analysis and McNemar test were used to measure the effectiveness of SMS intervention. The results were presented in form of tables, pie-charts and graphs. All the required ethical and logistical considerations were adhered to accordingly. The results revealed that at baseline level of uptake was 13.2% and 15.4%, high level of knowledge 14.0% and 12.0% and positive attitude 38.6% and 6.8% for control and intervention arms respectively. Uptake of family planning was increased by 3.6 times though use of short message service (OR 3.6, P<0.001 CI: 1.9159 – 6.7155). Male targeted short message service increased level of knowledge significantly (OR 4.173, P 0.001), changed nature of attitude (OR 2.7335, P 0.004) and male involvement in family planning (OR 4.4306, P 0.001). There was no association between all the health system factors and uptake of family planning in the control arm. In the intervention arm, there was significant statistical association between availability of FP services at the nearest facility (p*=0.03), main source of information (p*=0.041), male friendliness of clinics offering FP services (p*=0.04) and uptake of family planning among the respondents. The study concluded that the level of uptake was low but with SMS intervention knowledge increased, attitude changed, males were involved and thus uptake increased. The study recommends the integration of SMS intervention in provision of services, scale up of dissemination of information though SMS, provision of culturally appropriate messages, development of guidelines, engaging community leaders and setting up of more male friendly clinics.

CHAPTER ONE: INTRODUCTION

1.1 Background Information

Family planning (FP) refers to a deliberate effort which allows people to regulate the number of children and determine healthy spacing and timing of births between pregnancies (WHO, 2018). This is achieved through use of different contraceptive commodities to prevent unwanted or unplanned pregnancies. There are a number of direct and indirect benefits attributable to family planning uptake including the reduction in the spread of HIV to newborn babies; prevention of sexually transmitted infections (STIs), reduction of maternal mortality and morbidity; reduction in neonatal, infant and child mortality; reduction recourse to often unsafe abortion as well as improvement in education and employment opportunities for women who are able to delay initiation of childbearing and child spacing. Sustainable development goal (SDG) number 3 target 3.7 has prioritized universal access to sexual and reproductive care, family planning and education (UNDP, 2015)

In 2019, 1.1 billion of the 1.9 billion women of reproductive age (15-49) living in the globe had a need for family planning with only 842 million of them using modern methods of contraception. Globally, approximately 190 million women of reproductive age do not use any method of family planning despite being sterile, up from 156 million in 2000. The percentage of women who lack access to family planning has remained unaltered since 2000 (UNDESA, 2019) at 10%. In 15 sub-Saharan African nations, the unmet demand for family planning exceeds twenty percent. Only slightly more than fifty-five percent (55%) of sub-Saharan Africa's family planning needs are met with modern methods. It is also

important to note that more than one in ten women of reproductive age use traditional contraceptive methods alone (WHO, 2020). More than 54% of women of reproductive age in Sub-Saharan Africa do not see the need for family planning because they desire more children (UNDESA, 2019).

Globally 80 million women of reproductive age use traditional methods of contraception. More than 5% of these women using traditional methods of contraception come from Sub-Sharan Africa (WHO,2018). In Kenya 5.6% of women of reproductive age are using a traditional family planning method (KDHS, 2022). These methods are preferred because they do not have any side effects, are generally accepted by most religious, they do not involve any cots and they improve spousal communication and commitment. However, these methods have many disadvantages such as high failure rates and doesn't protect one against sexually transmitted infections (Pasha & Ali, 2025). Some of the reasons accounting for this number of women using traditional methods are inaccessibility of modern methods, cultural and social factors (WHO, 2020). Thus, it is necessary to have proper access to sexual and reproductive health services and information, including a complete range of contraceptive techniques, in order to ensure an improved uptake of family planning commodities. These services and information must not only be of high quality, but they must also be inexpensive. Access to reliable methods of birth control guarantees that all adults and adolescents can avoid the negative health and economical effects of unwanted pregnancy and have a sexual life that satisfies their needs (WHO, 2018).

According to the World Health Organization (WHO, 2020) there is notable great progress on family planning uptake over the years. However, research findings have shown that

many women worldwide would want to prevent pregnancy but they and their partners are not using contraceptives and some of the reasons for this unmet need are quality of service, unavailability of range of methods, fear of opposition from partners and worries of side effects and health concerns among others. Male spouses' involvement on matters of family planning deserves attention since men can influence their spouses to use or not use any family planning method (De Vargas *et al*., 2019). There exists evidence around the world that males are not adequately involved in matters of family planning. In regions where the rate male involvement in family planning is high there is a higher uptake among their partners (Aventin et al., 2023). A study on determinants of male involvement on family planning in Nigeria showed that only 55.1% were involved. In Ghana 48% males were involved, in Malawi 53.0% were involved and in Tanzania only 26.6% males were involved (Kwawukume *et al*., 2022, Osuafor *et al*., 2023). Barriers to male involvement in family planning includes low knowledge levels and negative attitude toward utilization (Adane et al., 2024).

Male involvement not only means use of condoms and seeking vasectomy but also encouraging and supporting their spouses in matters of contraception and encouraging their peers to use family planning. Male involvement also can influence the policy environment to be more conducive to developing male-related programmes (Solo & Festin, 2019). Male spouses can be involved through providing culturally friendly health education with child spacing messages rather than family planning itself since some might be having a negative attitude towards the contraceptive commodities. Mobile health interventions which have been effective in improving uptake of family planning services such SMS should be considered. Research findings as shown that the mHealth interventions targeting male

partners have been effective in increasing the likelihood of use of modern contraceptives (Jones *et al*., 2020). The SMS should include benefits of family planning, methods of family planning, risks and side effects, access & availability as well as myths & misconceptions. Such messages are absolutely necessarily in improving their beliefs and attitudes towards contraception. In fact, research findings have shown that the most effective health education is the one designed in a manner that it demonstrated how their families can develop socially and economically though spacing or controlling the number of children (Kriel *et al*., 2019). Thus, involving men will have a significant role in overall uptake of family planning by increasing their availability, accommodation and acceptability (Muttreja, & Singh, 2018). Additionally, those family planning centers should be made more attractive to male partners (Kibira *et al*., 2020)

1.2 Statement of Problem

Approximately 190 million women of reproductive age worldwide are not using any family planning method despite being able to bear children, up from 156 million in 2000. The global contraceptive prevalence stands at 49.0% with Sub-Saharan Africa accounting for the lowest at 29.0 % (UNDESA, 2020). In Kenya the modern contraceptive prevalence rate stands at 56.9% while in Marsabit County stands at 5.6% with a 37.6% un met need for family planning (KDHS, 2022). The low contraception rate could be attributed to several factors including lack of information, cultural beliefs and practices, myths and misconceptions, commodity accessibility, limited choice of commodities and limited staff skills (Ahmed *et al*., 2019).

Research findings have shown that family planning uptake is lowest among the Muslims. For instance, in Kenya among the counties with the lowest modern contraceptive uptake,

most are the Muslim dominated ones. In fact, the Mandera (1.8%), Wajir (2.8%), Marsabit (5.6%) and Garissa (11.1%) counties which are Muslim dominated are among the lowest in terms of contraceptive uptake (Abdi *et al*., 2020).This is compared with other counties dominated by Christians which are among the highest in uptake in the country such as Embu (75.2%), Kirinyaga (70.8%) and Nyeri (70.5%). Research findings from South India on contraceptive prevalence rate and factors influencing it revealed that contraceptive uptake was 34.5 % among Muslims compared to 75.3% among the Hindus (Osborn *et al*., 2021).

Low uptake of family planning has been associated with high maternal mortality rates across the world. In Kenya, the rate of maternal mortality stands at 342/100,000 which is high than WHO target of 147/100,000 live births (WHO, 2019). Marsabit County is among the top-five counties with high burden of maternal mortality currently standing at 1,127 per 100,000 live births (NCPD, 2015). Low contraceptive prevalence has also been associated with increased neonatal, infant and child mortality, increased cases of unsafe abortion as well as reduced opportunities for education and employment for women who are unable to delay initiation of childbearing. (Diamond-Smith *et al*, 2018)

One of the reasons given for low contraceptive uptake among women is fear of opposition and lack of support from their partners (Ding *et al*., 2019). Low knowledge levels, social stigma, shyness, embarrassment, and job responsibilities contribute to the low male involvement in family planning (Diamond-Smith *et al*, 2018). Contraceptive use has been left to be a women affair with men not involved thus lacking crucial knowledge affecting their attitude towards family planning. Men lack information and knowledge on contraceptive methods and benefits thus do not feel the need to uptake or allow and advice

their spouses to use (Olakunde *et al*., 2019). A study from Rwanda showed that inconsistent FP messaging, and lack of male partner involvement were the main factors influencing non-use (Tounkara *et al*., 2022)

1.3 Justification of the Study

Research findings have shown that usage of family planning services in developing countries has led to significant reduction in unintended pregnancies, and thus greatly reduced maternal and child mortality. Men are mostly the main decision-makers in most of African families therefore they can play an important role in acceptance and uptake of family planning. It has been reported that male partner has greater influence than his female spouse on contraceptive usage. Research findings across Sub-Saharan Africa have revealed that the wife's attitude toward contraception is strongly influenced by her husband's attitude and background characteristics, especially education (Nzokirishaka, & Itua, 2018). Study findings from KwaZulu Natal, South Africa on male involvement on contraceptive use showed that uptake increased since men supported their spouses/partners by making it a shared responsibility and providing information (Kriel *et al*., 2019). Similar findings were reported from a Rwandan study which showed that when both partners were involved in family planning men accepted their wives to use family planning and thus supported them (Mazzei *et al*., 2019). In Northwestern Tanzania, a qualitative study on impact of gender involvement on uptake of family planning showed that when male partners were involved, it led to improved spousal communication thus enhancing use of contraceptives (Sundararajan *et al*., 2019).

Uptake of family planning may be influenced by various factors, including cultural and religious beliefs, access to services, economic and social status, and individual preferences

(Sinai *et al*., 2021). Health education through SMS targeting men can help overcome some of the barriers to family planning uptake and increase awareness and use of available options (Bhatt *et al*., 2021). Community-based approaches that involve local leaders, educators, and health workers can be particularly effective in promoting family planning and improving health outcomes. Such programs can be tailored to specific settings, needs, and preferences, and help foster trust and engagement among individuals and communities (Blackwell *et al*., 2021). Thus, educating men on family planning by equipping them with information and knowledge on family planning will greatly influence their attitude towards uptake of family planning. However, limited studies have been conducted on the influence of health education on male involvement in family planning uptake (Diamond-Smith et al, 2018). Most policy makers rely in data on fertility and family planning collected from women thus excluding men who can play a significant role in uptake of family planning (Sultan, 2018).

There is an increasing new interest in male involvement in family planning since research findings have shown that men and women do not necessarily have same fertility attitudes and goals (Kriel et al., 2019). It is also worth noting that even though women are the ones who bear children, their fertility has an impact on men too since they take financial and social responsibility of supporting the children and their wives (Sensoy *et al*., 2018).

Marsabit County where the study was conducted has the third lowest modern contraceptive prevalence at 5.6% and the highest percentage of unmet needs for family planning at 37.6% in Kenya. Marsabit County is also among the counties with highest maternal mortality rates at 1127/100, 000 in the country. Marsabity also has the second highest total fertility rate in the country at 7 children per woman. It’s not yet clear how the percentage of women

receiving ANC from skilled provider is 93.8%, percentage with four or more ANC visits is 67.1%, percentage delivered by skilled provider is 68.7%, percentage with post-natal check during first 2 days after birth is40.6% but that of family planning uptake remain at unacceptably low at 5.6% (KDHS, 2022).

1.4 Research Questions

1. What is the level of uptake of family planning among spouses in Marsabit County, Kenya?
2. What is the level of knowledge on family planning among spouses in Marsabit County, Kenya?
3. What is the nature of attitude towards family planning among spouses in Marsabit County, Kenya?
4. What is the influence of male targeted short message service on uptake of family planning among spouses in Marsabit County, Kenya?
5. What is the influence of male targeted short message service on knowledge, nature of attitude and male involvement on uptake of family planning among spouses in Marsabit county, Kenya?
6. What are the health system factors associated with uptake of family planning among spouses in Marsabit County, Kenya?

1.5 Null Hypotheses

H_o1: There is no influence of male targeted short message service on uptake of family planning among spouses.

H_o2: There is no influence of male targeted short message service on level of knowledge on family planning.

H_o3: There is no influence of male targeted short message service on nature of attitude towards family planning.

H_o4: There is no influence of male targeted short message service on male involvement level in family planning.

H_o5: There is no association between some health system factors and uptake of family planning among spouses.

1.6 Research Objectives

1.6.1 Broad Objective

To evaluate the utilization of male targeted short message service in enhancing family planning uptake among spouses in Marsabit County, Kenya.

1.6.2 Specific Objectives

1. To determine the level of uptake of family planning among spouses in Marsabit County, Kenya.
2. To assess the level of knowledge on family planning among spouses in Marsabit County, Kenya
3. To determine the attitude towards family planning among spouses in Marsabit County, Kenya.
4. To establish the influence of male targeted short message service on uptake of family planning among spouses in Marsabit County, Kenya.
5. To establish the influence of male targeted short message service on knowledge, nature of attitude and male involvement on uptake of family planning among spouses in Marsabit County, Kenya.

6. To find out the health system factors associated with uptake of family planning among spouses in Marsabit County, Kenya.

1.7 Significance and Anticipated Output

The innovation of using short message service on male involvement is a critical intervention that will enable the Ministry of Health in the National and county government and other relevant stakeholders to develop and integrate relevant strategies to address the issues of unacceptably low contraceptive prevalence in Marsabit County. To the male spouses, health education through SMS increased their knowledge and chanced attitude towards family planning thus promoting its uptake subsequently reducing cases of unplanned pregnancies and associated problems. The women benefited from the health education from their spouses who supported and educated them thus increasing their knowledge level and changing their attitude towards uptake of family planning. This translated to improved uptake of family planning. In long term it will lead to reduced maternal and child mortalities in the county.

1.8 Limitation and Delimitation

1.8.1 Limitation

The research included only male partners who had access mobile phone this may have limited the scope of the study. However, this was countered by ensuring selection was based on randomization to ensure representativeness. Interventions from other organizations including the government were beyond the control of this study. This would have contributed to confounders which were countered by matching couples and analyzing data using logistic regression and McNemar tests.

1.8.2 Delimitation

Despite the fact that the study should have been conducted in all the counties with lowest family planning services uptake, it was only conducted in Marsabit County. The low uptake of family planning services in Marsabit County, made it a good representation of most of the counties with low uptake in Kenya. There was a non-significant drop in participants at endline of the study because those selected were the ones who me the inclusion criteria and were long term residents of the county.

1.9 Philosophical Lens of the Study

This study applied the positivism philosophical lens. Positivism acknowledges that science is the only way of finding the truth. “Positivism relies on the hypothetic deductive method to verify a priori (from what comes before) hypotheses where functional relationships can be derived between causal and explanatory factors (Independent variables) and outcome (dependent variable)” (Park *et al*., 2020). According to positivism paradigm, the researcher depends on the conclusions emanating from interpretation of results through scientific inquiry by quantitative data collection and analysis. Thus, experiments are used to discern laws of nature through manipulation and observation of variables. In this study, the researcher sought to evaluate the effect of manipulating level of knowledge, nature of attitude and male involvement (Independent and intervening variables) on the uptake of family planning (dependent variable) by controlling for male targeted short message service fitting into the positivism philosophical lens.

1.10 Theoretical Framework and Conceptual Framework

1.10.1 Theoretical Framework

Theory of Planned Behavior (TPB) was borrowed for this study. This assumes that people are reasonable enough and can use information to freely choose behavior. According to the TPB, human behaviour is guided by three kinds of considerations: attitude or beliefs about the behaviour (*behavioural beliefs*), beliefs about the normative expectations of others (*normative beliefs*), and beliefs about the presence of factors that may facilitate or impede performance of the behaviour (*control beliefs*). These three domains influence the persons intention to perform a behavior. For this case the attitude and knowledge of the person towards family planning, attitude and knowledge of the spouses towards family planning and presence of other barriers like socio-demographic and health system factors (Bosnjak *et al*., 2020).

1.10.2 Conceptual Framework

The conceptual framework was modified from theory of planned behavior (TPB) (Ajzen, I. (1985). The independent variables included socio-demographic factors (such as age, level of education, religion, occupation and parity) and health system factors (such as accessibility, availability, affordability, family planning information, attitude of health care providers, waiting time and availability of male friendly clinics). Intervening variables which were targeted by the short message service by the intervention group were the knowledge level and nature of attitude. The dependent variable was uptake of family planning services.

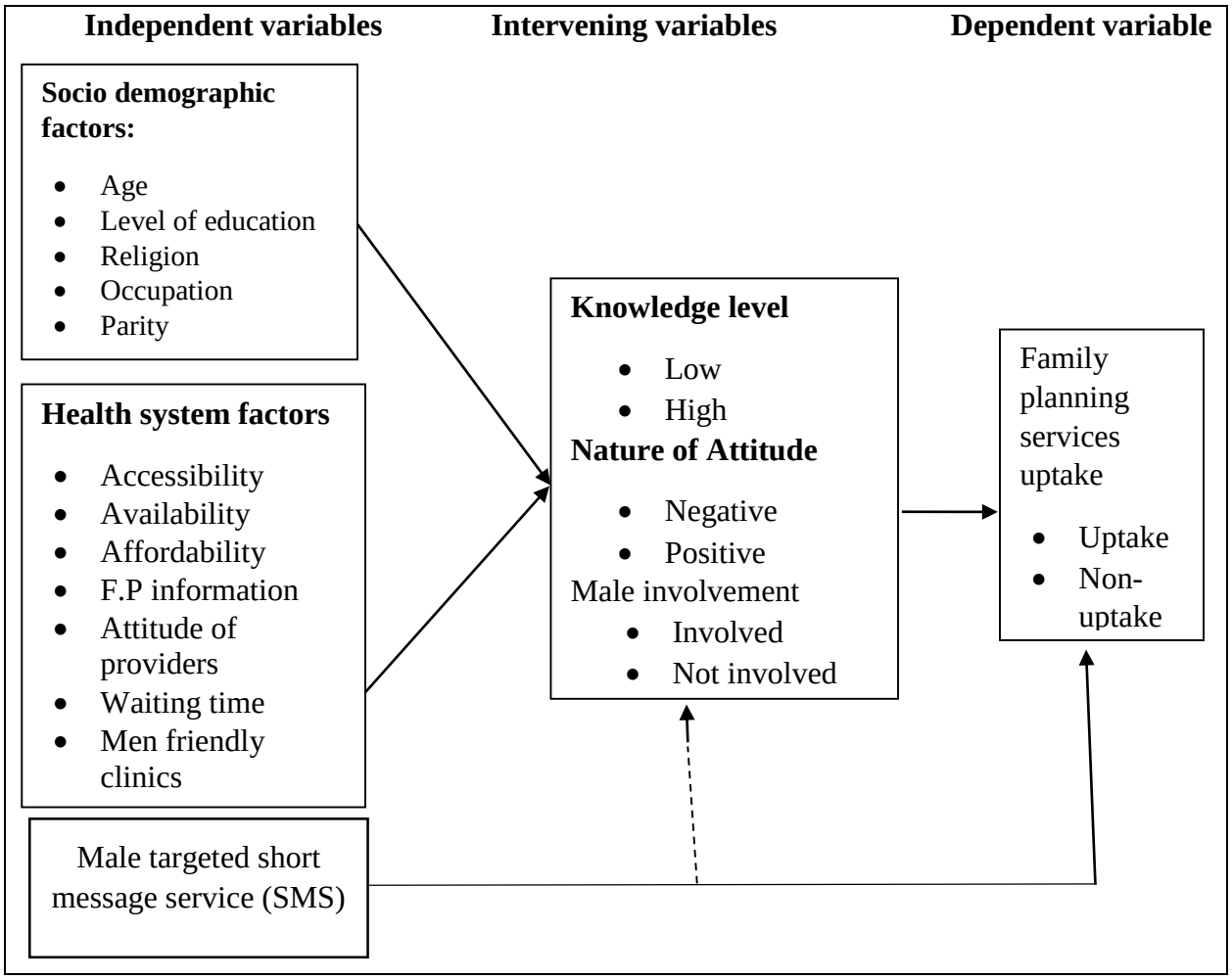

Figure 1.1: Conceptual Framework
Source: Modified from theory of planned behavior (TPB) (Ajzen, I. (1985).

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter contains information the available literature on the family planning uptake. Specifically, the chapter contains literature on the status of family planning uptake globally, in Sub-Saharan Africa, regionally as well as in Kenya. It also highlights literature on male involvement and SMS intervention as a strategy to enhance family planning uptake. The chapter further provides literature on factors influencing family planning uptake including; Socio-demographic factors, knowledge factors, nature of attitude and health system factors. Finally, summary of literature reviewed and gaps are highlighted.

2.2 Uptake of Family Planning

According to the World Health Organization (2018), "family planning" refers to "a deliberate effort that allows people to regulate the number of children and determine healthy spacing and timing of births between pregnancies. When it comes to trying to have a family of a certain size, contraception is the single most important tool that women and men have at their disposal. At the International Conference on Population and Development (ICPD) that took place in Cairo in 1994, it was acknowledged that it was a fundamental right for all couples and individuals to choose freely and responsibly the number of children they have, the amount of time between each birth, and the order in which they have their children. Additionally, it was acknowledged that the individuals and couples involved should be provided with sufficient information and the means to make such decisions. According to Kantorová *et al*., (2020) this will ultimately result in the right of all people to achieve the maximum possible level of sexual and reproductive health. It is also crucial to note that contraception has been included in the sustainable development

goals (SDGs) as a key indicator for maternal health. This is something that should not be overlooked. According to UNDP (2015), the Sustainable Development Goal (SDG) number 3 target 3.7 has made it a priority to ensure that everyone has access to education, family planning, and sexual and reproductive health care services.

Implants, contraceptive tablets, patches, injectables, vaginal rings, Intra uterine devices, condoms, lactational amenorrhea methods, withdrawal method, and fertility awareness-based methods are some of the different contraceptive methods that can be utilized to achieve the goals of family planning. They also include sterilization treatments that are permanent, both for men and women. The highlighted methods all work in slightly different ways to achieve the same goal of avoiding unintended pregnancies, but they are all successful. It is possible for a method to be ineffective at times due to its effectiveness, which is measured by the number of pregnancies that occur per one hundred women who use the method in one year. Therefore, it is absolutely vital for women to have access to this information so that they can make decisions based on accurate information (WHO, 2020).

There has been some progress made in terms of improving people's utilization of family planning methods all over the world. The efforts that have been put in place by relevant stakeholders have resulted in this aspect being improved. However, in some countries, progress has been slow due to a number of factors, including: limitations in choice and access to contraceptive commodities, particularly amongst the youngest, the poorest, and the unmarried; fear of side effects; cultural or religious barriers; low quality of provided services; bias against some methods; and a lack of male involvement or participation (WHO, 2020). According to the findings of a recent study (Nagai et al., 2019), nations that

have taken measures to remove these roadblocks have shown a consistent rise in the prevalence of contraceptive use.

2.2.1 Global Perspective

Globally, out of approximately 1.9 billion women of reproductive age, 1.1billion of them have a need for family planning but only 842million of them are using while 270million of them have an unmet need for contraceptive (WHO, 2020). The global contraceptive prevalence stands at 49.0% (UNDESA, 2020b). There still exist disparities between and within countries with the developing countries suffering the consequences of low contraceptive uptake such as high maternal and neonatal mortalities.

For instance, findings from a survey from 23 countries in Latin America and the Caribbean revealed that Haiti and Bolivia reported the lowest modern contraceptive prevalence at 31·3% and 34·6% respectively. The modern contraceptive prevalence was over 70% in countries like Paraguay, Brazil, Colombia, Cuba and Costa Rica. However, utilization of long-acting reversible contraceptives was less than 10% in 17 of the 23 countries. Of all the 23 countries only Cuba, Colombia, Mexico, Ecuador, Paraguay, and Trinidad and Tobago recorded more than 10% of usage of long-acting contraceptive methods. Further results from the survey showed that girls aged between15–17 years, indigenous women, those in lower wealth quintiles, those who lived in rural areas, and those without education showed particularly low use of long-acting reversible contraceptives (de Leon *et al*., 2019).

2.2.2 Contraceptive Uptake in Sub-Saharan Africa Region

Modern contraceptive prevalence rates have been on a rise steadily around the world but in Sub-Saharan Africa the progress has been so slow. In fact, the current modern contraceptive prevalence in Sub-Saharan Africa is the lowest in the world standing at only

29.0 % despite the region recording the highest fertility rate (UNDESA, 2020). The percentage of women whose need for contraceptive methods have been met in Africa has increased slowly from 55% to 58% in 2020. Furthermore, there exists a lot of inequalities among and within the Sub-Saharan African countries. Research findings on coverage and determinants of modern contraceptive use in sub-Saharan Africa revealed that cumulative prevalence of the use of modern contraceptive was found to be 22.0%. This ranged from 3.5% in the Central Africa Republic to 49.7% in Namibia. Regarding the most common type of modern contractive used the results showed that injections was the common method standing at 39.4%, followed by condoms at 17.5% and then implants at 26.5%. Reasons given for low modern contraceptive uptake were, low educational status, low knowledge, lack of access to information and poverty (Boadu, 2022).

2.2.3. Contraceptive Uptake East Africa

Modern contraceptive utilization in the East African countries has shown lower rates as compared to sustainable development goals (SDGs) target of 75% by 2030 (Bongaarts & Hardee, 2019). Review of the demographic health surveys of the East African countries showed pooled prevalence of modern contraceptive utilization to stand at 20.7%. Further results revealed that the highest modern contraceptive was 61.5% was recorded from Comoros while the lowest of 9.1% was recorded from in Mozambique. In these countries factors that affected modern contraceptive usage included; woman's level of education, partner's level of education, Women's occupational status, place of delivery, parity as well as uptake of postnatal care (Tessema *et al*., 2021).

2.2.4 Contraceptive Uptake in Kenya

In Kenya the modern contraceptive prevalence rate stands at 56.9%. There exists a very wide gap between the counties. Counties with the highest modern contraceptive uptake include Embu at 75.2%, Kirinyaga at 70.8% and Nyeri at 70.5%. Counties with the lowest modern contraceptive uptake include Mandera at 1.8% and Wajir at 2.8%. The modern contraceptive prevalence in Marsabit County is the 3rd lowest at 5.6% with a 37.6% un met need for family planning (KDHS, 2022).

2.2.5 Family Planning Uptake among Muslims

Research findings have shown that family planning uptake is lowest among the Muslims. For instance, in Kenya among the counties with the lowest modern contraceptive uptake, most are the Muslim dominated ones. In fact, Mandera, Wajir and Garissa Counties which are Muslim dominated are among the lowest in terms of contraceptive uptake (Abdi *et al*., 2020). Research findings from South India on contraceptive prevalence rate and factors influencing it revealed that contraceptive uptake was 34.5 % among Muslims compared to 75.3% among the Hindus (Osborn *et al*., 2021).

Another cross-sectional study from Kampala on determinants of modern contraceptive use among married Somali women showed that the contraceptive prevalence was 29% (Abdulahi et al., 2020). A study on barriers to contraceptive use among women in Mogadishu, Somalia showed a very low modern contraceptive prevalence of 1% (Gele *et al*., 2022). A study from Gambia where 97.8% of the respondents were Muslims revealed that the contraceptive prevalence rate stood at 30.4%. The main reasons given for non-use of family planning commodities were; fear of side effects, preference of male child, religious beliefs, partner refusal and lack of knowledge on family planning use (Barrow, 2020).

2.3 Male Involvement in Uptake of Family Planning

Male involvement in family planning refers to men's participation, acceptability, communicating with their spouses, giving them support and permission to seek and use contraceptive (Anyango, 2019). Involvement of men in family planning is significant in the success of family planning programs. Family planning has been perceived to be a woman's affair thus affecting uptake. It is worth noting that men have an essential role to play in contraceptive uptake thus their involvement is crucial for any family planning program to succeed (Kriel *et al*., 2019).

Male involvement is not only through vasectomy or condom use but also through engaging in discussions about desired family size, supporting their partners in making decisions about reproductive health services and also providing emotional and financial support for their spouses to seek for services (Sakuma *et al*., 2019). Research findings from around the world have revealed that active involvement of men results to promotion of contraceptive use, decrease of barriers to use of family planning and an increase in adherence to family planning use (Bado *et al*., 2020). Thus, family planning interventions involving men should focus on gender equality and active participation of all stakeholders including men, women, religious leaders and communities (Karra & Zhang, 2021)

Study findings from KwaZulu Natal, South Africa on male involvement on contraceptive use showed that uptake increased since men supported their spouses/partners by making it a shared responsibility and providing information (Kriel *et al*., 2019). Similar findings were reported from a Rwandan study which showed that when both partners were involved in family planning men accepted their wives to use family planning and thus supported them

(Mazzei *et al*., 2019). Studies on a on factors associated with male involvement in family planning revealed that only 26.6% of males were involved while in Malawi 53.0% were involved (Osuafor *et al*., 2023). In Ghana make involvement rate stood at 48.0% (Kwawukume *et al*., 2022). A qualitative study on male involvement in family planning in Kenya revealed that most men were not involved (Lusambili et al., 2021).

2.4 mHealth and short message service (SMS) Intervention and Uptake of Family Planning

2.4.1 mHealth Interventions and Family Planning Services Uptake

Mobile health interventions which have been effective in improving uptake of family planning services especially in low income set ups (Chandrasekar *et al*., 2024). Such interventions include use of short message services (SMS) or phone calls to educate people on crucial services such as family planning (Bhatt et al., 2021). This m-health interventions have worked in increasing uptake of antenatal care, skilled birth attendance and reduced negative outcomes of pregnancies such SMS should be considered. Research findings as shown that the mHealth interventions targeting male partners have been effective in increasing the likelihood of use of modern contraceptives (Jones *et al*., 2020). A study on barriers and facilitators for family planning uptake revealed that mhealth helped improve uptake of family planning in Sub-Saharan Africa (Barro *et al*., 2022).

2.4.2 Short message service (SMS) Intervention and Uptake of Family Planning

Short message service (SMS) interventions have been found to be effective in increasing family planning uptake among women. In the context of family planning, SMS intervention can help individuals and couples make informed decisions about their reproductive health

and access appropriate services and methods of contraception. Effective SMS intervention programs on family planning should include information on importance of family planning, access and availability, different contraceptive methods, their advantages and disadvantages, their efficacy, and potential side effects (Bongaarts, 2020) They should also address common misconceptions and taboos associated with family planning, promote respectful and healthy relationships, and encourage communication between partners and healthcare providers (Harrington *et al*., 2021).

Uptake of family planning may be influenced by various factors, including cultural and religious beliefs, access to services, economic and social status, and individual preferences (Sinai *et al*., 2021). Sharing health information can help overcome some of the barriers to family planning uptake and increase awareness and use of available options (Bhatt *et al*., 2021). Such SMS programs can be tailored to specific settings, needs, and preferences, and help foster trust and engagement among individuals and communities (Blackwell *et al*., 2021).

Thus, SMS intervention is a crucial tool in promoting the uptake of family planning. By providing accurate information, addressing misconceptions, and promoting positive attitudes towards reproductive health, information shared through SMS can help individuals and communities make informed decisions and exercise their right to choose the size and spacing of their families (Shah *et al*., 2021). Most family planning SMS interventions have focused on only women (Wei, *et al*., 2021). It is recommended men are also targeted in health promotion strategies to improve their knowledge and change their attitude towards family planning uptake. SMS interventions can be applied to men alone or together with their partners (Ladur *et al*., 2021).

One study conducted in Kenya found that women who received SMS reminders for their family planning appointments were more likely to attend them than those who did not receive reminders (Ormel et al., 2019). Another study in Pakistan found that women who received SMS information on family planning were more likely to use contraception than those who did not receive this information (Shahid et al., 2016).

2.5 Factors associated with Uptake of Family Planning

2.5.1 Socio-demographic Factors

Socio-demographic factors have been documented to influence uptake of family planning services across the world. In fact, socio-demographic factors such as person's age, gender, education, income, religion, parity and occupation influence uptake of family planning. Research has shown that age significantly influence utilization of family planning depending on fertility desire across different age groups (Ibrahim, 2022). Some studies have shown that some women at their earlier ages of marriage often have a stronger fertility desire than older women hence they reduced uptake of family planning (Akinyemi *et al*., 2021). However other studies have shown that women between 15-24 years use condoms and pills to prevent early pregnancies (Keogh *et al*., 2021). A Ugandan study showed that women who were aged between 40-44 years had a higher odd of using family planning (Ochen & Primus, 2022). A cross-sectional study on family planning uptake in Kagera and Mara Regions in Tanzania revealed that those who were aged 25-34 years were more likely to use family planning and that age significantly influenced uptake (Massenga *et al*., 2021).

Individuals level of education can positively affect family planning uptake since they have better access to family planning services and resources. Research suggests that individuals who are more educated can seek and obtain information on family planning which

improves their knowledge thus making appropriate decisions regarding usage (Massenga et al., 2021). The amount of time a woman takes in education can also influence her fertility. Women who study up to postgraduate level sometimes regulates their fertility to enable them achieve their academic goals as compared to those who drops out of school or those whose educational level is lower (Kassim & Ndumbaro, 2022).

Income also affects family planning uptake since those women with higher income can be able to access the services. Family planning services might be free but the indirect costs associated with services might be a hindrance especially in rural or poor families. Study from Uganda on effects of Covid-19on family planning revealed that the uptake reduced due to reduced income among families as a result of the lockdowns (Sileo *et al*., 2023). Another study on Family planning for urban slums in low- and middle-income countries revealed that interventions targeting income or reduction of financial barriers to family planning showed an improved uptake (Ganle *et al*., 2021).

Parity is another factor that has been shown to influence family planning uptake. A Cambodian study on unmet need for contraception revealed women of low parity were less likely than women of higher parity to use contraceptives, even if they have a strong desire to delay or space their next pregnancy (Rizvi *et al*., 2020). A Ugandan study on determinants of family planning method showed that the women who had a parity of more than four (4) preferred female sterilization (Anita *et al*., 2020).

Occupation status is another socio-demographic factor that has been documented to influence uptake of family planning. Occupation influences access to resources which can determine the educational level as well as income which also affect utilization of family planning services. A study on barriers and missed opportunities towards post-partum

family planning methods in Pakistan showed that occupation of the women or partners positively influenced uptake (Abbasi *et al*., 2020). A study from Wakiso District Central Region, Uganda showed that women who were employed would use family planning to delay pregnancy as compared to those who were not employed (Kobusingye, 2022).

2.5.2 Level of Knowledge on Family Planning

Knowledge towards a service is a significant contributor to its usage. Knowledge makes people demand for service since they are more informed. Knowledge is key in reducing some myths and misconceptions as well as other barriers to use of family planning (Jones *et al*., 2020). Research findings have shown that lack of knowledge or awareness about the available family planning methods, their benefits, and their side effects can prevent people from seeking family planning services (Silumbwe *et al.,* 2020).

Research from a Ugandan study on factors influencing postpartum family panning uptake revealed that lack of knowledge about intrauterine device led to its non-use (Tounkara *et al*., 2022). A study among Nigerian women revealed that although women had knowledge of the benefits of family planning, its uptake still remained unacceptably low (Akamike *et al*., 2020). Study from Wajir and Lamu counties in Kenya revealed that men lacked adequate knowledge on benefits of family planning hence the very low contraceptive prevalence exhibited in those counties (Abdi *et al*., 2021).

Qualitative study findings from Tanzania revealed that all respondents who participated knew at least 3 contraception methods. However, despite high knowledge on the types of family planning methods only 32% of married women and 48% of unmarried women used a family planning method (Mushy *et al*., 2020). A study on Male involvement in family

planning utilization and associated factors from Ethiopia showed that having adequate knowledge about methods of family planning was significantly associated with uptake (Wondim *et al*., 2020).

Lack of adequate knowledge on family planning especially on side effects leads to negative attitude towards uptake. In places where there is low uptake of family planning, research findings have shown that the fear for side effects as well as misinformation on the side effects are the key barriers. In a study conducted in rural Ghana on side effect concerns and their impact on women's uptake of modern family planning methods showed that rumors regarding short-term impacts and perceived long-term consequences of family planning use affected uptake. Some of the side effects highlighted where menstrual changes, infertility and childbirth complications (Schrumpf *et al*., 2020). Similar results were obtained from a study on men involvement in family planning services use and associated factors in rural Ghana where the fear of side effects to their partners was the main barrier for non-use of the services (Kwawukume *et al.,* 2022).

Knowledge on where the services are offered and also the period of action of the methods is important in uptake of family planning. Some couples might not be aware on availability of the service thus thinking they are only available in some selected locations. Inadequate information will significantly affect use of family planning services (Flanagan *et al*., 2021). Couples deserve enough information on the duration of action such that they can make informed decision depending on when next they will want a child. During family planning counseling both partners should be advised on different family planning methods, their side effects as well as whether they are long acting or not (Hutchinson *et al*., 2021)

2.5.3 Attitude towards Family Planning

Nature of attitude towards family planning is also another factor that negatively affect uptake of family planning services around the world. Overall, negative attitude family planning will lead to low contraceptive usage. Research from Ethiopia on knowledge and attitude towards family planning revealed that women who had negative attitude were less likely to seek for and use family planning (Bekele *et al*., 2020). Further studies from Ethiopia also concurred that have women who had a positive attitude towards family planning were two times more likely to use women who have negative attitude towards family planning (Dadi *et al*., 2020). Abdi *et al*., (2021) reports that Muslim men had ego issues and negative attitude towards family planning and thus were neither willing to discuss nor permit their spouses to seek for the said services. A study on factors associated with men's participation in postpartum family planning in Uganda revealed most men had a negative attitude and it affected uptake (Omona & Mahoro, 2023).

Attitude towards preference of specific gender of children has been documented to affect family planning uptake. In some communities, preference of the male child has been recorded as a barrier to family planning uptake whereby if a woman bears a girl child, she is less likely to use family planning (Abdi *et al*., 2020). Similar results were obtained from Uganda where women would only contemplate long-acting family planning methods if they only had an ideal number of male children (Anita *et al*., 2020).

Among the Muslims gender norms requiring women to bear more children and give birth immediately after marriage has contributed to a low family planning uptake (Kenny *et al*., 2022). A systematic review from Nigeria showed a low contraceptive prevalence mainly due to desire for more children among couples (Akamike *et al*., 2020). Misinformation

about family planning can lead to misconceptions and myths, which can discourage people from using family planning methods (Mushy *et al*., 2020). According to a Zambian study on uptake of long-acting reversable family planning methods among adolescents it was revealed that myths and misconceptions that it caused pain, infections negatively influenced its uptake (Chibosha, 2020).

Cultural and religious beliefs can play a significant role in family planning uptake. Some people may view family planning as taboo or a violation of religious teachings. A study on socio-cultural and Institutional Constraints to Family Planning uptake from Ghana revealed that the main barrier for uptake was strict religious beliefs (Munemo *et al*., 2021). A study from rural Burundi revealed that religion affected family planning use and thus recommended religious leaders' involvement in promoting family planning use (Hakizimana & Odjidja, 2021). A qualitative study also revealed a low contraceptive use among Muslims and recommended a health education intervention targeting Muslim religious leaders to promote knowledge and uptake of FP in rural Tanzania (Chalem *et al*., 2023).

Men's belief that family planning is a woman only affair has also been documented to affect men's involvement and uptake of family planning. Leaving family planning as a woman affair always leads to lack of support or opposition from partners hence discourages spouses from seeking family planning services (Abdi *et al*., 2021). Findings from rural Ghana on men's involvement in family planning revealed that the main reason for low male involvement was the belief that family planning was a women affair (Kwawukume *et al*., 2022).

2.5.4 Health System Factors

Health system factors also influence uptake of family planning services. In regions where by health system barriers have been addressed the uptake of family planning is high compared to the ones where the barriers are still existing (Logan *et al*., 2021). Distance to the nearest center where family planning services are available can hinder its utilization. Research findings have shown a linkage between the distance to the nearest facility and uptake of family planning since clients are unwilling to walk long distances (Hamon *et al*., 2020). A study from Eastern Nepal on perceptions of family planning and key barriers among adolescents revealed that long distances to healthcare facilities was the main barrier affecting uptake (Bhatt *et al*., 2021).

Cost of accessing family planning can also hinder uptake especially among those in low socio-economic status. Research findings showed that transport cost to the facilities to get sexual and reproductive services was among the barriers to uptake (Bouanchaud *et al*., 2022). Availability of family planning commodities can also predict its uptake. When the commodities are always available on demand clients are likely to seek for the services unlike when there are issues with stock outs (Yadav *et al*., 2020). A study on impact of stock-outs on uptake of family planning services revealed that stock-outs limited individuals' ability to use their preferred contraceptive method, influenced where contraceptive methods were obtained and how much they cost, and limited providers' and facilities' abilities to provide contraceptive care (Zuniga *et al*., 2022). A study by Githinji *et al*., (2022) revealed that stock-out of family planning commodities hindered uptake.

Presence of male friendly clinics also positively influence uptake of sexual and reproductive health services such as family planning. Research findings from Nigeria

revealed that in urban centers where the clinics were somehow male friendly and accommodative, the uptake of sexual and reproductive health services was higher (Amuzie *et al*., 2022). A study on attitude of reproductive age women towards male involvement in family planning revealed that there was a significant statistical association between male friendly FP service environment and uptake of family planning (Wambete *et al*., 2022).

Health care providers' knowledge and attitudes towards family planning can also affect its uptake. Some providers may not be knowledgeable about family planning or may hold negative attitudes towards it, which can discourage people from seeking services (Kriel *et al*., 2021). Poor attitude of health providers especially towards the unmarried women or adolescents when seeking family planning service affects uptake (Saïzonou *et al*., 2021).

Source of information regarding family planning can influence its uptake. Research findings have documented that when people get access to correct, reliable and adequate information especially from health care providers, they get informed and thus seek for services (Demissie *et al*., 2021). Community health extension workers have been used in the community strategy in availing information to people regarding different health issues (Douthwaite *et al*., 2021). Media has also been influential in availing information to people and thus affected uptake of services (Corey *et al*., 2022).

2.6 Summary of Literature Review and Gaps Identified

Overall, understanding the socio-demographic factors, level of knowledge, nature of attitude and health system factors that impact on family planning uptake can help policymakers and healthcare providers design and implement effective family planning programs that meet the needs of diverse populations. Literature review has shown that male

involvement in family planning has led to significant improvement of the uptake around the world. Involvement of men in family planning will require interventions like health education. This involves providing them with child spacing message and a demonstration on how they will develop economically and socially through uptake of family planning.

Despite existence of a lot of information on family planning uptake among women of reproductive age, there are lots of gaps in literature on interventions improve uptake especially those which involve men. There exists scanty literature on male targeted SMS as an intervention targeting men to increase their knowledge and change their attitude towards family planning. Most studies conducted in Kenya have focused intervention on women to increase uptake of family planning. Mobile health interventions which have been documented have addressed antenatal care services as well as skilled birth attendance. There are a lot of gaps in literature on male involvement on family planning especially in Kenya. Most studies on male involvement have been conducted in developed countries whose dynamics are different than Kenya hence cannot be generalized. Thus, this study involving men through mhealth and its implication on family planning will help in filling the literature gaps identified.

CHAPTER THREE: MATERIALS AND METHODS

3.1 Introduction

This contains information on the design that was adopted for this study, study variables, location where the study was conducted, the inclusion/exclusion criteria, the sample size determination & sampling methods as well as collection procedure and instruments. Further the chapter contains information on the pre-test, validity, reliability, analysis of data, description of the intervention and the ethical & logistical considerations.

3.2 Study Design and Intervention

3.2.1 Study Design

The study utilized a pretest-posttest quasi non-equivalent experimental study design to determine the influence of male targeted SMS intervention on family planning uptake among couples. The study design was preferred because it is ideal in showing cause and effect through manipulation of variables without randomization. Mixed methods of both quantitative and qualitative data collection approaches were employed. Questionnaires were used to collect data at baseline (pre-intervention) and end line (post-intervention) from both spouses. During the baseline survey the researcher examined; socio-demographic characteristics, Male attitude towards family planning, male partners' level of knowledge towards family planning, health system factors as well as the uptake of family planning among female spouses.

3.2.2 Intervention

The intervention for this study involved four (4) months male targeted short message service on family planning. The respondents in the intervention group received one

message per week for the 16 weeks months from November, 2023 to end of March, 2024 while those who were in the control group did not receive messages. The sixteen (16) weeks was more than the ideal period to influence change as documented by different researchers. A study by Jones *et al*., (2020) on influence of SMS on post-partum behavior and family planning uptake involved three (3) messages per day for 45 days and evaluation was done 5 months after intervention. A study from Mozambique on effects of text reminders on the use of family planning showed that by first week of enrollment, women in intervention group received two (2) family planning messages and then one message each week for the next four (4) weeks (Leight *et al*., 2022). According to an article published by the Journal of Medical Internet Research, SMS interventions can be effective in just a few weeks. The article suggests that interventions that consist of SMS reminders, encouragement, and informational messages can create positive behavior change in as little as four to six weeks (Armanasco *et al*., 2017)

The messages were customized to specific individual and preferred language. First the respondents baseline data were collected and then the information obtained were used to create the data base. The details included the male spouse's preferred mobile numbers (plus alternative numbers), language of their choice and preferred time of messaging. The key messages included: Meaning of family planning, eligibility, methods of family planning, benefits, and common side effects of family planning among others. The messages were designed in a manner likely to change the male spouse's level of knowledge and nature of attitude towards family planning and thus get involved. Both the intervention group and the control group were again evaluated three (3) months following the completion of the

intervention. According to Walakira *et al*., (2013) and Jones *et al*., (2020), five (5) months was enough to check the effect of SMS intervention uptake of family planning.

Respondents in the intervention group were expected to increase their knowledge on family planning, change their attitude towards family, male spouses become more involved and thus increase the uptake of family planning among their spouses. The following flow chart was used to illustrate how the study participants were randomly assigned to the treatment (intervention) group or the control (no intervention) group.

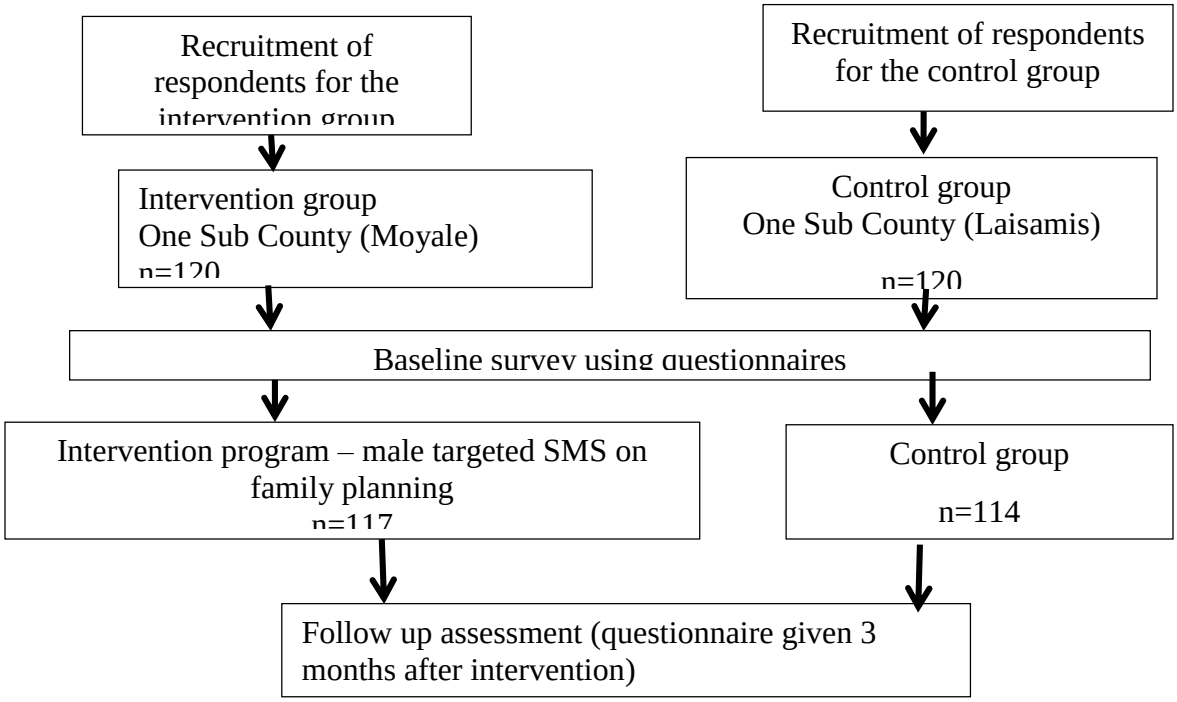

Figure 3.1 Study flow chart

3.2.3 Designing short message service (SMS) for Intervention

Ministry of Health guidelines and World Health Organization guidelines (WHO PEN Protocol 2) were adopted in designing the SMS sent to the respondents in the intervention group. To ensure compliance with acceptable standards the contents of the SMS were reviewed by the supervisors who are reproductive health experts.

3.3 Study Variables

3.3.1 Dependent Variables

The dependent variable was uptake of family planning services. The variable was dichotomized as "uptake or non-uptake" of family planning. Uptake was defined as a female spouse using a modern family planning method. On the other hand, non-uptake was defined as female spouse not using a modern family planning method.

3.3.2 Independent Variables

There were experimental and measurement independent variables. The experimental independent variable was male targeted SMS that was offered to male spouses. The measurement independent variables were the socio-demographic, health system factors and individual intermediate/modifiable factors; knowledge and nature of attitude of male spouses towards family planning. All the intermediate variables were targeted by male targeted SMS on family planning leading to male involvement which was measured against changes in uptake of family planning among their spouses.

3.4 Study Location

The study was carried out at Marsabit County. The county is located to the northern peak of Kenya, sharing more than 500KMs of boarder with Ethiopia to the North & North East, Wajir County to the East, Isiolo County to the South East, Samburu County to the South & South west and Lake Turkana to the West and North West. Marsabit County is among the counties with low contraceptive prevalence and high total fertility rate. The county has a population of 459, 949 with 243,548 (53% male and 216, 21947% female covering 70,944 Sq. KM (KNBS, 2019). The county has four sub-counties namely; North Horr,

Laisamis, Saku and Moyale. Moyale and Laisamis sub-counties were purposively selected for the study. The two sub-counties were chosen since it was simpler to regulate the contaminating impact of the intervention since the two sub counties are far apart, with Saku and North Horr Sub-counties separating them. Moyale sub-county has 7 wards (30 community Health units) while Laisamis sub-county has 5 wards (25 community health units). Two wards from each sub county were selected for the study. Butiye and Sololo were selected from Moyale sub-county while Logologo and Laisamis wards were selected from Laisamis sub-county. The County has 77,495 Households and a population density of 6 persons per square kilometre (KNBS, 2019). It has 1 level 5 Hospital, 4 level 4 hospitals, 6 level 3 hospitals and 34 level 2 hospitals. The rate of maternal mortality is 1127 per 100,000 live births. The ratio of doctor-population and nurse-population is 1:5,263 and 1.6:1,000 respectively (World Bank, 2022).

3.5 Target and Study Population

The target population included married spouses. The study population was the couples residing in Moyale and Laisamis sub-counties in Marsabit County, Kenya. Moyale sub-county covering 3, 327 square kilometer is home to 108, 949 people comprising of 56,440 male and 52, 509 females. The Sub County has 17,709 households with population density is 33 persons per square kilometer. On the other hand, Laisamis sub-county covering 8,447 square kilometers is home to 65,376 people of which 33,215 are males and 32,161 are females. The sub-county has 11,615 households with a population density of 8 persons per square kilometer (KNBS, 2019). The Key Informants included religious leaders, Health care providers and the county reproductive health officer.

3.6 Criteria for Inclusion and Exclusion

3.6.1 Inclusion Criteria

The study included couples who consented to participate in the baseline and evaluation survey. In case of polygamy only one wife was randomly selected for the study. The Couples were permanent residents of the specified sub counties with no plans to relocate within two years. The study also included couples whose female partners were within the reproductive age (15-49 years). Additionally, the male partners owned or had access to mobile phone and resided in areas where there was network coverage.

3.6.2 Exclusion Criteria

However, the study excluded the males whose spouse were pregnant during recruitment.

3.7 Sampling Techniques

Marsabit County was purposively selected because it was among the bottom three counties with the lowest modern contraceptive uptake and the highest rate of unmet needs of family planning at 37.6% (KDHS, 2022). Two stage sampling method was used to recruit participants to be involved. The first stage of sampling involved the purposive sampling to select the sub counties while the second stage of sampling was done to select the community health units (CHUs) randomly and systematically to select the house holds from which the study participants were selected. Thus, in the first stage, two sub counties (Moyale and Laisamis Sub counties) were purposively chosen since they were far away from each other thus reducing the chances of cross-social interactions and transfer that might lead to knowledge contamination. Two wards from each sub-county were randomly selected (Butiye and Sololo wards from Moyale while from Laisamis Logologo and Laisamis wards).

The second step was selection of community health units from where the households were picked. Each community health unit (CHU) comprised of approximately 1000 households according to the Kenya National Community Health Strategy 2020-2025 (MoH, 2021). A total of Four community health units were randomly selected using folded pieces of paper. Kamboe and Merille CHUs from Logologo and Laisamis wards in Laisamis sub-county while Butiye and Sololo Makutano from Butiye and Sololo wards from Moyale sub-county were randomly selected. The households from the community health units were selected via systematic random sampling at an interval of 17 obtained by dividing 4000 households by the desired sample size of 240. This was done with the help of community health promoters using who provided a list of households per community health unit. The researcher and research assistants with the help of community health promoters (CHPs) then moved from home to home systematically recruiting people who met the inclusion criteria until the sample size was attained. If a household had eligible participants, they were chosen to participate.

For the key informant interviews participants, they were purposely selected based on their position and roles in reproductive health in the county and in each of the sub counties.

3.8 Sample size Determination

A formula by Chan (2003) was applied in calculating the sample size for comparison of two proportions (two-sided) at 5% level of significance and 80% power. In Marsabit County the modern contraceptive prevalence rate stands at 5.6%. If, as stated by Jones *et al*., (2020) in response to their post-partum care seeking behavior and uptake of family planning of mothers in peri-urban public facilities in Kenya, the percentage of family planning uptake was 44.8%, then after the intervention of short message service (SMS) the

family planning uptake increased to 57.5%. As a result, the available effect size was 12.7%. Thus, using the modern contraceptive prevalence of 5.6% as reported by KDHS, (2022) with the effect size of 12.7% then the projected increase in Modern contraceptive prevalence rate is 18.3%. Then, the following formula for sample size was used in calculation;

$$M = \frac{C\{\pi 1(1-\pi 1) + \pi 2(1-\pi 2)\}}{(\pi 1-\pi 2)^2}$$

Where:

M =sample size required in each group

C=7.9, a ratio from a square of the sum of Z score of 80% power (0.842) and 5% significance (1.96). That is $(1.96+0.842)^2 = 7.9$.

$\pi 1$=first proportion= 0.056

$\pi 2$=second proportion=0.183

$\pi 1 - \pi 2$=size difference of clinical importance for this study= 0.127.

Therefore:

$$M = \frac{7.9\{0.056(1-0.056) + 0.183(1-0.183)\}}{(0.056-0.183)^2}$$

$$\frac{7.9\{0.056(0.944) + 0.183(0.817\}}{(0.127)^2}$$

$$\frac{7.9\{(0.052864+ 0.149511)\}}{(0.016129)}$$

$$7.9\frac{\{0.202375\}}{(0.016129)}$$

=99.1 which will be approximately 100

Thus, at least 100 participants were recruited plus a 20% to cover for loss to follow up. Hence the total number of respondents per arm were 100+20=120 couples. In total, 240 couples were enrolled into control and intervention arms.

3.9 Research Instruments

Semi-structured questionnaires were utilized in collection of quantitative data. The study had two sets of questionnaires; baseline data questionnaire and exit interview questionnaire for both groups. Exit interview questionnaire were used after the administration of the intervention. Key informant interview guides were used to collect further information qualitatively from religious leaders, Health care providers and the county reproductive health officer.

3.10: Pre-testing

The pre-test was done at Saku Sub- County in Marsabit County. A total of 24 (10% of the sample size) of couples was picked for pretesting of questionnaires. Two key informants were interviewed for KII guides pretesting. This helped in checking the clarity and consistency of the research tools as well as detecting any ambiguities. Adjustments were made appropriately as dictated from pretest results.

3.10.1 Validity

Validity refers degree of accuracy of a result. Thus, validity of research tools means the degree of accuracy in measuring what they are meant to measure. To ensure validity was ensured the researcher sought expert opinions especially from supervisors. Pretesting of research instruments and randomization in selecting couples to the control and intervention groups also helped in ensuring validity.

3.10.2 Reliability

Reliability refers to the consistency of results from the research. Reliability was ensured by proper selection, training and supervision (by principal investigator) of research assistants as well as designing the research instruments appropriately. Test re-test method was used to further ensure reliability of the research instruments. Additionally, in determining the questions' reliability coefficient, a Cronbach Alpha test of reliability was carried out with pre-test data which achieved an acceptable coefficient of 0.6 and above (Kilin, 2003) for all the key questions used to measure intermediate modifiable factors that were directly targeted by the intervention. The results in table 3.1 demonstrates that the questionnaires were reliable.

Table 3.1 Reliability Coefficients

Male questionnaire		
Variable	**Number of items**	**Cronbach's Alpha**
Socio-demographics	9	0.816
Knowledge on family planning	37	0.919
Attitude towards family planning	12	0.713
Health system factors	8	0.857
Female questionnaire		
Socio-demographics	8	0.818
Health system factors	8	0.869

3.11 Data Collection Techniques

Data collection was done using kobo collect tool by the principal investigator together with the trained research assistants in both baseline and evaluation surveys using a questionnaire. Baseline data was collected from both the partners and the intervention was only offered to male partners. After the intervention the Knowledge, attitude of the male spouses was measured as well as their level of involvement in family planning. Female

spouses also answered questions on uptake as well as their level of male involvement in family planning. The socio-demographic and health system factors were captured from both the spouses. Key informant interviews were conducted at the convenience of the participants who were religious leaders, Health care providers and the county reproductive health officer.

3.12 Data Management and Analysis

The baseline and evaluation data were cleaned, entered and managed in the SPSS software version 22.0. Descriptive statistics was used to generate measures of central tendency and proportions. The dependent variable was dichotomized into uptake and non-uptake of family planning. Uptake was determined by those who were using a modern family planning method while non-uptake was those who were not be using any modern family planning method. Socio- demographic factors were measured by asking the respondents' age, educational level, Religion, Occupational Status, Type of marriage, Wife's parity, ideal desired children and household income. Health system factors were measured by asking questions on service accessibility, availability, source of information, affordability, time, perceived attitude of health care providers and male friendly services. Knowledge factors were measured by items on meaning of family planning, eligibility, methods of family planning, common side effects of family planning, benefits, and places where services are provided. The responses were categorized as either correct (1) or incorrect (0) depending on the answers provided by the respondents. The overall knowledge level was determined using the 37 statements on knowledge and categorized using Bloom's cut-off point as High (80 -100%), Moderate (60 -79%) and Low (< 60%) (Ashebir *et al*., 2022). Nature of attitude was measured using a five pointer Likert scale with scores ranging from

Strongly agree (1), Agree (2), neutral (3), disagree (4) and strongly disagree (5). Total scores of less than average were dichotomized as negative attitude while those of at least average was dichotomized as positive attitude (Bekele, *et al*., 2020).

Chi square and Fisher's exact were used to test association between socio-demographic factors, knowledge factors, nature of attitude, health system factors, male involvement with uptake of modern family planning among the respondents at baseline. This helped check on similarity in socio-demographic characteristics, level of knowledge, nature of attitude, health system factors and uptake of family planning among respondents between the control and intervention arms. To determine the effectiveness of intervention, logistic regression analysis and McNemar Test were used to determine if differences in level of knowledge, nature of attitude and uptake of family planning between control and intervention groups were significant (Stratton, 2019).

Qualitative data analysis from Key informant interviews was done to identify emerging themes by categorization, summarization, and comparison of the study findings and conclusions were drawn from each theme based on the findings.

Table 3.2: Management of data

Variable		Measurement	Dependent variable	Data analysis
Socio-demographics	Age in years, Highest level of education attained, Religion, Occupational status, Type of marriage, Ideal desired number of children, Household monthly income (in Kshs)		**Family planning uptake** Uptake: Currently on FP method Non-uptake: Not currently on any FP method	Descriptive and Chi square and Fisher's exact
Level of Knowledge	37 knowledge statements on meaning, eligibility, methods, benefits, access point and common side effects on family planning (True, False, Don't Know or Yes, No, Can't tell)	Correct knowledge =1 score Incorrect Knowledge =0 score Maximum score=37 Minimum score =0 Scores≥30=High knowledge level Scores22-29=Moderate knowledge level Scores of <22=Low Knowledge level		Descriptive and Chi square and Fisher's exact
Nature of attitude	12 statements on attitude towards family planning	5 pointer Likert scale with scores (Strongly disagree '1' to Strongly agree '5') Maximum scores =60 Minimum scores =12 Positive attitude ≥ 36 Negative attitude < 36		Descriptive and Chi square and Fisher's exact
Health system factors	Accessibility, Availability, Source of information Affordability, Time, Health care provider attitude and Male friendly clinics			Descriptive and Chi square and Fisher's exact
Effectiveness of SMS intervention		Changes in level of knowledge, nature of attitude and uptake of FP between control and intervention groups		Logistic regression analysis and McNemar Test

3.13 Logistical and Ethical Considerations

The researcher obtained approval (Appendix VI) and authorization (Appendix V) from Kenyatta University graduate school. Ethical permit was sought from Kenyatta University Ethics and Review Committee (PKU/2809/11933: Appendix VII). Further research permit

to conduct the research were sought from National commission for Science, Technology and innovation (NACOSTI/P/23/30798: Appendix VIII). Permission to carry out the study was also sought from Marsabit County (Appendix IX) and local leadership. Care and protection of research participants was assured by ensuring that they should not be put in any harm or experience considerable discomfort in whatsoever way. Furthermore, participants who underwent any significant stress or discomfort during the research study were given appropriate psychosocial support. Respondents were required to sign a written consent (Appendix I) before being interviewed. Privacy and confidentiality of information obtained was assured. Confidentiality of information was ensured by assuring the participants anonymity. Also, confidentiality was ensured by storing the data obtained in restricted cabinets only accessible to the principal investigator as well as protecting soft data with password. Community considerations such as respecting their beliefs and values were ensured as well as informing about the research and how their data will be used. Results were disseminated to the community in a manner that will be accessible to them and the county government for decision making. The researcher also plans to disseminate the results through publication.

CHAPTER FOUR: RESULTS

4.1 Introduction

The chapter presents results of this study. The results are organized according to the objectives. Objective one was to determine the level of uptake of family planning among female spouses. Objective two assesses the level of knowledge on family planning among male spouses. Objective three was on the attitude towards family planning among male spouses. Objective four established the influence of short message service on uptake of family planning among female spouses. Objective five established the influence of short message service on knowledge, nature of attitude and male involvement on uptake of family planning among spouses. Objective six described health system factors associated with family planning uptake among spouses.

A total of 240 questionnaires were administered at both baseline and evaluation surveys for both spouses. At the baseline survey, 231 questionnaires were successfully completed representing an overall response rate of 96.3%. At Moyale sub county 117 were successfully completed representing a response rate of 97.5% while at Laisamis sub county 114 questionnaires were successfully completed representing a response rate of 95.0%. At the evaluation survey, 222 questionnaires were successfully completed representing an overall response rate of 96.1%. At Moyale sub county 114 questionnaires were successfully completed representing a response rate of 97.4% while at Laisamis sub county 108 questionnaires were successfully completed representing a response rate of 94.7%. This response rates are deemed to be sufficient as documented by Wu et al., (2022) who noted that a response rate of more than 80% is adequate to enable generalization of results. This

was also in line with Mugenda & Mugenda's assertion that a response rate of above 75% to be excellent.

4.2 Characteristics of Respondents

4.2.1 Socio-Demographics Characteristics of Male Spouses

Table 4.1 shows the socio-demographic characteristics of male respondents at baseline and endline. High proportion of respondents were aged between 28-37 years, control arm group (36.0%) and 42 (38.9%) while intervention group 51 (43.6%) and 50 (43.9%) at baseline and endline survey respectively. Majority in control 69 (60.5%) and 65(60.2%) had never been to school while 90 (76.9%) and 86 (75.4%) in intervention had completed secondary school at baseline and endline.

Higher proportion of respondents, control group 67 (58.8%) and 62 (57.4%) identified with traditional African church while intervention group 91(77.8%) and 91(79.8%) were Muslims at baseline and endline respectively. Concerning occupational status, control group 79(69.3%) and 68(63.0%) were not employed while intervention group 110(94.0%) and 95(83.3%) were self-employed at baseline and endline respectively. Majority were in monogamous type of marriage, control 97(85.1%) and 88(81.5%) while in intervention group 94(80.3%) and 89(78.1%) at baseline and endline survey respectively.

Regarding number of times the wife had given live birth, control 42(36.8%) and 43(39.8%) had given 1 or 2 times while in intervention 46(39.3%) and 43(37.7%) had given 3 or 4 times at baseline and endline respectively. Higher proportion, control 39(34.2%) and 35(32.4%) desired 5 or 6 children while intervention 66(56.4%) and 64(56.1%) desire 7 or more children at baseline and endline survey respectively. Respondents in control

76(66.7%) and 58(53.7%) indicated their household monthly income to be less than Kshs 5,000 while in intervention 50(42.7%) and 45(39.8%) had a monthly income of between Kshs 5,001 and 10,000 at baseline and endline survey respectively.

Table 4.1: Socio-demographic characteristics of the male spouses

Variable	Category	Control N=222		Intervention N= 231	
		Baseline(114)	Endline (108)	Baseline (117)	Endline (114)
		Frequency(%)	Frequency(%	Frequency(%	Frequency(%)
Age	18-27	20(17.5%)	16(14.8%)	10(8.5%)	9(7.9%)
	28-37	41(36.0%)	42(38.9%)	51(43.6%)	50(43.9%)
	38-47	25(21.9%)	21(19.4%)	39(33.3%)	36(31.6%)
	48-57	21(18.4%)	22(20.4%)	12(10.3%)	1311.4%)
	≥58	7(6.1%)	7(6.5%)	5(4.3%)	6(5.3%)
Highest level of educatio n attained	No formal	69(60.5%)	65(60.2%)	5(4.3%	9(7.9%)
	Pre-primary	2(1.8%)	2(1.9%)	5(4.3%)	4(3.5%)
	Primary	8(7.0%)	7(6.5%)	16(13.7%)	13(11.4%)
	Secondar	20(17.5%)	19(17.6%)	90(76.9%)	86(75.4%)
	Tertiary	1513.2%)	15(13.9%)	1(0.9%)	21.8%)
Religion	Catholic	17(14.9%)	17(15.7%)	5(4.3%)	5(4.4%)
	Protestant	3(2.6%)	3(2.8%)	6(5.1%)	3(2.6%)
	Pentecost	2(1.8%)	2(1.9%)	4(3.4%)	4(3.5%)
	African tradition	67(58.8%)	62(57.4%)	11(9.4%)	11(9.6%)
	Muslim	25(21.9%)	24(22.2%)	91(77.8%)	91(79.8%)
Occupati onal status	Formal employm ent	8(7.0%)	9(8.3%)	2(1.7%)	7(6.1%)
	Self employed	27(23.7%)	25(23.1%)	110(94.0%)	95(83.3%)
	Not employed	79(69.3%)	68(63.0%)	5(4.3%)	8(7.0%)
Type of marriage	Monoga mous	97(85.1%)	88(81.5%)	94(80.3%)	89(78.1%)
	Polygamo us	17(14.9%)	20(18.5%)	23(19.7%)	25(19.7%)
If polygam ous no. of wives	2	14(82.4%)	15(75.0%)	20(87.0%)	18(75.0%)
	3	3(17.4%)	5(25.0%)	1(4.3%)	4(16.7%)
	>3	0(0.0%)	0(0.0%)	2(8.7%)	2(8.3%)
Number of times	1or 2	42(36.8%)	43(39.8%)	33(28.2%)	32(28.1%)
	3 or 4	31(27.2%)	28(25.9%)	46(39.3%)	43(37.7%)

wife has given a live birth	5 or 6	25(21.9%)	20(18.5%)	27(23.1%)	28(24.6%)
	>6	16(14.0%)	16(14.8%)	11(9.4%)	11(9.6%)
Ideal desired number of children	1 or 2	27(23.7%)	26(24.1%)	9(7.7%)	9(7.9%)
	3 or 4	21(18.4%)	21(19.4%)	20(17.1%)	19(16.7%)
	5 or 6	39(34.2%)	35(32.4%)	22(18.8%)	22(19.3%)
	7 or more	27(23.7%)	26(24.1%)	66(56.4%)	64(56.1%)
Household income in Kshs	<5000	76(66.7%)	58(53.7%)	37(31.6%)	34(30.1%)
	5001-10,000	21(19.4%)	21(19.4%)	50(42.7%)	45(39.8%)
	10,001-15,000	8(7.0%)	12(11.1%)	13(11.1%)	8(7.1%)
	15,001-20,000	3(2.6%)	5(4.6%)	6(5.1%)	7(6.2%)
	>20,000	6(5.3%)	12(11.1%)	11(9.4%)	19(16.8%)

4.2.2 Socio Demographic characteristics of Female Spouses

Table 4.2 shows the socio-demographic characteristics of female respondents at baseline and endline. High proportion of respondents were aged between 28-37 years, control arm group 54(47.4%) and 65(60.2%) while intervention group 59(50.4%) and 46(40.4%) at baseline and endline survey respectively. Majority in control 49(43.0%) and 44(40.7%) had never been to school while 41(35.0%) and 40(35.1%) in intervention had completed pre-primary at baseline and endline.

Higher proportion of respondents, control group 67(58.8%) and 62(57.4%) identified with traditional African church while intervention group 91(77.8%) and 91(79.8%) were Muslims at baseline and endline respectively. Concerning occupational status, control group 62(54.4%) and 58(53.7%) were self-employed while intervention group60(51.3%) and 68(59.6%) were not employed at baseline and endline respectively. Majority were in monogamous type of marriage, control 98(86.0%) and 86(79.6%) while in intervention group 94(80.3%) and 91(79.8%) at baseline and endline survey respectively.

Higher proportion had given birth 3 or 4 times, control 48(42.1%) and 46(42.6%) and 43(39.8%) while in intervention 46(39.3%) and 44(38.6%) at baseline and endline respectively. Higher proportion desired more than 6 children, control 46(40.4%) and 30(27.8%) desired 5 or 6 children while intervention 35(29.9%) 53(46.5%) at baseline and endline survey respectively. Respondents in control 52(45.6%) and 43 (39.8%) indicated their household income between Kshs 5,001 and 10,000 while in intervention 73(63.4%) and 49(43.0%) of less than Kshs 5,000 at baseline and endline survey respectively.

Table 4.2 Socio-demographic characteristics of female spouses

Variable	Category	Control N=231		Intervention N=222	
		Baseline Frequency (%)	Endline Frequency (%)	Baseline Frequency (%)	Endline Frequency (%)
Age in years	<20	10(8.8%)	11(10.2%)	10(8.5%)	5(4.4%)
	20-29	54(47.4%)	65(60.2%)	59(50.4%)	46(40.4%)
	30-39	39(34.2%)	27(25.0%)	34(29.1%)	44(38.6%)
	40-49	11(9.6%)	5(4.6%)	14(12.0%)	19(16.7%)
Highest level of education attained	Never been to school	49(43.0%)	44(40.7%)	34(29.1%)	33(28.9%)
	Pre-primary completed	29(25.4%)	28(25.9%)	18(15.4%)	19(16.7%)
	Primary completed	19(16.7%)	19(17.6%)	41(35.0%)	40(35.1%)
	Secondary completed	15(13.2%)	14(13.0%)	22(18.8%)	21(18.4%)
	College/University completed	2(1.8%)	3(2.8%)	2(1.7%)	1(0.9%)
Religion	Catholic	17(14.9%)	17(15.7%)	5(4.3%)	5(4.4%)
	Protestant	3(2.6%)	3(2.8%)	6(5.1%)	3(2.6%)
	Pentecostal	2(1.8%)	2(1.9%)	4(3.4%)	4(3.5%)
	African traditional	67(58.8%)	62(57.4%)	11(9.4%)	11(9.6%)
	Muslim	25(21.9%)	24(22.2%)	91(77.8%)	91(79.8%)
Occupational status	Formal employment	5(4.4%)	4(3.7%)	9(7.7%)	6(5.3%)
	Self employed	62(54.4%)	58(53.7%)	48(41.0%)	40(35.1%)
	Not employed	47(41.2%)	47(41.2%)	60(51.3%)	68(59.6%)
Type of marriage	Monogamous	98(86.0%)	86(79.6%)	94(80.3%)	91(79.8%)
	Polygamous	16(14.0%)	22(20.4%)	23(19.7%)	23(20.2%)
Number of times you have given a live birth	1or 2	39(34.2%)	39(36.1%)	33(28.2%)	33(28.9%)
	3 or 4	48(42.1%)	46(42.6%)	46(39.3%)	44(38.6%)
	5 or 6	16(14.0%)	16(14.8%)	27(23.1%)	27(23.7%)
	>7 or more	11(9.6%)	7(6.5%)	11(9.4%)	10(8.8%
Ideal desired number of children	1 or 2	23(20.2%)	30(27.8%)	24(20.5%)	13(11.4%)
	3 or 4	4(3.5%)	1715.7%)	25(21.4%)	24(21.1%)
	5 or 6	41(36.0%)	31(28.7%)	33(28.2%)	24(21.1%)
	>6	46(40.4%)	30(27.8%)	35(29.9%)	53(46.5%)
Household income in Kshs	<5000	44(38.6%)	44(40.7%)	73(63.4%)	49(43.0%)
	5001-10,000	52(45.6%)	43(39.8%)	30(25.6%)	38(33.3%)
	10,001-15,000	10(8.8%)	9(8.3%)	9(7.7%)	14(12.3%)
	15,001-20,000	2(1.8%)	5(4.6%)	3(2.6%)	5(4.4%)
	>20,000	6(5.3%)	7(6.5%)	2(1.7%)	8(7.0%)

4.3 Uptake of family planning at baseline among female spouses

Figure 4.1 shows the uptake of family planning at the baseline for combined control and intervention. The uptake of family planning among female spouses stood at 33 (14.3%). This was measured by asking the female spouses whether they were on any family planning method.

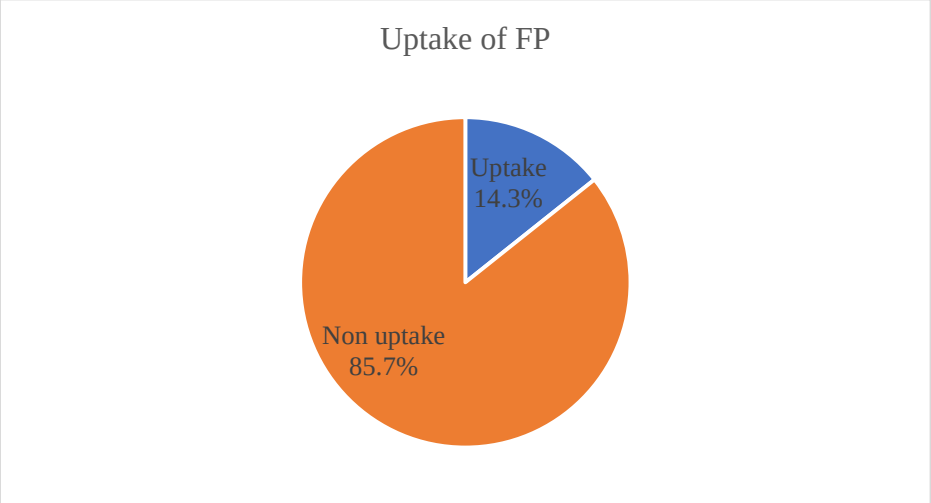

Figure 4.1: Uptake of family planning at baseline

4.4 Distribution of knowledge areas at baseline among the male spouses

This section consists of results on distribution of knowledge areas for combined data at baseline. The level of knowledge for each knowledge were also presented based on scores computed and dichotomized as low, moderate or high according to bloom's cut of points.

4.4.1 Knowledge on meaning of family planning

Table 4.3 shows combined data on knowledge on meaning of family planning at baseline. On whether family planning meant a deliberate effort allowing people to regulate number and determine health timing and spacing of pregnancies HTSP, majority 171 (74.0%) had correct knowledge. Majority 155 (67.1%) also had correct knowledge on whether family

planning referred to a mean of deciding sex of child. The level of knowledge on meaning was also assessed using scores from two items (maximum 2 scores and minimum 0) which were used to categorized knowledge to low (0), moderate (1) or high (2). Majority 121 (52.4%) of the respondents had high knowledge level on meaning of family planning.

Table 4.3: Knowledge on meaning of family planning

Knowledge variable	Response	Baseline(N=231)	
		Frequency	**Percent**
FP is deliberate effort allowing people to regulate number and determine HTSP	Correct	171	74.0%
	Incorrect	60	26.0%
FP refers to means of deciding sex of the child	Correct	155	67.1%)
	Incorrect	76	32.9%
Level of knowledge on meaning of FP	Low	26	11.2%
	Moderate	84	36.4%
	High	121	52.4%

4.4.2 Knowledge on eligibility

Table 4.4 shows six knowledge items used to assess level of knowledge on eligibility for family planning. More than half 125 (54.1%) of the respondents had correct knowledge on whether women aged more than 50years must use family planning to avoid unplanned pregnancy. The knowledge items were used to categorize level of knowledge as follows low (0-2 scores), moderate (3-4 scores) and high (4-6 scores). Results showed that 107 (46.3%) had low knowledge.

Table 4.4: Knowledge on eligibility for family planning use

Knowledge variable	Response	Baseline(N=231)	
		Frequency	**Percent**
Any female at any age can use FP	Correct	87	37.7%
	Incorrect	144	62.3%
Only women are eligible to use FP	Correct	76	32.9%
	Incorrect	155	67.1%
Women >50 years must use FP to avoid unplanned pregnancy	Correct	125	54.1%
	Incorrect	106	45.9%
FP is used by sexually active women at reproductive age	Correct	103	44.6%
	Incorrect	128	55.4%
Only married couples are eligible for FP services	Correct	89	38.5%
	Incorrect	142	61.5%
FP services can be used by sexually active men	Correct	82	35.5%
	Incorrect	149	64.5%
Level of knowledge on eligibility	Low	107	46.3%
	Moderate	88	38.1%
	High	36	15.6%

4.4.3 Knowledge on methods of family planning

Table 4.5 shows eleven knowledge items used to assess level of knowledge on methods of family planning. Slightly less than half 112 (48.5%) of the respondents had correct knowledge on whether traditional herbs were a modern method of family planning. The knowledge items were used to categorize level of knowledge as follows low (0-6 scores), moderate (7-8 scores) and high (9-11 scores). Results showed that 149 (64.5%) had low knowledge.

Table 4.5: Knowledge on methods family planning

Knowledge variable	Response	Baseline(N=231)	
		Frequency	Percent
Condom use only FP which protects against STIs	Correct	100	43.3%
	Incorrect	131	56.7%
Male sterilization (vasectomy) is permanent male FP method	Correct	85	36.8%
	Incorrect	146	63.2%
Female sterilization (tubal ligation) is permanent female FP method	Correct	84	36.4%
	Incorrect	147	63.6%
It is a good idea to use emergency contraception pills instead of lactational amenorrhea method	Correct	85	36.8%
	Incorrect	146	63.2%
Oral contraception pills can help women prevent unplanned pregnancy	Correct	91	39.4%
	Incorrect	140	60.6%
Oral contraception pills can be taken twice a day to prevent unwanted pregnancy	Correct	88	38.1%
	Incorrect	143	61.9%
Intrauterine device is a long-acting reversible contraception	Correct	94	40.7%
	Incorrect	137	59.3%
Contraception implant is a form of long-acting reversible FP method	Correct	95	41.1%
	Incorrect	136	58.9%
Herbs are a modern method of FP	Correct	112	48.5%
	Incorrect	119	51.5%
Contraceptive injection is a long-acting FP method	Correct	94	40.7%
	Incorrect	137	59.3%
Fertility awareness is about learning signs of fertility in your wife's cycle to help plan or avoid pregnancy	Correct	109	47.2%
	Incorrect	122	52.8%
Level of knowledge on methods of FP	Low	149	64.5%
	Moderate	18	7.8%
	High	64	27.7%

4.4.4 Knowledge on benefits of family planning

Table 4.6 shows eight knowledge items used to assess level of knowledge on benefits of family planning. Slightly less than half 113 (48.9%) of the respondents had correct knowledge on whether use of family planning helped in improving health of child. The knowledge items were used to categorize level of knowledge as follows low (0-4 scores), moderate (5-6 scores) and high (7-8 scores). Results showed that 134 (58.0%) had low knowledge.

Table 4.6: Knowledge on the benefits of family planning

Knowledge variable	Response	Baseline(N=231)	
		Frequency	**Percent**
Use of FP helps reduce maternal deaths	Correct	98	42.4%
	Incorrect	133	57.6%
Use of FP helps improve health of child	Correct	113	48.9%
	Incorrect	118	51.1%
Too close/poorly timed pregnancies contribute to high infant mortality	Correct	105	45.5%
	Incorrect	126	54.5%
FP use leads to improved health of women	Correct	111	48.1%
	Incorrect	120	51.9%
Some FP methods help in reducing transmission of STIs	Correct	107	46.3%
	Incorrect	124	53.7%
FP usage is only beneficial to mother and child	Correct	89	38.5%
	Incorrect	142	61.5%
Increased uptake of FP can be a solution to population pressures on resources	Correct	108	46.8%
	Incorrect	123	53.2%
Use of contraceptives help in reducing stress and demands to meet in the family	Correct	101	43.7%
	Incorrect	130	56.3%
Level of knowledge on benefits of FP	Low	134	58.0%
	Moderate	53	22.0%
	High	44	19.1%

4.4.5 Knowledge on places where family planning services are offered

Table 4.7 shows two knowledge items used to assess level of knowledge on places where family planning services were offered. Slightly less than half 123 (53.2%) of the respondents had correct knowledge on whether family planning services were only offered in public hospitals. The knowledge items were used to categorize level of knowledge as follows low (0 score), moderate (1 score) and high (2 scores). Results showed that 87 (37.6%) had high knowledge.

Table 4.7: Knowledge on the places where family planning services are offered

Knowledge variable	Response	Baseline(N=231)	
		Frequency	Percent
FP services are only offered in public hospitals	Correct	123	53.2%
	Incorrect	108	46.8%
FP services can be offered in both private & public hospitals	Correct	120	51.9%
	Incorrect	111	48.1%
Level of knowledge on places where FP services are offered	Low	75	32.5%
	Moderate	69	29.9%
	High	87	37.6%

4.4.6 Knowledge on common side effects of family planning

Table 4.8 shows eight knowledge items used to assess level of knowledge on common side effects of family planning. The knowledge items were used to categorize level of knowledge as follows low (0-4 scores), moderate (5-6 scores) and high (7-8 scores). The results showed that 169 (73.2%) had low knowledge.

Table 4.8: Knowledge on common side effects of family planning

Knowledge variable	Response	Baseline(N=231)	
		Frequency	Percent
Use of FP can lead to loss of appetite	Correct	87	62.3%
	Incorrect	144	37.7%
Heavy bleeding can be a side effect of FP usage	Correct	91	39.4%
	Incorrect	140	60.6%
FP usage can sometimes make someone feel dizzy	Correct	87	37.7%
	Incorrect	144	62.3%
All women who use FP stop experiencing monthly periods	Correct	90	39.0
	Incorrect	141	61.0
Use of all FP can lead to some headache	Correct	77	33.3%
	Incorrect	154	66.3%
FP usage can lead to irregular bleeding	Correct	88	38.1%
	Incorrect	143	61.9%
Women who use FP suffer from severe diarrhea	Correct	105	45.5%
	Incorrect	126	54.5%
FP usage can lead to changes in weight of women	Correct	73	31.6%
	Incorrect	158	68.4%
Level of knowledge on side effects of FP	Low	169	73.2%
	Moderate	41	17.7%
	High	21	9.1%

4.5 Distribution of Responses on attitude towards family planning uptake among male spouses

Table 4.9 shows results of distribution of twelve statements on attitude towards family planning and overall nature of attitude for combined data of control and intervention at baseline. The twelve (12) statements on a Likert scale of points 1-5 where '1' meant strongly disagree, '2' disagree, '3' neutral, '4' agree and '5' meant strongly agree. The twelve statements had a minimum score of 12 and maximum score of 60. To obtain the nature of attitude, the scores were further divided into two categories. Total scores of less than average (<36) was dichotomized as negative attitude while those of at least average ($\geq$ 36) was dichotomized as positive attitude. The results revealed that at baseline for combined data only 52 (22.5%) had positive attitude.

Table 4.9: Distribution of responses on attitude towards family planning

Statement	Response	Frequency	Percent
I discuss FP issues with my spouse and I would want to use it in future	Strongly disagree	38	16.5%
	Disagree	122	52.8%
	Neither disagree nor agree	19	8.2%
	Agree	21	9.1%
	Strongly agree	31	13.4
I belief FP use will not expose my spouse to infertility	Strongly disagree	69	29.9%
	Disagree	94	40.7%
	Neither disagree nor agree	28	12.1%
	Agree	33	14.3%
	Strongly agree	7	3.0%
Use of FP doesn't contradict with my religious beliefs	Strongly disagree	45	19.5%
	Disagree	91	39.4%
	Neither disagree nor agree	52	22.5%
	Agree	37	16.0%
	Strongly agree	6	2.6%
Spousal use of FP doesn't contradict with my cultural beliefs	Strongly disagree	59	25.5%)
	Disagree	96	41.6%
	Neither disagree nor agree	25	10.8%
	Agree	41	17.7%
	Strongly agree	10	4.3%

Table 4.9: Distribution of responses on attitude towards family planning cont'd…

Statement	Response	Frequency	Percent
I belief FP use doesn't influence sexual activity	Strongly disagree	46	19.9%
	Disagree	106	45.9%
	Neither disagree nor agree	29	12.6%
	Agree	35	15.2%
	Strongly agree	15	6.5%
I belief FP use doesn't have enormous side effects hence should be used	Strongly disagree	44	19.0%
	Disagree	103	44.6%
	Neither disagree nor agree	29	12.6%
	Agree	40	17.3%
	Strongly agree	15	6.5%
I belief that FP use doesn't encourage promiscuity	Strongly disagree	48	20.8%
	Disagree	99	42.9%
	Neither disagree nor agree	37	16.0%
	Agree	35	15.2%
	Strongly agree	12	5.2%
I belief that large family size affects economic conditions negatively	Strongly disagree	42	18.2%
	Disagree	105	45.5%
	Neither disagree nor agree	42	18.2%
	Agree	29	12.6%
	Strongly agree	13	5.6%
I belief that large family size affects negatively the mother and child health	Strongly disagree	40	17.3%
	Disagree	121	52.4%
	Neither disagree nor agree	27	11.7%
	Agree	34	14.7%
	Strongly agree	9	3.9%
I think large family size shouldn't be used as means of husband earning respect in the community	Strongly disagree	41	17.7%
	Disagree	109	47.2%
	Neither disagree nor agree	37	26.0%
	Agree	32	13.9%
	Strongly agree	12	5.2%
I belief that use of FP doesn't predispose my wife to cancer	Strongly disagree	43	18.6%
	Disagree	125	54.1%
	Neither disagree nor agree	23	10.0%
	Agree	28	12.1%
	Strongly agree	12	5.2%
FP services when used correctly and consistently their chances of failing are very low	Strongly disagree	47	20.3%
	Disagree	113	48.9%
	Neither disagree nor agree	33	14.3%
	Agree	25	10.8%
	Strongly agree	13	5.6%
Nature of attitude towards family planning	Negative	179	77.5%
	Positive	52	22.5%

4.6 Distribution of health system factors among male spouses

Table 4.10 shows distribution of health system factors at baseline for combined data from control and intervention groups at baseline. Results revealed that the distance to the nearest health facility for 82 (35.5%) of the respondents was 4-6kilometres. A higher proportion 102 (44.2%) reported that family planning services were accessible. Concerning availability of family planning services, 73 (31.6%) rated it as easily available.

Majority 208 (90.0%) had ever received information about family planning mostly from community health promotors at 92 (44.4%). Slightly below half 115 (49.8%) of the respondents indicated they expected to receive family planning services in less than an hour. Majority 175 (75.8%) of the respondents had a fair experience with health care provider. A higher proportion 112 (48.5%) stated that the clinics were male friendly.

Table 4.10: Distribution of health system factors

Variable	Category	Frequency (N=231	Percent
Distance in KM	<1km	54	23.4%
	1-3km	42	18.2%
	4-6km	82	35.5%
	>6km	53	22.9%
Rate accessibility of FP services =	Very accessible	50	21.6%
	Accessible	102	44.2%
	Less accessible	44	19.0%
	Not accessible at all	35	15.2%
Rate the availability of FP Services at the nearest facility	Easily available	73	31.6%
	Moderately available	68	29.4%
	Less available	43	18.6%
	Not available at all	47	20.4%
Ever received any information about FP	Yes	208	90.0%
	No	23	10.0%
Main source of information if ever received	CHPs	92	44.4%
	HWs at the facility/outreach	35	16.9%
	Friends/relatives	27	13.5
	Religious meetings	30	14.5%
	Media	23	11.1%
Expected Time of receiving FP	<1hour	115	49.8%
	1-3hours	105	45.5%
	>3hours	11	4.7%
HCP attitude	Good	48	20.7%
	Fair	175	75.8%
	Poor	8	3.5%
Male friendliness of clinics offering FP	Very friendly	40	17.3%
	Friendly	112	48.5%
	Less friendly	32	13.9%
	Not friendly at all	47	20.3%

4.7 Distribution of male involvement among female spouses

Table 4.11 shows the male involvement on matters of family planning for combined data at baseline. Male involvement was assessed by focusing on four aspects including discussing use, financial support, moral support ad accompanying spouse to place of

uptake. The responses were dichotomized into involved and not involved. Those who participated in at least two of the four aspects were considered to have been involved while those who participated in less than two aspects were considered to have not been involved. Results revealed that rest 81 (35.1%) were involved. Those who felt that their spouses should be involved 13 (38.2%) wanted them to provide financial support.

Table 4.11: Male involvement

Variable	Response	Frequency (N=231	Percent
Male involvement in FP matters	Involved	81	35.1%
	Not involved	150	64.9%
Would you want him to be involved	Yes	34	22.7%
	No	116	77.3%
How would you like him to be involved	Discussing use	11	32.4%
	Financial support	13	38.2%
	Moral support	7	20.6%
	Accompanying to place of uptake	3	8.8%

4.8 Factors associated with uptake of family planning at baseline

This section contains results on factors associated with uptake of family planning for combined data from control and intervention groups at baseline survey.

4.8.1 Association between socio-demographic factors and uptake of family planning

Table 4.12 shows the association between socio-demographic factors of participants and uptake of family planning. There was significant statistical association between age and uptake of family planning ($\chi 2=16.962$, $p^*=0.002$). The other socio-demographic characteristics did not show any statistically significant association with family planning.

Table 4.12: Association between socio-demographic factors and uptake of family planning

Variable	Category	Uptake of family planning		Statistical significance
		Uptake(N=33)	Non uptake (N=198	
Age	18-27	6(18.2%)	24(12.1%)	Fisher's exact
	28-37	10(30.3%)	82(41.4%)	Df=4
	38-47	3(9.1%)	61(30.8%)	**P*=0.002**
	48-57	10(30.3%)	23(11.6%)	
	Above 58	4(12.1%)	8(4.0%)	
Highest level of education attained	Never been to school	10(30.3%)	64(32.3%)	Fisher's exact Df=4
	Pre-primary completed	1(3.0%)	6(3.0%)	P*=0.996
	Primary completed	4(12.1%)	20(10.1%)	
	Secondary completed	16(48.5%)	94(47.5%)	
	College/University completed	2(6.1%)	14(7.1%)	
Religion	Catholic	2(6.1%)	20(10.1%)	Fisher's exact
	Protestant	2(6.1%)	7(3.5%)	Df=4
	Pentecostal	1(3.0%)	5(2.5%)	P*=0.911
	African traditional	11(33.3%)	67(33.8%)	
	Muslim	17(51.5%)	99(50.0%)	
Occupational status	Formal employment	1(3.0%)	9(4.5%)	Fisher's exact Df=2
	Self employed	19(57.6%)	118(59.6%)	P*=0.387
	Not employed	13(39.4%)	71(35.9%)	
Type of marriage	Monogamous	25(75.8%)	166(83.8%)	$\chi 2$=1.290
	Polygamous	8(24.2%)	32(16.2%)	Df=1
				P=0.318
If polygamous number of wives	2	8(100.0%)	26(81.3%)	Fisher's exact
	3	0(0.0%)	4(12.5%)	Df=2
	>3	0(0.0%)	2(6.2%)	P*=0.414
Number of times wife has given a live birth	1or 2	12(36.4%)	63(31.8%)	Fisher's exact
	3 or 4	12(36.4%)	65(32.8%)	Df=3
	5 or 6	5(15.2%)	47(23.7%)	P*=0.749
	>6	4(12.1%)	23(11.6%)	
Ideal desired number of children	1 or 2	6(18.2%)	30(15.2%)	$\chi 2$=0.851
	3 or 4	6(18.2%)	35(17.7%)	Df=3
	5 or 6	10(30.3%)	51(25.8%)	P=0.837
	7 or more	11(33.3%)	82(41.4%)	
Household income in Kshs	<5000	18(54.5%)	95(48.0%)	Fisher's exact
	5001-10,000	12(36.4%)	59(29.8%)	Df=4
	10,001-15,000	0(0.0%)	21(10.6%)	P*=0.214
	15,001-20,000	0(0.0%)	9(4.5%)	
	>20,000	3(9.1%)	14(7.1%)	

4.8.2 Association between level of knowledge and uptake of family planning

Table 4.13 shows the association between level of knowledge on the six knowledge areas and uptake of family planning for combined data at baseline. There was no association between level of knowledge on all key areas and uptake of family planning. Further results showed that also overall level of knowledge did not have a significant statistical association with uptake of family planning.

Table 4.13: Association between level of knowledge and uptake of family planning

Knowledge area	Category	Uptake of family planning		Statistical significance
		Uptake(N=33)	Non uptake(N=198	
Knowledge level on meaning of FP	Low	2(6.1%)	24(12.1%)	Fisher's exact
	Moderate	10(30.3%)	74(37.4%)	Df=2
	High	21(63.6%)	100(50.5%)	P*=0.326
Knowledge level on eligibility	Low	18(54.5%)	89(44.9%)	Fisher's exact
	Moderate	12(36.4%)	76(38.4%)	Df=2
	High	3(9.1%)	33(16.7%)	P*=0.442
Knowledge level on methods of FP	Low	22(66.7%)	127(64.1%)	Fisher's exact
	Moderate	3(9.1%)	15(7.6%	Df=2
	High	8(24.2%)	56(28.3%)	P*=0.870
Knowledge level on benefits of FP	Low	20(60.6%)	114(57.6%)	$\chi 2$=0.520
	Moderate	6(18.2%)	47(23.7%)	Df=2
	High	7(21.2%)	37(18.7%)	P=0.771
Knowledge level on place where FP services are offered	Low	8(24.2%)	67(33.8%)	$\chi 2$=1.376
	Moderate	12(36.4%)	57(28.8%)	Df=2
	High	13(39.4%)	74(37.4%)	P=0.502
Knowledge level on side effects of FP	Low	25(75.8%)	144(72.7%)	Fisher's exact
	Moderate	6(18.2%)	35(17.7%)	Df=2
	High	2(6.0%)	19(9.6%)	P*=0.807
Overall knowledge level	Low	4(12.1%)	26(13.1%)	Fisher's exact
	Moderate	8(24.2%)	37(18.7%)	Df=2
	High	21(63.6%	135(68.2%)	P*=0.757

P*=Fishers exact

4.8.3 Association between nature of attitude and uptake of family planning

Table 4.14 presents results on association between nature of attitude and uptake of family planning for combined data at baseline. Nature of attitude was measured by the scores from

12 statements on a Likert scale. This was later dichotomized into negative (<36 scores) and positive (≥ 36 scores). There was no association between nature of attitude and uptake of family planning.

Table 4.14: Association between nature of attitude and uptake of family planning

Variable	Category	Uptake of family planning		Statistical significance
		Uptake(N=33)	Non uptake(N=198	
Nature of attitude	Negative	28(84.8%)	151(76.3%)	$\chi 2$=1.195 Df=1 P=0.369
	Positive	5(15.2%)	47(23.7%)	

4.8.4 Association between male involvement and uptake of family planning

Table 4.15 shows results on the association between male involvement and uptake of family planning for combined data at baseline survey. There was a significant statistical association between male involvement and uptake of family planning ($\chi 2$=27.999, p=0.001).

Table 4.15: Association between male involvement and uptake of family planning

Variable	Category	Uptake of family planning		Statistical significance
		Uptake(N=33)	Non uptake(N=198	
Male involvement in FP matters	Involved	25(75.8%)	56(28.3%)	$\chi 2$=27.999 Df=1 P=0.001
	Not involved	8(24.2%)	142(71.7%)	
Would you want him to be involved	Yes	3(37.5%)	31(21.8%)	Fisher's exact Df=1 P*=0.303
	No	5(62.5%)	111(78.2%)	
How would you like him to be involved	Discussing use	1(33.3%)	10(32.3%)	Fisher's exact Df=3 P*=0.645
	Financial support	2(66.7%)	11(35.5%)	
	Moral support	0(0.0%)	7(22.6%)	
	Accompanying to place of uptake	0(0.0%)	3(9.7%)	

P*=Fishers exact

4.8.5 Association between health system factors and uptake of family planning

Table 4.16 presents results on association between health system factors and uptake of family planning for combined data at baseline survey.

Table 4.16: Association between health system factors and uptake of FP

Variable	Category	Uptake of FP		$\chi 2$ or Fisher's exact
		Uptake	Non-uptake	
Distance in KM N=	<1km	7(21.2%)	47(23.7%)	$\chi 2$=0.817
	1-3km	7(21.2%)	35(17.7%)	Df=3
	4-6km	13(39.4%)	69(34.8%)	P=0.845
	>6km	6(18.2%)	47(23.7%)	
Rate accessibility of FP services N=	Very accessible	9(27.3%)	41(20.7%)	Fisher's exact
	Accessible	15(45.5%)	87(43.9%)	Df=3
	Less accessible	4(12.1%)	40(20.2%)	P*=0.671
	Not accessible at all	5(15.2%)	30(15.2%)	
rate the availability of FP Services at the nearest facility	Easily available	11(33.3%)	62(31.3%)	$\chi 2$=1.545
	Moderately available	8(24.2%)	60(30.3%)	Df=3
	Less available	5(15.2%)	38(19.2%)	P=0.672
	Not available at all	9(27.3%)	38(19.2%)	
Ever received any information about FP	Yes	28(84.8%)	180(90.9%)	$\chi 2$=1.159
	No	5(15.2%)	18(9.1%)	Df=1 P=0.282
Main source of information if ever received	CHPs	13(46.4%)	79(43.9%)	$\chi 2$=4.416
	HWs at the facility/outreach	5(17.9%)	30(16.7%)	Df=4
	Friends/relatives	5(17.9%)	22(12.2%)	P=0.353
	Religious meetings	5(17.9%)	26(14.4%)	
	Media	0(0.0%)	23(12.8%)	
Expected Time of receiving FP	<1hour	14(42.4%)	101(51.0%)	Fisher's exact
	1-3hours	18(54.5%)	87(43.9%)	Df=2
	>3hours	1(3.0%)	10(5.1%)	P*=0.506
HCP attitude N=	Good	7(21.2%)	41(20.7%)	Fisher's exact
	Fair	24(72.7%)	151(76.3%)	Df=2
	Poor	2(6.1%)	6(3.0%)	P*=0.670
Male friendliness of clinics offering FP	Very friendly	4(12.1%)	36(18.2%)	Fisher's exact
	Friendly	20(60.6%)	92(46.5%)	Df=3
	Less friendly	4(12.1%)	28(14.1%)	**P*=0.027**
	Not friendly at all	5(15.2%)	42(21.2%)	

P*=Fishers exact

4.9 Objective 1: Level of uptake of family planning among female spouses in Marsabit County

This section presents results on level of uptake of family planning for combined data, control and intervention at baseline and endline surveys. It also presents results on methods of family planning used, main motivation to use, decision maker on use, when current method was started, main reason for non-uptake and husband approval of family planning.

4.9.1 Uptake of modern family planning

Figure 4.2 shows level of uptake of family planning at baseline and endline. Results showed that overall uptake increased from 33 (14.3%) at baseline to 67(30.2%) at endline. Uptake of family planning also increased from 15 (13.2%) to 22 (20.4%) in control and 18 (15.4%) to 45 (39.5%) in the intervention at baseline and endline surveys respectively. Key informants also noted a low uptake of family planning however they noted that with interventions it has improved. One noted that;

"*In this county the uptake of family planning has been low. I think the main barrier is the male spouses who have not embraced the use of contraceptives. Sometimes the women may want to use but their men don't allow them. Some are even using silently but upon husband discovery, it becomes a serious family issue leading to gender-based violence. Although the uptake is low it has improved with a lot of efforts put in place like the one you have offered on targeting on the men who are the main reasons for low uptake*…."

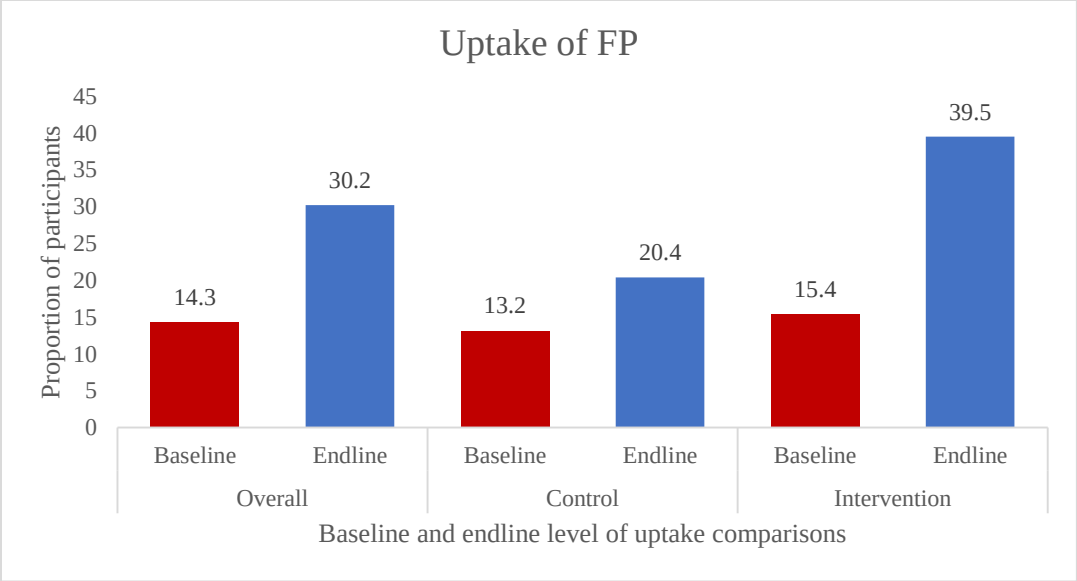

Figure 4.2: Level of uptake of Family planning at baseline and endline

4.9.2 Method of Family planning used

Table 4.17 presents results on the methods of family planning used by the respondents. At baseline for combined contraceptive injection was common at 8(24.2%) while at endline condom use was common at 16 (23.9%). Among the respondents in the control group, at baseline contraceptive injection and oral contraceptive pills were common at 4(26.7%) for both while at endline survey contraceptive implant became common at 6 (27.3%). In the intervention group, at baseline lactational amenorrhea 5 (27.8%) and at endline condom use 12 (26.7%) were common. Preference for short acting family planning methods was also noted by the key informants. A Health care provider who was part of the key informants noted;

"*In this locality people haven't embraced contraceptive uptake. The few who have accepted actually do not use long-acting methods because they don't want to reduce number of children but to space them. This may be attributed to the strong cultural beliefs which prefers many children. A lot needs to be done to encourage them to use long acting. But*

this can only be possible if they first start embracing short acting methods. So it's a good step in the right direction."

Table 4.17: Method of family planning used

Method of FP used	Overall		Control		Intervention	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Oral contraceptive pills	5(15.2%)	10(14.9%)	4(26.7%)	2(9.1%)	1(5.6%)	8(17.8%)
Intra-uterine device (IUD)	3(9.1%)	10(14.9%)	1(6.7%)	1(4.5%)	2(11.1%)	9(20.0%)
Lactational amenorrhea	6(18.2%)	5(7.5%)	1(6.7%)	5(22.7%)	5(27.8%)	0(0.0%)
Contraceptive injection	8(24.2%)	12(17.9%)	4(26.7%)	4(18.2%)	4(22.2%)	8(17.8%)
Contraceptive implant	4(12.1%)	14(20.9%)	2(13.3%)	6(27.3%)	2(11.1%)	8(17.8%)
Condoms	7(21.2%)	16(23.9%)	3(20.0%)	4(18.2%)	4(22.2%)	12(26.7%)

4.9.3 Main motivation for uptake

Table 4.18 shows results on main motivation for uptake of family planning. Main motivation for use was birth spacing 20 (60.6%) and 29 (43.3%) at baseline and endline respectively for overall.

Table 4.18: Main motivation for family planning uptake

Main motivation	Overall		Control		Intervention	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Birth spacing	20 (60.6%	29 (43.3%)	10 (66.7%)	18 (81.8%)	10 (55.6%)	11 (24.4%)
Reduce number of children	8 (24.2%)	22 (32.8%)	3 (20.0%)	0 (0.0%)	5 (27.8%)	22 (48.9%)
Prevent un-intended pregnancy	5 (15.2%)	16 (23.9%)	2 (13.3%)	4 (18.2%)	3 (16.7%)	12 (26.7%)

4.9.4 Decision on Uptake of family planning

Table 4.19 shows the results on decision making on method of family planning used. At baseline and endline both the husband and wife made decisions on method to use at 14 (43.4%) and 27 (40.3%) respectively for the overall. In the control group at baseline Husband, health care providers and both of them made decisions equally at 4 (26.7%) while at endline both wife and husband made decision at 14 (63.6%). In the intervention group at baseline both husband and wife made decision at 10 (55.6%) while at endline husband made decision at 16 (35.6%).

Table 4.19: Decision on method of family planning used

Decision on method	Overall		Control		Intervention	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Myself	6 (18.2%)	10 (14.9%)	3 (20.0%)	2 (9.1%)	3 (16.7%)	8 (17.8%)
My husband	9 (27.3%)	18 (26.9%)	4 (26.7%)	2 (9.1%)	5 (27.8%)	16 (35.6%)
Both of us (Husband & I)	14 (42.4%)	27 (40.3%)	4 (26.7%)	14 (63.6%)	10 (55.6%)	13 (28.9%)
Health care provider	4 (12.1%)	12 (17.9%)	4 (26.7%)	4 (18.2%)	0 (0.0%)	8 (17.8%)

4.9.5 When current method of family planning was started

Table 4.20 shows result on when the current method of family planning was started. Results showed that current method was started between 1-2 months ago for overall 15 (45.5%) and 27 (40.9%) and control 6 (40.0%) and 11 (50.0%) at baseline and endline surveys respectively. However, in intervention group 9 (50.0%) of them started between 1-2 months preceding the study at baseline while at endline 19 (43.2%) started the month when study was being conducted.

Table 4.20: Period when method was started

When current method was started	Overall		Control		Intervention	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Current month	4(12.1%)	20(30.3%)	3(20.0%)	1(4.5%)	1(5.6%)	19(43.2%)
1-2 months ago	15(45.5%)	27(40.9%)	6(40.0%)	11(50.0%)	9(50.0%)	16(36.4%)
3-4 months ago	7(21.2%)	11(16.7%)	4(26.7%)	5(22.7%)	3(16.7%)	6(13.6%)
>4 months ago	7(21.2%)	8(12.1%)	2(13.3%)	5(22.7%)	5(27.8%)	3(6.8%)

4.9.6 Main reason for non-uptake

Table 4.21 shows the main reasons for non-uptake of FP for combined, control and intervention groups at baseline and endline surveys respectively.

Table 4.21: Main reason for not using family planning method

Main reason for not using FP	Overall		Control		Intervention	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Fear of side effects	29(15.0%)	26(17.1%)	11(11.3%)	23(27.4%)	18(18.8%)	3(4.4%)
Opposition by husband	62(32.1%)	27(17.8%)	37(38.1%)	23(27.4%)	25(26.0%)	4(5.9%)
Religious or cultural reasons	26(13.5%	10(6.6%)	14(14.4%	4(4.8%)	12(12.5%)	6(8.8%)
Access and cost	6(3.1%)	5(3.3%)	1(1.0%)	2(2.4%)	5(5.2%)	3(4.4%)
Provider related	6(3.1%)	4(2.6%)	2(2.1%)	1(1.2%)	4(4.2%)	3(4.4%)
Individual unwillingness	55(28.5%)	77(50.7%)	28(28.9%)	28(33.3%)	27(28.1%)	49(72.1%)
Opposition by other family members	9(4.7%)	3(2.0%)	4(4.1%)	3(3.6%)	5(5.2%)	0(0.0%)

4.9.7 Husband approval of family planning use

Figure 4.3 shows results on husband approval of family planning uptake. Combined data revealed that husband approval increased from 57 (24.7%) to 103 (46.4%), for control 29 (25.4%) to 37 (34.3%) and intervention 28 (23.9%) to 66 (57.9%).

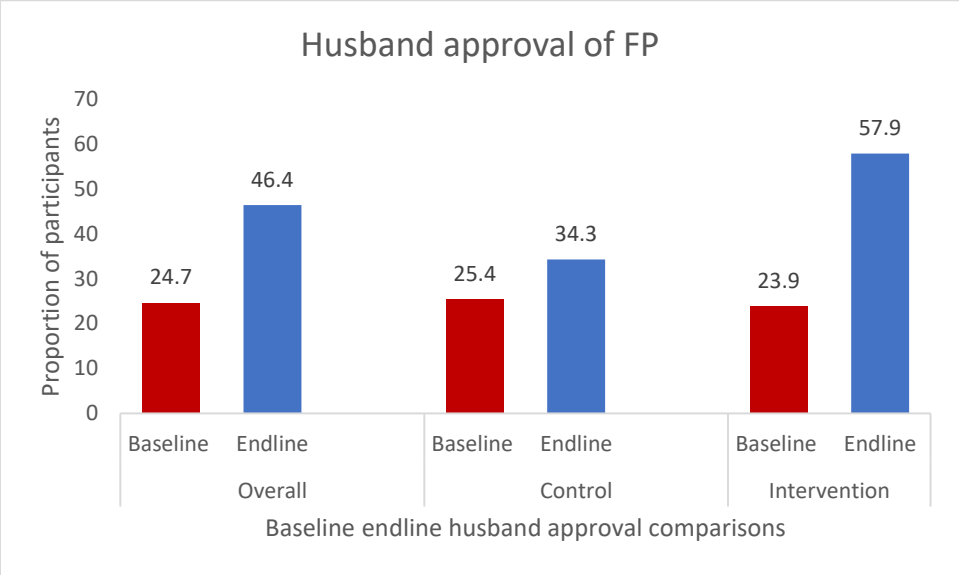

Figure 4.3: Husband approval of family planning use

4.10: Objective 2: Level of knowledge on family planning among male spouses in Marsabit County

Regarding this, the respondents were administered with seven (37) questions on the items of meaning of family planning, eligibility, methods of family planning, common side effects of family planning, benefits, places where services are provided and common side effects. Every correct response was scored one (1) mark while every incorrect response was scored zero (0) marks. Then scores for each knowledge items were used to generate level of knowledge and then dichotomized into low, moderate and high.

4.10.1 Knowledge on meaning of family planning

Table 4.22 shows knowledge on meaning family planning for combined data, control and intervention groups at baseline and endline survey. Results on level of knowledge on meaning of family planning have also been computed considering all the two knowledge items in this category. Level of knowledge was dichotomized into low (0 score), moderate (1 score) and high (2 scores). Results showed that in combined data high knowledge increased from 121(52.4%) to 148 (66.7%), control 67 (58.8%) to 64 (59.3%) and intervention 54 (46.2%) to 85 (74.6%) in baseline and endline surveys respectively.

Table 4.22: Knowledge on meaning of family planning at baseline and endline

Knowledge variable	Response	Overall		Control		Intervention	
		Baseline	Endline	Baseline	Endline	Baseline	Endline
FP is deliberate effort allowing people to regulate number and determine HTSP	Correct	171 (74.0%)	188 (84.7%	101 (88.6%)	89 (82.4%)	70 (59.8%)	99 (86.8%)
	Incorrect	60 (26.0%)	34 (15.3%)	13 (11.4%)	19 (17.6%)	47 (40.2%)	15 (13.2%)
FP refers to means of deciding sex of the child	Correct	155 (74.0%)	171 (77.0%)	73 (64.0%)	76 (70.4%)	82 (70.1%)	95 (83.3%)
	Incorrect	76 (32.9%)	51 (23.0%	41 (36.0%)	32 (29.6%)	35 (29.9%)	19 (16.7%)
Level of knowledge on meaning of FP	Low	26 (11.3%)	12 (5.4%)	7 (6.1%)	7 (6.4%)	19 (16.2%)	5 (4.4%)
	Moderate	84 (36.4%)	61 (27.4%)	40 (35.1%)	37 (34.3%)	44 (37.6%)	24 (21.1%)
	High	121 (52.4%)	148 (66.7%)	67 (58.8%)	64 (59.3%)	54 (46.2%)	85 (74.6%)

4.10.2 Knowledge on eligibility

Table 4.23 shows knowledge on eligibility to use FP for combined data, control and intervention groups at baseline and endline survey. Results on level of knowledge on eligibility of family planning have also been computed considering all the six knowledge

items in this category. Level of knowledge was dichotomized into low (0-2 scores), moderate (3-4 scores) and high (5-6 scores). Results showed that in combined data high knowledge increased from 36 (15.6%) to 66 (29.7%), control 24 (21.1%) to 29 (26.9%) and intervention 12 (10.3%) to 37 (32.4%) in baseline and endline surveys respectively.

Table 4.23: Knowledge on eligibility for family planning use at baseline and endline

Knowledge variable	Response	Overall		Control		Intervention	
		Baseline	Endline	Baseline	Endline	Baseline	Endline
Any female at any age can use FP	Correct	87 (37.7%)	160 (72.1%)	60 (52.6%)	70 (64.8%)	27 (23.1%)	90 (78.9%)
	Incorrect	144 (62.3%)	62 (27.9%)	54 (47.4%)	38 (35.2%)	90 (76.9%)	24 (21.1%)
Only women are eligible to use FP	Correct	76 (32.9%)	132 (59.5%)	36 (31.6%)	47 (43.5%)	40 (34.2%)	85 (74.6%)
	Incorrect	155 (67.1%)	90 (40.5%)	78 (68.4%)	61 (56.5%)	77 (65.8%)	29 (25.4%)
Women >50 years must use FP to avoid unplanned pregnancy	Correct	125 (54.1%)	164 (73.9%)	82 (71.9%)	83 (76.9%)	43 (36.8%)	81 (71.1%)
	Incorrect	106 (45.9%)	58 (26.1%)	32 (28.1%)	25 (23.1%)	74 (63.2%)	33 (28.9%)
FP is used by sexually active women at RA	Correct	103 (44.6%)	176 (79.3%)	80 (70.2%)	96 (88.9%)	23 (19.7%)	80 (70.2%)
	Incorrect	128 (55.4%)	46 (20.7%)	34 (29.8%)	12 (11.1%)	94 (80.3%)	34 (29.8%)
Only married couples are eligible for FP services	Correct	89 (38.5%)	86 (38.7%)	57 (50.0%)	50 (46.3%)	32 (27.4%)	36 (31.6%)
	Incorrect	142 (61.5%)	136 (61.3%)	57 (50.0%)	58 (53.7%)	85 (72.6%)	78 (68.4%)
FP services can be used by sexually active men	Correct	82 (35.5%)	110 (49.5%)	58 (50.9%)	58 (53.7%)	24 (20.5%)	52 (45.6%)
	Incorrect	149 (64.5%)	112 (50.5%)	56 (49.1%)	50 (46.3%)	93 (79.5%)	62 (54.4%)
Level of knowledge on eligibility for FP	Low	107 (46.3%)	36 (16.2%)	25 (21.9%)	13 (12.0%)	82 (70.1%)	23 (20.2%)
	Moderate	88 (38.1%)	120 (54.1%)	65 (57.0%)	66 (61.1%)	23 (19.7%)	54 (47.4%)
	High	36 (15.6%)	66 (29.7%)	24 (21.1%)	29 (26.9%)	12 (10.3%)	37 (32.4%)

4.10.3 Knowledge on methods of family planning

Table 4.24 shows knowledge on methods of FP for combined data, control and intervention groups at baseline and endline survey. Results on level of knowledge on methods of FP

have also been computed considering all the eleven knowledge items in this category. Level of knowledge was dichotomized into low (0-6 scores), moderate (7-8 scores) and high (9-11 scores).

Table 4.24: Knowledge on methods family planning use at baseline and endline

Knowledge variable	Response	Overall		Control		Intervention	
		Baseline (N=231)	Endline (N=222)	Baseline (N=114)	Endline (N=108)	Baseline (N=117)	Endline (N=114
Condoms only FP which protects against STIs	Correct	100 (43.3%)	151 (68.0%)	64 (43.9%)	86 (79.6%)	36 (30.8%)	65 (57.0%)
	Incorrect	131 (56.7%)	71 (32.0%)	50 (56.1%)	22 (20.4%)	81 (69.2%)	49 (43.0%)
Male sterilization (vasectomy) is permanent male FP method	Correct	85 (36.8%)	92 (41.4%)	49(43.0 %)	57 (52.8%)	36 (30.8%)	73 (64.0%)
	Incorrect	146 (63.2%)	130 (58.6%	65 (57.0%)	51(47.2 %)	81(69.2 %)	41(36.0 %)
Female sterilization (tubal ligation) is permanent FP method	Correct	84 (36.4%)	141 (63.5%)	47 (41.2%)	61 (56.5%)	37 (31.6%)	80 (68.4%)
	Incorrect	147 (63.6%)	81 (36.5%)	67 (58.8%)	47 (43.5%)	80 (68.4%)	34 (29.8%)
A good idea to use ECPs instead of lactational amenorrhea	Correct	85 (36.8%)	109 (49.1%)	43 (37.7%)	49 (45.4%)	42 (35.9%)	60 (52.6%)
	Incorrect	146 (63.2%)	113 (50.9%)	71 (62.3%)	59 (54.6%)	75 (64.1%)	54 (47.4%)
OCPs can help women prevent unplanned pregnancy	Correct	91 (39.4%)	134 (60.4%)	50 (43.9%)	57 (52.8%)	41 (35.0%)	77 (67.5%)
	Incorrect	140 (60.6%)	88 (39.6%)	64 (56.1%)	51 (47.2%)	76 (65.0%)	37 (32.5%)
OCPs can be taken twice a day to prevent unwanted pregnancy	Correct	88 (38.1%)	134 (60.4%)	40 (35.1%)	57 (52.8%)	48 (41.0%)	77 (68.1%)
	Incorrect	143 (61.9%)	87 (39.2%)	74 (64.9%)	51 (47.2%)	69 (59.0%)	36 (31.9%)

Table 4.24: Knowledge on methods family planning use at baseline and endline cont'd…

Knowledge variable	Response	Overall		Control		Intervention	
		Baseline (N=231)	Endline (N=222)	Baseline (N=114)	Endline (N=108)	Baseline (N=117)	Endline (N=114
IUD is a long-acting reversible contraception	Correct	94 (40.7%)	105 (47.3%)	43 (37.7%)	38 (35.2%)	51 (43.6%)	67 (58.8%)
	Incorrect	137 (59.3%)	117 (52.7%)	71 (62.3%)	70 (64.8%)	66 (56.4%)	47 (41.2%)
Contraception implant is a form of long-acting reversible FP method	Correct	95 (41.1%)	114 (51.4%)	48 (42.1%)	52 (48.1%)	47 (40.2%)	62 (54.4%)
	Incorrect	136 (58.9%)	108 (48.6%)	66 (57.9%)	56 (51.9%)	70 (59.8%)	52 (45.6%)
Herbs are modern FP methods	Correct	112 (48.5%)	135 (60.8%)	55 (48.2%)	71 (65.7%)	57 (48.7%)	64 (56.1%)
	Incorrect	119 (51.5%)	87 (39.2%)	59 (51.8%)	37 (34.3%)	60 (51.3%)	50 (43.9%)
Contraception injection is a long-acting FP method	Correct	94 (40.7%)	118 (53.2%)	41 (36.0%)	55 (50.9%)	53 (45.3%)	63 (55.3%)
	Incorrect	137 (59.3%)	104 (46.8%)	73 (64.0%)	53 (49.0%)	64 (54.7%)	51 (44.7%)
Fertility awareness is learning signs of fertility to help plan/avoid pregnancy	Correct	109 (47.2%)	109 (49.1%)	54 (47.4%)	55 (50.9%)	55 (47.0%)	54 (47.0%)
	Incorrect	122 (52.8%)	113 (50.9%)	60 (52.6%)	53 (49.1%)	62 (53.0%)	60 (52.6%)
Level of knowledge on FP methods	Low	149 (64.5%)	118 (53.1%)	76 (66.7%)	59 (54.6%)	73 (62.4%)	59 (51.8%)
	Moderate	18 (7.8%)	31 (14.0%)	7 (6.1%)	13 (12.0%)	11 (9.4%)	18 (15.8%)
	High	64 (27.7%)	73 (32.9%)	31 (27.2%)	36 (33.4%)	33 (28.2%)	37 (32.4%)

4.10.4 Knowledge on benefits of family planning

Table 4.25 presents the knowledge on benefits of family planning among respondents for combined, control group and intervention group. Results on level of knowledge on benefits of family planning were also computed and research considered all the eight (8) knowledge statement in this category. Level of knowledge was dichotomized into low level (0-4

scores), moderate (5-6 scores) and high (7-8 scores). Results showed that in combined data high knowledge increased from 44 (19.1%) to 58 (26.1%), control 14 (12.3%) to 15(13.9%) and intervention 30 (25.7%) to 43 (37.7%) in baseline and endline surveys respectively.

Table 4.25: Knowledge on the benefits of family planning at baseline and endline

Knowledge variable	Response	Overall		Control		Intervention	
		Baseline (N=231)	Endline (N=222)	Baseline (N=114)	Endline (N=108)	Baseline (N=117)	Endline (N=114)
Use of FP helps reduce maternal deaths	Correct	98 (42.4%)	110 (49.5%)	44 (38.6%)	46 (42.6%)	54 (46.2%)	64 (56.1%)
	Incorrect	133 (57.6%)	112 (50.5%)	70 (61.4%)	62 (57.4%)	63 (53.8%)	50 (43.9%)
Use of FP helps improve health of child	Correct	113 (48.9%)	132 (59.5%)	65 (57.0%)	63 (58.3%)	48 (41.0%)	69 (60.5%)
	Incorrect	118 (51.1%)	90 (40.5%)	49 (57.0%)	45 (41.7%)	69 (59.0%)	45 (39.5%)
Too close/poorly timed pregnancies contribute infant mortality	Correct	105 (45.5%)	128 (57.7%)	55 (48.2%)	64 (59.3%)	50 (42.7%)	64 (56.1%)
	Incorrect	126 (54.5%)	94 (42.3%)	59 (51.8%)	44 (59.3%)	67 (57.3%)	50 (43.9%)
FP use leads to improved health of women	Correct	111 (48.1%)	121 (54.5%)	53 (46.5%)	49 (45.4%)	58 (49.6%)	72 (63.2%)
	Incorrect	120 (51.9%)	101 (45.5%)	61 (53.5%)	59 (54.6%)	59 (50.4%)	42 (36.8%)
Some FP methods helps in reducing STIs transmission	Correct	107 (46.3%)	160 (72.1%)	47 (41.2%)	22 (20.4%)	60 (51.3%)	74 (64.9%)
	Incorrect	124 (53.7%)	62 (27.9%)	67 (58.8%)	86 (79.6%)	57 (48.7%)	40 (35.1%)
FP usage is only beneficial to mother & child	Correct	89 (38.5%)	108 (48.6%)	40 (35.1%)	44 (40.7%)	49 (41.9%)	70 (61.4%)
	Incorrect	142 (61.5%)	114 (51.4%)	74 (64.9%)	64 (59.3%)	68 (58.1%)	44 (38.6)
Increased uptake of FP can be a solution to population pressures	Correct	108 (46.8%)	136 (61.3%)	67 (58.8%)	53 (49.1%)	41 (35.0%)	83 (72.8%)
	Incorrect	123 (53.2%)	86 (38.7%)	47 (41.2%)	55 (50.9%)	76 (65.0%)	31 (27.2%)

Table 4.25: Knowledge on the benefits of family planning at baseline and endline cont'd…

Knowledge variable	Response	Overall		Control		Intervention	
		Baseline (N=231)	Endline (N=222)	Baseline (N=114)	Endline (N=108)	Baseline (N=117)	Endline (N=114)
Use of contraceptives help in reducing stress and demands to meet in the family	Correct	101 (43.7%)	118 (53.2%)	64 (56.1%)	58 (53.7%)	37 (31.6%)	60 (52.6%)
	Incorrect	130 (56.3%	104 (46.8%)	50 (43.9%)	50 (46.3%)	80 (68.4%)	54 (47.4%)
Level of knowledge on benefits of FP	Low	134 (58.0%)	97 (43.7%)	66 (57.9%)	58 (53.7%)	68 (58.1%)	39 (34.2%)
	Moderate	53 (22.9%)	67 (30.2%)	34 (29.8%)	35 (32.4%)	19 (16.2%)	32 (28.1%)
	High	44 (19.1%)	58 (26.1%)	14 (12.3%)	15 (13.9%)	30 (25.7%)	43 (37.7%)

4.10.5 Knowledge on places where family planning services are offered

Table 4.26 shows knowledge on places where family planning services are offered. Results on level of knowledge on places where services are offered have also been computed considering all the two knowledge items. Level of knowledge was dichotomized into low (0 score), moderate (1 score) and high (2 scores). Results showed that in combined data high knowledge increased from 87 (37.6%) to 113 (50.9%), control 38 (33.3%) to 53 (49.1%) and intervention 49 (41.9%) to 60 (56.6%) in baseline and endline surveys respectively.

Table 4.26: knowledge on places where FP services are offered at baseline and endline

Knowledge variable	Response	Overall		Control		Intervention	
		Baseline (N=231)	Endline (N=222)	Baseline (N=114)	Endline (N=108)	Baseline (N=117)	Endline (N=114)
FP services are only offered in public hospitals	Correct	123 (53.2%)	144 (64.9%)	52 (45.6%)	71 (65.7%)	71 (60.7%)	73 (64.0%)
	Incorrect	108 (46.8%)	78 (35.1%)	62 (54.4%)	37 (34.3%)	46 (39.3%)	41 (36.0%)
FP services can be offered in both private & public hospitals	Correct	120 (51.9%)	152 (68.5%)	66 (57.9%)	73 (67.6%)	54 (46.2%)	79 (69.3%)
	Incorrect	111 (48.1%)	70 (31.5%)	48 (42.1%)	35 (32.4%)	63 (53.8%)	35 (30.7%)
Level of knowledge on place FP are offered	Low	75 (32.5%)	39 (17.6%)	34 (29.8%)	17 (15.7%)	41 (35.0%)	22 (19.3%)
	Moderate	69 (29.9%)	70 (31.5%)	42 (36.8%)	38 (35.2%)	27 (23.1%)	32 (28.1%)
	High	87 (37.6%)	113 (50.9%)	38 (33.3%)	53 (49.1%)	49 (41.9%)	60 (56.6%)

4.10.6 Knowledge on common side effects of family planning

Table 4.27 shows knowledge on common side effects of family planning. Results on level of knowledge on common side effects have also been computed considering all the eight items. Level of knowledge was dichotomized into low (0-4 scores), moderate (5-6 scores) and high (7-8 scores). Results showed that in combined data high knowledge changed from 21 (9.1%) to 44 (19.8%), control 9 (7.9%) to 8 (7.4%) and intervention 12 (10.3%) to 36 (31.6%) in baseline and endline surveys respectively.

Table 4.27: Knowledge on common side effects at baseline and endline

Knowledge variable	Response	Overall		Control		Intervention	
		Baseline (N=231)	Endline (N=222)	Baseline (N=114)	Endline (N=108)	Baseline (N=117)	Endline (N=114)
Use of FP can lead to loss of appetite	Correct	87 (62.3%)	129 (58.1%)	47 (41.2%)	51 (47.2%)	40 (34.2%)	78 (68.4%)
	Incorrect	144 (37.7%)	93 (41.9%)	67 (58.8%)	57 (52.8%)	77 (65.8%)	36 (31.6%)
Heavy bleeding can be a side effect of FP usage	Correct	91 (39.4%)	111 (50.0%)	54 (47.4%)	49 (45.4%)	37 (31.6%)	62 (54.4%)
	Incorrect	140 (60.6%)	111 (50.0%)	60 (52.6%)	59 (54.6%)	80 (68.4%)	52 (45.6%)
FP usage can sometimes make someone feel dizzy	Correct	87 (37.7%)	112 (50.5%)	50 (43.9%)	48 (44.4%)	37 (31.6%)	64 (56.1%)
	Incorrect	144 (62.3%)	110 (49.5%)	64 (56.1%)	60 (55.6%)	80 (68.4%)	50 (43.9%)
All women who use FP stop experiencing monthly periods	Correct	90 (39.0%)	107 (48.2%)	41(36.0 %)	41 (38.0%)	49 (41.9%)	66 (57.9%)
	Incorrect	141 (61.0%)	115 (51.8%)	73 (64.0%)	67 (62.0%)	68 (58.1%)	48 (42.1%)
Use of all FP can lead to some headache	Correct	77 (33.3%)	102 (45.9%)	33 (28.9%)	36 (33.3%)	44 (37.6%)	66 (57.9%)
	Incorrect	154 (66.3%)	120 (54.1%)	81 (71.1%)	72 (66.7%)	73 (62.4%)	48 (42.1%)
FP usage can lead to irregular bleeding	Correct	88 (38.1%)	136 (61.3%)	52 (45.6%)	53 (49.1%)	36 (30.8%)	83 (72.8%)
	Incorrect	143 (61.9%)	86 (38.7%)	62 (54.4%)	55 (50.9%)	81 (69.2%)	31(27.2 %)
Women who use FP suffer from severe diarrhea	Correct	105 (45.5%)	129 (58.1%)	60 (52.6%)	61 (56.5%)	45 (38.5%)	68(59.6 %)
	Incorrect	126 (54.5%)	93 (41.9%)	54 (47.4%)	47(43.5 %)	72(61.5 %)	46(40.4 %)
FP usage can lead to changes in weight of women	Correct	73 (31.6%)	125 (56.3%)	50 (43.9%)	63 (58.3%)	23 (19.7%)	62 (54.4%)
	Incorrect	158 (68.4%)	97 (43.7%)	64 (56.1%)	45 (41.7%)	94 (80.3%)	52 (45.6%)
Level of knowledge on common side effects of FP	Low	169 (73.2%)	107 (48.2%)	84 (73.7%)	69 (63.9%)	85 (72.6%)	38 (33.3%)
	Moderate	41 (17.7%)	71 (32.0%)	21 (18.4%)	31 (28.7%)	20 (17.1%)	40 (35.1%)
	High	21 (9.1%)	44 (19.8%)	9 (7.9%)	8 (7.4%)	12 (10.3%)	36 (31.6%)

4.10.7 Overall level of knowledge on Family Planning

Table 4.28 shows level of knowledge on family planning for combined data, control and intervention groups at baseline and endline survey. Regarding this, the respondents were administered with seven (37) questions on the items of meaning of family planning, eligibility, methods of family planning, common side effects of family planning, benefits, places where services are provided and common side effects. Every correct response was scored one (1) mark while every incorrect response was scored zero (0) marks. The minimum total score was zero (0) marks while the maximum total score was seven (37) marks. Key informants also noted low level of knowledge on family planning which hindered uptake;

"*Knowledge on family planning is key to its uptake. When people are knowledge, they make informed decisions. When they are not knowledgeable, they rely on inaccurate information based on myths and misconceptions about family planning. If we are able to educate them and make them know the benefits of family planning and remove those misconceptions believe me the uptake will be higher*…"

Table 4.28: Level of knowledge at baseline and endline

Level of knowledge	Overall		Control		Intervention	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
High	30(13.0%)	52(23.4%)	16(14.0%)	15(13.9%)	14(12.0%)	37(32.5%)
Moderate	45(19.5%)	69(31.1%)	22(19.3%)	25(23.1%)	23(19.7%)	44(38.6%)
Low	156(67.5%)	101(45.5%)	76(66.7%)	68(63.0%)	80(68.3%)	33(28.9%)

4.11 Objective 3: Attitude towards family planning among male spouses in Marsabit County

4.11.1 Responses on attitude towards family planning uptake

Table 4. 29 shows results on responses on twelve statements used to measure nature of attitude.

Table 4.29: Overall attitude towards family planning at baseline and endline

Statement	Response	Baseline(N=231)		Endline(N=222)	
		Frequency	Percent	Frequency	Percent
I discuss FP issues with my spouse and I would want to use it in future	Strongly disagree	38	16.5%	32	14.4%
	Disagree	122	52.8%	61	27.5%
	Neither disagree nor agree	19	8.2%	24	10.8%
	Agree	21	9.1%	57	25.7%
	Strongly agree	31	13.4	48	21.6%
I belief FP use will not expose my spouse to infertility	Strongly disagree	69	29.9%	25	11.3%
	Disagree	94	40.7%	58	26.1%
	Neither disagree nor agree	28	12.1%	33	14.9%
	Agree	33	14.3%	74	33.3%
	Strongly agree	7	3.0%	32	14.4%
Use of FP doesn't contradict with my religious beliefs	Strongly disagree	45	19.5%	39	17.6%
	Disagree	91	39.4%	66	29.7%
	Neither disagree nor agree	52	22.5%	62	27.9%
	Agree	37	16.0%	44	19.8%
	Strongly agree	6	2.6%	11	5.0%
Spousal use of FP doesn't contradict with my cultural beliefs	Strongly disagree	59	25.5%)	50	22.5%
	Disagree	96	41.6%	72	32.4%
	Neither disagree nor agree	25	10.8%	38	17.1%
	Agree	41	17.7%	49	22.1%
	Strongly agree	10	4.3%	13	5.9%
I belief FP use doesn't influence sexual activity	Strongly disagree	46	19.9%	34	15.3%
	Disagree	106	45.9%	75	33.8%
	Neither disagree nor agree	29	12.6%	38	17.1%
	Agree	35	15.2%	56	25.2%
	Strongly agree	15	6.5%	19	8.6%

Table 4.29: Overall attitude towards family planning at baseline and endline cont'd…

Statement	Response	Baseline(N=231)		Endline(N=222)	
		Frequency	Percent	Frequency	Percent
I belief FP use doesn't have enormous side effects hence should be used	Strongly disagree	44	19.0%	41	18.5%
	Disagree	103	44.6%	68	30.6%
	Neither disagree nor agree	29	12.6%	31	14.0%
	Agree	40	17.3%	60	27.0%
	Strongly agree	15	6.5%	22	9.9%
I belief that FP use doesn't encourage promiscuity	Strongly disagree	48	20.8%	43	19.4%
	Disagree	99	42.9%	60	27.0%
	Neither disagree nor agree	37	16.0%	40	18.0%
	Agree	35	15.2%	54	24.3%
	Strongly agree	12	5.2%	25	11.3%
I belief that large family size affects economic conditions negatively	Strongly disagree	42	18.2%	41	18.5%
	Disagree	105	45.5%	55	24.8
	Neither disagree nor agree	42	18.2%	46	20.7%
	Agree	29	12.6%	51	23.0%
	Strongly agree	13	5.6%	29	13.1%
I belief that large family size affects negatively the mother and child health	Strongly disagree	40	17.3%	32	14.4%
	Disagree	121	52.4%	70	31.5%
	Neither disagree nor agree	27	11.7%	42	18.9%
	Agree	34	14.7%	58	26.1%
	Strongly agree	9	3.9%	20	9.0%

Table 4.29: Overall attitude towards family planning at baseline and endline cont'd…

Statement	Response	Baseline(N=231)		Endline(N=222)	
		Frequency	**Percent**	**Frequency**	**Percent**
I think large family size shouldn't be used as means of husband earning respect in the community	Strongly disagree	41	17.7%	31	14.0%
	Disagree	109	47.2%	74	33.3%
	Neither disagree nor agree	37	26.0%	37	16.7%
	Agree	32	13.9%	61	27.5%
	Strongly agree	12	5.2%	19	8.6%
I belief that use of FP doesn't predispose my wife to cancer	Strongly disagree	43	18.6%	33	14.9%
	Disagree	125	54.1%	82	36.9%
	Neither disagree nor agree	23	10.0%	28	12.6%
	Agree	28	12.1%	62	27.9%
	Strongly agree	12	5.2%	17	7.7%
FP services when used correctly and consistently their chances of failing are very low	Strongly disagree	47	20.3%	32	14.4%
	Disagree	113	48.9%	52	23.4%
	Neither disagree nor agree	33	14.3%	39	17.6%
	Agree	25	10.8%	68	30.6%
	Strongly agree	13	5.6%	31	14.0%

4.11.2 Responses on attitude towards family planning uptake in control and intervention

Table 4.30 consists of 12 statements on likert scale that were used to measure nature of attitude towards family planning for control and intervention at baseline and endline surveys.

Table 4.30: Attitude towards family planning in control and intervention arms

Statement	Response	Control		Intervention	
		Baseline (N=114) Frequency (%)	**Endline (N=108) Frequency (%)**	**Baseline (N=117) Frequency (%)**	**Endline (N=114) Frequency (%)**
I discuss FP issues with my spouse and I would want to use it in future	Strongly disagree	9(7.9%)	12(11.1%)	29(24.8%)	20(17.5%)
	Disagree	4035.1%)	28(25.9%)	82(70.1%)	33(28.9%)
	Neither disagree nor agree	14(12.3%)	16(14.8%)	5(4.3%)	8(7.0%)
	Agree	20(17.5%)	23(21.3%)	1(0.9%)	34(29.8%)
	Strongly agree	31(27.2%)	29(6.9%)	0(0.0%)	19(16.7%)
I belief FP use will not expose my spouse to infertility	Strongly disagree	11(9.6%)	11(10.2%)	58(49.6%)	14(12.3%)
	Disagree	49(43.0%)	39(36.1%)	45(38.5%)	19(16.7%)
	Neither disagree nor agree	20(17.5%)	22(20.4%)	8(6.8%)	11(9.6%)
	Agree	27(23.7%)	24(22.2%)	6(5.1%)	50(43.9%)
	Strongly agree	7(6.1%)	12(11.1%)	0(0.0%)	20(17.5%)
Use of FP doesn't contradict with my religious beliefs	Strongly disagree	18(15.8%)	17(15.7%)	27(23.1%)	22(19.3%)
	Disagree	37(32.5%)	26(24.1%)	54(46.2%)	40(35.1%)
	Neither disagree nor agree	27(23.7%)	29(26.9%)	25(21.4%)	33(28.9%)
	Agree	26(22.8%)	26(24.1%)	11(9.4%)	18(15.8%)
	Strongly agree	6(5.3%)	10(9.3%)	0(0.0%)	1(0.9%)
Spousal use of FP doesn't contradict with my cultural beliefs	Strongly disagree	14(12.3%)	13(12.0%)	45(38.5%)	37(32.5%)
	Disagree	52(45.6%)	37(34.3%)	44(37.6%)	35(30.7%)
	Neither disagree nor agree	13(11.4%)	18(16.7%)	12(10.3%)	20(17.5%)
	Agree	27(23.7%)	28(25.9%)	14(12.0%)	21(18.4%)
	Strongly agree	8(7.0%)	12(11.1%)	2(1.7%)	1(0.9%)
I belief FP use doesn't influence sexual activity	Strongly disagree	13(11.4%)	12(11.1%)	33(28.2%)	22(19.3%)
	Disagree	52(45.6%)	45(41.7%)	54(46.2%)	30(26.3%)
	Neither disagree nor agree	17(14.9%)	19(17.6%)	12(10.3%)	19(16.7%)
	Agree	28(24.6%)	30(27.8%)	7(6.0%)	26(22.8%)
	Strongly agree	4(3.5%)	2(1.9%)	11(9.4%)	17(14.9%)

Table 4.30: Attitude towards FP in control and intervention arms cont'd…

Statement	Response	Control		Intervention	
		Baseline	Endline	Baseline	Endline
I belief FP use doesn't have enormous side effects hence should be used	Strongly disagree	8(7.0%)	16(14.8%)	36(30.8%)	25(21.9%)
	Disagree	49(43.0%)	41(38.0%)	54(46.2%)	27(23.7%)
	Neither disagree nor agree	15(13.2%)	15(13.9%)	14(12.0%)	16(14.0%)
	Agree	31(27.2%)	27(25.0%)	9(7.7%)	33(28.9%)
	Strongly agree	11(9.6%)	9(8.3%)	4(3.4%)	13(11.4%)
I belief that FP use doesn't encourage promiscuity	Strongly disagree	8(7.0%)	15(13.9%)	40(34.2%)	28(24.6%)
	Disagree	44(38.6%)	38(35.2%)	55(47.0%)	22(19.3%)
	Neither disagree nor agree	26(22.8%)	22(20.4%)	11(9.4%)	18(15.8%)
	Agree	27(23.7%)	22(20.4%)	8(6.8%)	32(28.1%)
	Strongly agree	9(7.9%)	11(10.2%)	3(2.6%)	14(12.3%)
I belief that large family size affects economic conditions negatively	Strongly disagree	10(8.8%)	18(16.7%)	32(27.4%)	23(20.2%)
	Disagree	5043.9%)	25(23.1%)	55(47.0%)	30(26.3%)
	Neither disagree nor agree	21(18.4%)	25(23.1%)	21(17.9%)	21(18.4%)
	Agree	2421.1%)	26(24.1%)	5(4.3%)	25(21.9%)
	Strongly agree	9(7.9%)	14(13.0%)	4(3.4%)	15(13.2%)
I belief that large family size affects negatively the mother and child health	Strongly disagree	17(14.9%)	18(16.7%	23(19.7%	14(12.3%)
	Disagree	50(43.9%	42(38.9%)	71(60.7%	28(24.6%)
	Neither disagree nor agree	18(15.8%)	22(20.4%)	9(7.7%)	20(17.5%)
	Agree	22(19.3%)	18(16.7%	12(10.3%)	40(35.1%)
	Strongly agree	7(6.1%)	8(7.4%)	2(1.7%)	12(10.5%)
I think large family size shouldn't be used as means of husband earning respect in the community	Strongly disagree	9(7.9%)	8(7.4%)	32(27.4%)	23(20.2%)
	Disagree	52(45.6%)	51(47.2%)	57(48.7%)	23(20.2%)
	Neither disagree nor agree	21(18.4%)	20(18.5%)	16(13.7%)	17(14.9%)
	Agree	23(20.2%)	20(18.5%)	9(7.7%)	41(36.0%)
	Strongly agree	9(7.9%)	9(8.3%)	3(2.6%)	10(8.7%)
I belief that use of FP doesn't predispose my wife to cancer	Strongly disagree	12(10.5%)	14(13.0%)	31(26.5%)	19(16.7%)
	Disagree	55(48.2%)	55(50.9%)	70(59.8%)	27(23.7%)
	Neither disagree nor agree	13(11.4%)	9(8.3%)	10(8.5%)	19(16.7%)
	Agree	24(21.1%)	21(19.5%)	4(3.4%)	41(36.0%)
	Strongly agree	10(8.8%)	9(8.3%)	2(1.7%)	7(8.0%)
FP services when used correctly and consistently their chances of failing are very low	Strongly disagree	14(12.3%)	12(11.1%)	33(28.2%)	20(17.5%)
	Disagree	50(43.9%)	24(22.2%)	63(53.8%)	28(24.6%)
	Neither disagree nor agree	20(17.5%)	25(23.1%)	13(11.1%)	14(12.3%)
	Agree	18(15.8%)	32(29.6%)	7(6.0%)	36(31.6%)
	Strongly agree	12(10.5%)	15(13.9%)	1(0.9%)	16(14.0%)

4.11.3 Nature of attitude towards family planning

Table 4.31 shows results on nature of attitude towards family planning. Regarding nature of attitude towards family planning uptake, the twelve (12) statements had a minimum score of 12 and maximum score of 60. The scores were further divided into two categories. Total scores of less than average (<36) was dichotomized as Negative attitude while those of at least average (≥ 36) was dichotomized as Positive attitude. The results revealed that at endline overall positive attitude was 93 (41.9%). In comparing the control and intervention groups at endline, 32(29.6%) and 61 (53.5%) had positive attitude respectively.

Table 4.31: Nature of attitude towards Family planning at baseline and endline

Nature of attitude on FP	Overall		Control		Intervention	
	Baseline (N=231)	Endline (N=222)	Baseline (N=114)	Endline (N=108)	Baseline (N=117)	Endline (N=114)
Negative	179 (77.5%)	129 (58.1 %)	70 (61.4%)	76 (70.4%)	109 (93.2%)	53 (46.5%)
Positive	52 (22.5%)	93 (41.9%)	44 (38.6%)	32 (29.6%)	8 (6.8%)	61 (53.5%)

4.12 Objective 4: Influence of short message service on uptake of family planning among female spouses in Marsabit County

Table 4.32 shows the association and influence of short message on uptake of family planning. There was highly significant association between type of survey and uptake of family planning for the combined data ($\chi 2 = 16.626$, P=0.001). There was also a significant association between male targeted short message and uptake of family planning for the intervention arm ($\chi 2 = 16.892$, P=0.001). Logistic regression analysis revealed that uptake of family planning was increased by 2.6 times at endline for combined data (OR 2.6, P<0.001 CI: 1.6261 – 4.1366). Uptake of family planning was increased by 3.6 times

though use of short message service (OR 3.6, P<0.001 CI: 1.9159 – 6.7155). Null hypothesis one was therefore rejected.

The County health official who was part of the key informants noted that interventions indeed contribute to the improvement in uptake of FP in the county. She noted;

"*This county is among the counties with the lowest contraceptive prevalence in the country. This explains why a lot of interventions from different stakeholders have been put in place. As a result of such interventions there have been an improvement in uptake of family planning. This intervention targeting male spouses is a unique one since most interventions focused on women...*"

Table 4:32: Influence of short message service on uptake on family planning

Group	**Type of survey**	**Uptake of family planning**		**Statistical significance**
		Uptake	**Non-uptake**	
Overall	Baseline(N=231)	33(33%)	198(56.1%)	$\chi2$=16.626 df=1 P=0.001
	Endline(N=222)	67(67%)	155(43.9%)	
Control	Baseline(N=114)	15(40.5%)	99(53.5%)	$\chi2$=2.077 df=1 P=0.150
	Endline(N=108)	22(59.5%)	86(46.5%)	
Intervention	Baseline(N=117)	18(28.6%)	99(58.9%)	$\chi2$=16.892 df=1 P=0.001
	Endline(N=114)	45(71.4%)	69(41.1%)	

Influence of short message service on uptake of family planning (logistic regression)						
Variable	Uptake of FP	Non-uptake of FP	Odds Ratio (OR)	P value	95% Confidence Interval (CI)	
Baseline(Reference)	33(33%)	198(56.1%)			Lower	Upper
Endline	67(67%)	155(43.9%)	2.5935	P=0.001	1.6261	4.1366
No male targeted SMS (Reference)	18(28.6%)	99(58.9%)				
Male targeted SMS	45(71.4%)	69(41.1%)	3.5870	P=0.001	1.9159	6.7155

4.12.1 McNemar Test to determine the effectiveness of male targeted short message service on uptake of family planning

Table 4.33 below shows the effectiveness of male targeted short message service on uptake of family planning. McNemar test was used to determine whether the differences in uptake of family planning between the intervention and control groups were significant at both baseline and endline surveys. Results revealed that the differences in uptake of family planning in the intervention group before and after male targeted short message service was statistically significant (p=0.001).

Table 4.33: McNemar Test to determine the effectiveness of male targeted short message service on uptake of family planning

Family planning uptake in Laisamis sub county (Control)					
		Family planning uptake at Endline		Total	McNemar Test(p=value)
		Yes	No		
Family planning uptake at Baseline	Yes	2(9.1%)	10(11.6%)	12(11.1%)	0.099
	No	20(90.9%)	76(88.4%)	96(88.9%)	
	Total	22(100.0%)	86(100.0%)	108(100.0%)	
Uptake in Moyale sub county (Intervention)					
		Family Planning uptake at Endline		Total	0.001
		Yes	No		
Family planning uptake at Baseline	Yes	9(20.0%)	9(13.0%)	18(15.8%)	
	No	36(80.0%)	60(87.0%)	96(84.2%)	
	Total	45(100.0%)	69(100.0)	114(100.0%)	

4.13 Objective 5: Influence of short message service on knowledge, nature of attitude and male involvement on uptake of FP among spouses in Marsabit county

The researcher sought to determine the influence of short message service on knowledge, nature of attitude and male involvement. The endline data was used to determine whether the male targeted short message service influenced the level of knowledge, nature of

attitude and male involvement. Further, the researcher determined the influence of the level of knowledge, nature of attitude and male involvement on uptake of family planning.

4.13.1 Influence of short message service on level of knowledge

Table 4.34 shows the influence of short message service on level of knowledge. There was a significant statistical association between male targeted short message and level of knowledge ($\chi 2 = 26.526$, P=0.001). Male targeted short message service increased level of knowledge significantly (OR 4.173, P 0.001). Therefore, null hypothesis two was rejected.

One key informant noted;

"*Increasing knowledge on family planning is crucial to improving uptake. When people are knowledgeable, they make informed decisions regarding uptake of services. We need to increase the knowledge of the male and female partners this will help in complementing each other*…"

Table 4.34: Influence of short message service on level of knowledge

Association of short message service on level of knowledge						
Group	Level of knowledge			$\chi 2$	DF	P value
	High (N=52)	Moderate (N=69)	Low (N=101			
Control (N=108)	15(28.8%)	25(36.2%)	68(67.3%)	26.526	1	P<0.001
Intervention (N=114)	37(71.2%)	44(63.8%)	33(32.7%)			
Influence of short message service on level of knowledge (logistic regression)						
Variable	Category	Odds Ratio (OR)	P value	95% Confidence Interval (CI)		
Male targeted SMS	No (Ref)		<0.001	Lower 2.378	Upper 7.323	
	Yes	4.173				

4.13.2 McNemar Test to determine the effectiveness of male targeted short message service on level of knowledge

Table 4.35 below shows the effectiveness of male targeted short message service on level of knowledge. McNemar test was used to determine whether the differences in level of knowledge between the intervention and control groups were significant at both baseline and endline surveys. Results revealed that the differences in level of knowledge in the intervention group before and after male targeted SMS was statistically significant (p=0.001).

Table 4.35: McNemar Test to determine the effectiveness of male targeted short message service on level of knowledge

		Level of knowledge in Laisamis sub county (Control)				
		Level of Knowledge at Endline			Total	McNemar Test (p=value
		High	Moderate	Low		
Level of knowledge at Baseline	High	2(13.3%)	5(20.0%)	8(11.8%)	15(13.9%)	0.881
	Moderate	5(33.3%)	6(24.0%)	10(14.7%)	21(19.4%)	
	Low	8(53.4%)	14(56.0%)	50(73.5)	72(66.7%)	
	Total	15(100.0%)	25(100.0%)	68(100.0%)	108(100.0%)	
		Level of knowledge in Moyale sub county (Intervention)				
		Level of knowledge at Endline			Total	0.001
		High	Moderate	Low		
Level of knowledge at Baseline	High	7(18.9%)	4(9.1%)	3(9.1%)	14(12.3%)	
	Moderate	4(10.8%)	9(20.5%)	9(27.3%)	22(19.3%)	
	Low	26(70.3%)	31(70.4)	21(63.6%)	78(68.4%)	
	Total	37(100.0%)	44(100.0%)	33(100.0%)	114(100.0%)	

4.13.3 Influence of level of knowledge on uptake of family planning

Table 4.36 shows the influence of level of knowledge on uptake of family planning at endline. There was a significant statistical association between level of knowledge and

uptake of family planning in the intervention group ($\chi 2 = 6.537$, P=0.038). Level of knowledge increased uptake of family planning (OR 3.1667, P 0.016).

Table 4:36: Influence of level of knowledge on uptake of family planning at endline

Association between level of knowledge and uptake of family planning							
Control group							
Level of knowledge	Uptake of FP(N=22)	Non-ptake of FP(N=86)	$\chi 2$/Fishers exact	DF	P value		
High(N=15)	3(13.6%)	12(14.0%)	0.415	2	P*=0.813		
Moderate (N=25)	4(18.2%)	21(24.4%)					
Low(N=68)	15(68.2%)	53(61.6%)					
Intervention group							
Level of Knowledge	Uptake of FP (N=45)	Non-ptake of FP(N=69)	$\chi 2$	DF	P value		
High(N=37)	19(42.2%)	18(26.1%)	6.537	2	P=0.038		
Moderate (N=44)	11(24.5%)	33(47.8%)					
Low(N=33)	15(33.3%)	18(26.1%)					
Influence of level of knowledge on uptake of family planning							
Variable	Category	Uptake of FP		Odds ratio (OR)	P value	95% Confidence Interval (CI)	
		Uptake	Non-uptake			Lowe	Upper
Level of knowledge (intervention)	Low (Ref)						
	High	19	18				
	Moderate	11	33	3.166	0.016	1.2385	8.0965

P*=Fishers exact

4.13.4 Influence of short message service on nature of attitude

Table 4.37 shows the influence of short message service on nature of attitude towards family planning. There was a significant statistical association between male targeted short message and nature of attitude ($\chi 2 = 33.387$, P=0.001). Male targeted short message service changed the nature of attitude towards family planning (OR 2.7335, P 0.004). As a result, null hypothesis three was rejected. Results from key informant interview also revealed that

changing nature of attitude towards family planning is key to acceptance. One key informant noted;

"*One of the reasons for low uptake of family planning is the negative attitude towards the services. The negative attitude is due to myths and misconceptions towards family planning. To improve uptake interventions should target changing the attitude which will translate to acceptance of contraceptives and thus uptake*…"

Table 4.37: Influence of short message service on nature of attitude

Association of short message service on nature of attitude						
Group	Nature of attitude					
	Positive (N=93)	Negative (N=129)	$\chi 2$	DF	P value	
Control (N=108)	32(34.4%)	76(58.9%	33.387	1	**0.001**	
Intervention (N=114)	61(65.6%)	53(41.1%)				
Influence of short message service on nature of attitude (logistic regression)						
Variable	Positive	Negative	Odds Ratio (OR)	P value	95% Confidence Interval (CI)	
					Lower	Upper
No male targeted SMS (Reference)	32(34.4%)	76(58.9%				
Male targeted SMS	61(65.6%)	53(41.1%)	2.7335	0.004	1.5720	4.7531

4.13.5 McNemar Test to determine the effectiveness of male targeted short message service on nature of attitude

Table 4.38 below shows the effectiveness of male targeted short message service on nature of attitude towards family planning. McNemar test was used to determine whether the differences in nature of attitude between the intervention and control groups were

significant at both baseline and endline surveys. Results revealed that the differences in nature of attitude in the intervention group before and after male targeted short message service was statistically significant (p=0.001).

Table 4.38: McNemar Test to determine the effectiveness of male targeted short message service on nature of attitude

Nature of attitude in Laisamis sub county (Control)					
		Nature of attitude at Endline		Total	McNemar Test(p=value)
		Negative	Positive		
Nature of attitude at Baseline	Negative	52(68.4%)	13(40.6%)	65(60.2%)	0.099
	Positive	24(31.6%)	19(59.4%)	43(39.8%)	
	Total	76(100.0%)	32(100.0%)	108(100.0%)	
Nature of attitude in Moyale sub county (Intervention)					
		Nature of attitude at Endline		Total	0.001
		Negative	Positive		
Nature of attitude at Baseline	Negative	51(96.2%)	55(90.2%)	106(93.0%)	
	Positive	2(3.8%)	6(9.8%)	8(7.0%)	
	Total	53(100.0%)	61(100.0%)	114(100.0%)	

4.13.6 Influence of nature of attitude on uptake of family planning

Table 4. 39 shows the influence of nature of attitude on uptake of family planning at endline. There was no significant statistical association between nature of attitude and uptake of family planning for both arms.

Table 4:39: Influence of nature of attitude on uptake of family planning

Association between nature of attitude and uptake of family planning					
Control group					
Nature of attitude	Uptake of FP (N=22)	Non-ptake of FP(N=86)	$\chi 2$	DF	P value
Negative (N=76)	18(81.8%)	58(67.4%)	1.737	1	P*=0.295
Positive (N=32)	4(18.2%)	28(32.6%)			
Intervention group					
Nature of attitude	Uptake of FP (N=45)	Non-ptake of FP(N=69)	$\chi 2$	DF	P value
Negative(N=53)	21(46.7%)	32(46.4%)	0.001	1	P=1.000
Positive(N=61)	24(53.3%)	37(53.6%)			

P*=Fishers exact

4.13.7 Influence of short message service on male involvement

Table 4.40 shows the influence of short message service on male involvement in family planning matters. There was a significant statistical association between male targeted short message and male involvement ($\chi 2$ =27.426, P=0.001). Male targeted short message service increased male involvement in family planning (OR 4.4306, P 0.001). Null hypothesis four was therefore rejected.

Table 4.40: Influence of short message service on male involvement

Association of short message service on male involvement						
Group	Male involvement					
	Involved(N=128)	Not Involved (N=94)	$\chi 2$	DF	P value	
Control (N=108)	43(33.6%)	65(69.1%)	27.426	1	0.001	
Intervention (N=114)	85(66.4%)	29(30.9%)				
Influence of short message service on male involvement (logistic regression)						
Variable	Involved	Not involved	Odds Ratio (OR)	P value	95% Confidence Interval (CI)	
					Lower	Upper
No male targeted SMS (Reference)	43(33.6%)	65(69.1%)	4.4306	<0.001	2.5030	7.8420
Male targeted SMS	85(66.4%)	29(30.9%)				

4.13.8 McNemar Test to determine the effectiveness of male targeted short message service on male involvement

Table 4.41 below shows the effectiveness of male targeted short message service on male involvement in family planning. McNemar test was used to determine whether the differences in male involvement between the intervention and control groups were

significant at both baseline and endline surveys. Results revealed that the differences in male involvement in the control and intervention groups before and after male targeted short message service was not statistically significant.

Table 4.41: McNemar Test to determine the effectiveness of male targeted short message service on male involvement

Male involvement in Laisamis sub county (Control)					
		Male involvement at Endline		Total	McNemar Test(p=value)
		Involved	Not involved		
Male involvement at Baseline	Involved	11(25.6%)	22(33.8%)	33(30.8%)	0.221
	Not involved	32(74.4%)	43(66.2%)	75(69.4%)	
	Total	43(100.0%)	65(100.0%)	108(100.0%)	
Male involvement in Moyale sub county (Intervention)					
		Male involvement at Endline		Total	0.896
		Yes	No		
Male involvement at Baseline	Involved	9(23.1%)	28(37.3%)	37(32.5%)	
	Not involved	30(76.9%)	47(62.7%)	77(67.5%)	
	Total	39(100.0%)	75(100.0%)	114(100.0%)	

4.13.9 Influence of male involvement on uptake of family planning

Table 4.42 shows the influence of male involvement on uptake of family planning at endline. There was a significant statistical association between male involvement and uptake of family planning at both control arm ($\chi 2 = 6.543$, P=0.011) and intervention group ($\chi 2 = 8.046$, P=0.005). Male involvement increased uptake of family planning at both control arm (OR=3.4397, P 0.013). and intervention arm (OR=4.2667, P 0.017). One key informant noted that;

"*In this county decision on uptake of family planning are made by male spouses. Previously, many interventions focused on female spouses. However, recent success can*

be attributed to involving men more in FP. Educating men is key to improving their knowledge, changing their attitude and thus making them more involved. This will lead to improved family planning uptake…"

Table 4:42: Association and influence of male involvement on uptake of family

Association between male involvement and uptake of family planning						
Control group						
Variable	Category	Uptake of FP	Non-ptake of FP	$\chi 2$	DF	P value
Male involvement (N=108)	Yes	14(63.6%)	29(33.7%)	6.543	1	0.011
	No	8(36.4%)	57(66.3%)			
Intervention group						
Male involvement (N=)	Yes	40(88.9%)	45(65.2%)	8.046	1	0.005
	No	5(11.1%)	24(34.8%)			

Influence of male involvement on uptake of family planning							
Variable	Category	Uptake of FP		Odds ratio (OR)	P value	95% Confidence Interval (CI)	
		Uptake	Non-uptake				
Male involvement Control	No (Reference)	2	68			Lower	Upper
	Yes	13	31	3.4397	0.013	1.2949	9.1371
Male involvement Intervention	No (Reference)	6	74				
	Yes	12	25	4.2667	0.017	1.4879	12.2350

P*=Fishers exact

4.14 Objective 6: Health system factors associated with family planning uptake among spouses in Marsabit County

This section contains results on association between health system factors and uptake of family planning for the control and interventions groups at endline survey.

4.14.1 Association between health system factors and uptake of family planning for control group at baseline and endline

Table 4.43 and table 4.44 illustrates the association between health system factors and uptake of family planning at baseline and endline respectively for control. There was no

association between all the health system factors and uptake of family planning among the respondents at both baseline and endline. Therefore, null hypothesis five was accepted

Table 4.43: Association between health system factors uptake of family planning at baseline for control group

		FP Uptake		
Variable	Category	Uptake	Non-uptake	$\chi 2$ or Fisher's exact
Distance in KM N=	<1km	3(20.0%)	30(30.3%)	Fisher's exact Df=3 P*=0.723
	1-3km	3(20.0%)	11(11.1%)	
	4-6km	8(53.3%)	51(51.5%)	
	>6km	1(6.7%)	7(7.1%)	
Rate accessibility of FP services	Very accessible	4(26.7%)	24(24.2%)	Fisher's exact Df=3 P*=0.440
	Accessible	9(60.0%)	46(46.5%)	
	Less accessible	1(6.7%)	25(25.3%)	
	Not accessible at all	1(6.7%)	4(4.0%)	
Rate the availability of FP Services at the nearest facility	Easily available	9(60.0%)	46(46.5%)	Fisher's exact Df=3 P*=0.616
	Moderately available	6(40.0%)	45(45.5%)	
	Less available	0(0.0%)	7(7.1%)	
	Not available at all	0(0.0%)	1(1.0%)	
Ever received any information about FP	Yes	11(73.3%)	82(82.8%)	Fisher's exact Df=1 P*=0.473
	No	4(26.7%)	17(17.2%)	
Main source of information if ever received	CHPs	6(54.5%)	27(32.9%)	Fisher's exact Df=4 P*=0.162
	HWs at the facility/outreach	5(45.5%)	23(28.0%)	
	Friends/relatives	0(0.0%)	10(12.2%)	
	Religious meetings	0(0.0%)	11(13.4%)	
	Media	0(0.0%)	11(13.4%)	
Expected Time of receiving FP	<1hour	2(13.3%)	34(34.3%)	Fisher's exact Df=2 P=0.230
	1-3hours	12(80.0%)	57(57.6%)	
	>3hours	1(6.7%)	8(8.1%)	
HCP attitude	Good	3(20.0%)	20(20.2%)	Fisher's exact Df=2 P*=0.585
	Fair	10(66.7%)	73(73.7%)	
	Poor	2(13.3%)	6(6.1%)	
Male friendliness of clinics offering FP	Very friendly	1(6.7%)	15(15.2%)	Fisher's exact Df=3 P*=0.189
	Friendly	7(46.7%)	47(47.5%)	
	Less friendly	1(6.7%)	19(19.2%)	
	Not friendly at all	6(40.0%)	18(18.2%)	

P*=Fishers exact

Table 4.44: Association between health system factors uptake of family planning at endline for control group

		FP Uptake		
Variable	Category	Uptake	Non-uptake	χ2 or Fisher's exact
Distance in KM N=	<1km	7(31.8%)	22(25.6%)	Fisher's exact Df=3 P*=0.151
	1-3km	2(9.1%)	11(12.8%)	
	4-6km	6(27.3%)	41(47.7%)	
	>6km	7(31.8%)	12(14.0%)	
Rate accessibility of FP services N=	Very accessible	2(9.1%)	20(23.3%)	Fisher's exact Df=3 P*=0.438
	Accessible	5(22.7%)	22(25.6%)	
	Less accessible	4(18.2%)	12(14.0%)	
	Not accessible at all	11(50.0%)	32(37.2%)	
rate the availability of FP Services at the nearest facility	Easily available	4(18.2%)	24(27.9%)	Fisher's exact Df=3 P*=0.314
	Moderately available	5(22.7%)	29(33.7%)	
	Less available	8(36.4%)	17(19.8%)	
	Not available at all	5(22.7%)	16(18.6%)	
Ever received any information about FP	Yes	21(95.5%)	76(88.4%)	Fisher's exact Df=1 P*=0.455
	No	1(4.5%)	10(11.6%)	
Main source of information if ever received	CHPs	10(47.6%)	33(43.4%)	Fisher's exact Df=4 P*=0.542
	HWs at the facility/outreach	4(19.0%)	19(25.0%)	
	Friends/relatives	6(28.6%)	14(18.4%)	
	Religious meetings	1(4.8%)	3(3.9%)	
	Media	0(0.0%)	7(9.2%)	
Expected Time of receiving FP	<1hour	6(27.3%)	23(26.7%)	χ2=1.498 Df=2 P=0.473
	1-3hours	11(50.0%)	52(60.5%)	
	>3hours	5(22.7%)	11(12.8%)	
HCP attitude	Good	5(22.7%)	24(27.9%)	Fisher's exact Df=2 P*=0.763
	Fair	13(59.1%)	51(59.3%)	
	Poor	4(18.2%)	11(12.8%)	
Male friendliness of clinics offering FP	Very friendly	4(18.2%)	13(15.1%)	Fisher's exact Df=3 P*=0.692
	Friendly	8(36.4%)	41(47.7%)	
	Less friendly	5(22.7%)	20(23.3%)	
	Not friendly at all	5(22.7%)	12(14.0%)	

P*=Fishers exact

4.14.2 Association between health system factors and uptake of family planning for intervention at baseline and endline

Tables 4.45 and 4.46 illustrate the association between health system factors and uptake of FP in the intervention group at baseline and endline respectively. There was significant no significant statistical association between all health system factors and uptake of FP services at baseline. However, at endline there was significant statistical association between availability of FP services at the nearest facility ($p^*=0.03$), main source of information ($p^*=0.041$), male friendliness of clinics offering FP services ($p^*=0.04$) and uptake of FP. Null hypothesis five was thus rejected.

Table 4.45: Association between health system factors uptake of family planning at baseline for Intervention group

		FP Uptake		
Variable	Category	Uptake	Non-uptake	$\chi 2$ or Fisher's exact
Distance in KM N=	<1km	8(44.4%)	20(20.2%)	Fisher's exact Df=3 P*=0.262
	1-3km	5(27.8%)	25(25.3%)	
	4-6km	4(22.2%)	33(33.3%)	
	>6km	1(5.6%)	21(21.2%)	
Rate accessibility of FP services	Very accessible	5(27.8%)	17(17.2%)	Fisher's exact Df=3 P*=0.734
	Accessible	6(33.3%)	41(41.4%)	
	Less accessible	3(16.7%)	15(15.2%)	
	Not accessible at all	4(22.2%)	26(26.3%)	
Rate the availability of FP Services at the nearest facility	Easily available	9(50.0%)	37(37.4%)	Fisher's exact Df=3 P*=0.582
	Moderately available	4(22.2%)	31(31.3%)	
	Less available	4(22.2%)	16(16.2%)	
	Not available at all	1(5.6%)	15(15.2%)	
Ever received any information about FP	Yes	17(94.4%)	98(99.0%)	Fisher's exact Df=1 P*=0.285
	No	1(5.6%)	1(1.0%)	
Main source of information if ever received	CHPs	7(41.2%)	52(53.6%)	Fisher's exact Df=4 P*=0.074
	HWs at the facility/outreach	0(0.0%)	7(7.2%)	
	Friends/relatives	5(29.4%)	12(12.4%)	
	Religious meetings	5(29.4%)	14(14.4%)	
	Media	0(0.0%)	12(12.4%)	
Expected Time of receiving FP	<1hour	12(66.7%)	67(67.7%)	Fisher's exact Df=2 P=0.230
	1-3hours	6(33.3%)	30(30.3%)	
	>3hours	0(0.0%)	2(2.0%)	
HCP attitude	Good	4(22.2%)	21(21.2%)	Fisher's exact Df=2 P*=0.100
	Fair	14(77.8%)	78(78.8%)	
	Poor	0(0.0%)	0(0.0%)	
Male friendliness of clinics offering FP	Very friendly	3(16.7%)	21(21.2%)	Fisher's exact Df=3 P*=0.245
	Friendly	6(33.3%)	52(52.5%)	
	Less friendly	3(16.7%)	9(9.1%)	
	Not friendly at all	6(33.3%)	17(17.2%)	

Table 4:46: Association of health system variables on uptake of family planning at endline for intervention group

Variable	Category	Family planning uptake		χ2 or Fisher's exact
		Uptake	Non-uptake	
Distance in KM N=	<1km	9(20.0%)	14(20.3%)	χ2=1.622 Df=3 P=0.654
	1-3km	12(26.7%)	14(20.3%)	
	4-6km	17(37.8%)	24(34.8%)	
	>6km	7(15.6%)	17(24.6%)	
Rate accessibility of FP services N=	Very accessible	15(33.3%)	18(26.1%)	χ2=11.124 Df=3 P=0.771
	Accessible	10(22.2%)	17(24.6%)	
	Less accessible	13(28.9%)	25(36.2%)	
	Not accessible at all	7(15.6%)	9(13.1%)	
Rate the availability of FP Services at the nearest facility	Easily available	19(42.2%)	27(39.1%)	Fisher's exact Df=3 P*=0.03
	Moderately available	14(31.1%)	21(30.4%)	
	Less available	4(8.9%)	11(15.9%)	
	Not available at all	8(17.8%)	10(14.5%)	
Ever received any information about FP	Yes	45(100.0%)	69(100.0%)	No statistics since it's a constant
	No	0(0.0%)	0(0.0%)	
Main source of information if ever received	CHPs	34(75.6%)	51(73.9%)	Fisher's exact Df=3 P*=0.041
	HWs at the facility/outreach	0(0.0%)	5(7.2%)	
	Friends/relatives	3(6.7%)	9(13.0%)	
	Religious meetings	3(6.7%)	3(4.3%)	
	Media	5(11.1%)	1(1.4%)	
Expected Time of receiving FP	<1hour	33(73.3%)	54(78.3%)	Fisher's exact Df=2 P*=0.542
	1-3hours	12(26.7%)	14(20.3%)	
	< 3 hours	0(0.0%)	1(1.4%)	
HCP attitude	Good	15(33.3%)	19(27.5%)	Fisher's exact Df=2 P*=0.801
	Fair	26(57.8%)	43(62.3%)	
	Poor	4(8.9%)	7(10.1%)	
Male friendliness of clinics offering FP	Very friendly	10(22.2%)	9(13.0%)	Fisher's exact Df=3 P*=0.04
	Friendly	29(64.5%)	24(49.3%)	
	Less friendly	2(4.4%)	6(8.7%)	
	Not friendly at all	4(8.9%)	30(29.0%)	

P*=Fishers exact

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1: Introduction

This chapter consists of discussions according to the research objectives. Conclusions and recommendations as informed by start findings are also contained in this chapter.

5.2 Discussion

5.2.1 Objective 1: Level of uptake of Family planning

The study findings revealed uptake of the family planning was low at 13.2% and 15.4% for control and intervention arms respectively at baseline. These proportions were much lower than the national average at 56.9% (KDHS, 2022). This study done in Marsabit county which is among the counties with the lowest contraceptive prevalence in Kenya. The low uptake can be attributed to strong cultural beliefs and low educational level in the county (Abdi *et al*., 2021). The results were similar with qualitative study on family planning among pastoralists in Kenya (Kenny et a., 2022). Similar results were also obtained from a study on contraceptive prevalence among women of reproductive age in Northern Kenya (Nyakundi *et al*., 2024). Study by Gitonga & Gage (2024) revealed an equally very low modern contraceptive prevalence among non-refugee and refugee Somalis in Nairobi City County. However, these findings were contrary to other findings by Moon et al., (2021) which revealed a higher contraceptive prevalence among women of reproductive age. The difference could be eligibility criteria where by the respondents were not only those who were married but all women of reproductive age. Also, findings from other parts of Kenya showed a higher modern contraceptive prevalence as compared to Marsabit (Kungu *et al*., 2022). The difference would be due to cultural differences between

counties and also the sample size which was lower according to KDHS, (2022) report. In comparison to other countries, the findings were contrary to others from other regions such as Uganda (Otim, 2020), Ghana (Mensah *et a*l., 2023) and European Countries (Kantorová *et al*., 2021). The difference with Uganda and Ghana was due to the eligibility and mostly being conducted in urban and peri-urban centers.

The common method of family planning were oral contraceptive pills and lactational amenorrhea for control and intervention arms respectively at baseline. This means that majority of those who were using family planning preferred short acting methods. This may be attributed to the fact that they prefer child spacing rather than limiting since still there is preference of many children (Gitonga & Gage, 2024). These findings agreed with a study on determinants of modern contraceptive discontinuation which revealed that women preferred short acting family planning options (Ontiri *et al*., 2020. The results were contrary to a study on demand for family planning in rural areas by Komasawa *et al*., (2020) which revealed that the common family planning method was intrauterine device (IUDs). The difference could be due to the cultural beliefs whereby in Marsabit they prefer family planning services for spacing not to reduce number of children hence preference for short acting family planning methods.

The main motivation for use of family planning was child spacing for both control and intervention arms. This can be attributed to the fact that their focus is more on child spacing rather than reducing the number of children. This study agreed with another study conducted on contraceptive uptake among Muslim men in Kenya (Abdi *et al*., 2020). Similar results were also reported by Osinowo *et al*., (2020) that revealed that men preferred their women to use contraceptive to enable healthy spacing of pregnancies.

Results on who made decision regarding use of family planning revealed that in the control group husband made the decision while in the intervention group both husband and wife made the decision at baseline. This may be attributed to the fact that men have a crucial role to plan in uptake of family planning. This suggests that male involvement in matters of family planning can significantly improve the uptake. Results were similar to study on determinants of contraceptive decision making was solely made by the husband followed by a joint decision making (Tesfa *et al*., 2022). The results were inconsistent with Bhan *et al*., (2022) that revealed that mother-in-law was the main decision maker on matters of family planning.

Further results showed that individual unwillingness was the main reason for non-uptake in the control and intervention arms at baseline. This may be attributed to the fact that many efforts have been put in place to increase uptake of family planning but individuals still are unwilling to use because of other reasons which might be personal or societal. The results agree with Logan *et al*., (2021) who reported that the main reason for low contraceptive prevalence was unwillingness to use family. The study was contrary to other findings that showed that fear of side effects was the main reason (Bain & Tarkang, 2021) and financial challenges (Bekele *et al*., 2021). This could be due to differences fact that in Marsabit County there several organization intervening on family planning and the services are given free of charge as compared to other places.

Results on husband approval of family planning indicated a low percentage for both control and intervention. This means that majority of husbands did not approve use of family planning. This explains the low contraceptive prevalence. This may be attributed to the lack of male involvement in matters of family planning and other social-cultural factors.

This study findings were inconsistent with study done on contraceptive use among couples that showed that men approved use of family planning (Hernandez *et al*., 2022). The difference could due to cultural beliefs of the men in this study where they make decisions on use or non-use of family planning and most have not embraced use hence not approving.

5.2.2 Objective 2: Level of knowledge on family planning

The study reported that higher proportion of the respondents both at control and intervention had high level of knowledge on the meaning of family planning. This can be attributed to a lot of efforts that have been put in place to raise awareness on family planning. These findings were similar to another study on role of husband's attitude and uptake of family planning which showed that majority of the men had correct knowledge on meaning of family planning (Asif *et al*, 2021). Results also revealed that level of knowledge on family planning significantly increased in control arm at endline. This can be attributed to the male targeted short message service intervention where men received messages on family planning thus improving their knowledge. These findings were consistent with a study on barriers and facilitators to the implementation of cell phone interventions to improve the use of family planning services which revealed an improved level of knowledge on meaning of family planning (Barro *et al*., 2022).

Results revealed that at baseline, most of the respondents had moderate knowledge at control and low level of knowledge at intervention on eligibility to use family planning. This may explain the low uptake of family planning. The study agrees with another one on men's involvement in family planning service utilization which revealed that majority of them had low knowledge on eligibility to use contraceptives (Assefa *et al*., 2021). The results also showed an increase in level of knowledge at endline for intervention group as

a result of targeted short messages sent to male spouses. The results were consistent with another study on perceptions and barriers to effective family planning services which revealed that health education intervention by health care providers was responsible for increased knowledge on eligibility to family planning services (Alhusen *et al*., 2021).

Majority of respondents had low level of knowledge on methods of family planning for both control and intervention arms. This may be attributed to the fact that matters of family planning have been left to be a women affair hence affecting knowledge of male spouses. Results were similar to Abdi *et al*., (2021) that revealed that indeed men had low knowledge on family planning. At the endline proportion of those individuals with high level of knowledge slightly increased for both control and intervention groups. This maybe be attributed to the messages sent to the intervention arm and also in the control the respondents might have sought for more information after the baseline data. These findings agreed with another one on mobile phone use for family planning which revealed that knowledge on methods increased with the intervention (Chukwu *et al*., 2021). Similar findings were replicated from a study on use of community-based interventions to promote family planning uptake (Alemayehu *et al*., 2021).

Higher proportion of respondents had low knowledge levels on the benefits of family planning both at control and intervention arms. This may explain the reason for low uptake since men were not aware of benefits of family planning. These findings agreed with a study on male involvement in family planning use and associated factors which revealed that knowledge on benefits of family planning was very low among male spouses (Mulatu *et al*., 2022). This however contradicted with a study on male involvement in contraceptive use which showed that they were knowledgeable about the benefits but this did not translate

to uptake (Anbesu *et al*., 2022). The male targeted short message service intervention led to increase in the portion of those who had high knowledge on benefits. This agrees with findings by Chukwu *et al*., (2021) and Barro *et al*., (2022) which reported that indeed short message service intervention helped improve knowledge significantly.

Concerning level of knowledge on places where family planning services are offered, results revealed that higher proportion had moderate level of knowledge for control and high level of knowledge for intervention. This means that generally more respondents had moderate and high knowledge on place the services are offered. This may be attributed to the fact that community health promoters keep on creating awareness on availability of the services. These results were consistent with another by Mulatu *et al*., (2022) and Kassim & Ndumbaro, (2022) which revealed that men knew where services were provided as much as they did not encourage their spouses to seek for them. At the endline the proportion of those with high knowledge level increased for both control and intervention. This may be attributed to baseline survey which prompted those who did not know to enquire more and also SMS that were sent to the male in intervention group. The results differed with a study by Warwick, (2023) which revealed that even with interventions to increase knowledge on places where family planning services were offered, the level did not increase since men believed it was not a husband issue.

Majority of the respondents for both control and intervention arms had low level of knowledge regarding common side effects of family planning at baseline. This explains the low level of uptake because there are a lot of misconceptions about family planning. This maybe be attributed to the fact that men do not seek for right information from health care providers as they perceive it to be a women affair. These results were consistent with other

findings from Tanzania which revealed that men partners had low knowledge on side effects of family planning hence did not approve usage (Kassim & Ndumbaro, 2022). Same results were reported from a study on decision-making power of married women to use family planning in sub-Saharan Africa which showed that men had low knowledge on common side effects yet they solely made decisions on uptake (Demissie *et al*., 2022). SMS intervention significantly increased level of knowledge on common side effects in the intervention arm. This can be attributed to the fact that SMS were sent creating awareness on the side effects thus helping to reduce the unfounded misconceptions. Similar results from a study on assessment of men involvement in family planning services revealed that knowledge level increased among the involved male spouses (Kwawukume *et al*., 202). This however contradicted with D'Exelle & Ringdal, (2022) who revealed that involving male partners in matters of family planning did not improve their knowledge on side effects as much it helped improve uptake. The difference could be delivery of intervention where by this study the men received messages directly to their phones not through their spouses hence this motivated them to get involved.

Overall knowledge level on family planning taking into consideration all the knowledge areas revealed that at baseline majority of respondents had low levels of knowledge for both control and intervention arms. This may be attributed to the fact that previous interventions and studies on family planning focused on women only. These findings agreed with Kassim & Ndumbaro, (2022) that revealed that indeed level of knowledge on family planning among male spouses was very low in Tanzania. According to Warwick, (2023) cultural factors contributed to low knowledge level on family planning among male partners. The SMS intervention increased the proportion of those who had moderate and

high knowledge levels. This means that the messages sent on different knowledge areas significantly contributed to the overall knowledge level. A study on effects of text reminders on the use of family planning services revealed that knowledge level was higher among the respondents who received the messages than those who did not receive (Leight *et al*., 2022).

5.2.3 Objective 3: Nature of attitude towards family planning

Results on nature of attitude towards family planning revealed that at baseline majority of the respondents had negative attitude. This can be attributed to the myths and misconceptions about family planning. A study on participation of men in reproductive health care revealed that negative attitude was the main barrier (Roudsari *et al*., 2023). This also agreed with another study on contraceptives use by couples in South-West Nigeria revealed that suspicion of infidelity influenced attitude of male towards family planning uptake by their partners (Saanu *et al*., 2023). Inconsistent results were reported by Allotey & Bosoka (2024) which revealed that male had a good attitude towards modern contraceptive use in Ghana. The difference could have been due to location where the Ghanaian study was conducted in urban area where men are more informed hence with positive towards contraceptive use.

Results further revealed that among the respondents in intervention arm the proportion of those who had positive attitude significantly increased. This may be attributed to the SMS intervention where messages on knowledge and common side effects where shared which helped in changing their attitude. This was in line with a systematic study on involving men in family planning which revealed that involvement contributed to change of attitude towards the services (Aventin *et al*., 2023). This was also replicated by Gelgelo *et al*.,

(2023) on their study on effectiveness of health education which revealed that the after the intervention the number of those with positive attitude significantly increased. According to Tazoe *et al*., (2024) effective interventions are likely to change attitude towards family planning among male spouses in developing countries. However, contrary results were reported by Nguyen & Jacobsohn (2023) which revealed that male unwillingness to use condoms were the main reasons for continued negative attitude towards family planning even after involving them. The difference would be due to cultural beliefs where in this study family planning are left to be a women affair hence men do not want to participate in uptake.

5.2.4 Objective 4: Influence of male targeted short message service on uptake of family planning

The results showed that male targeted short message service intervention increased significantly the uptake of family planning. In fact, the increase in the intervention group was more than twice reflecting a large effect size. This means that without the SMS intervention the uptake is very low. There was also a significant statistical association between receiving SMS and uptake of family planning. Logistic regression analysis revealed that SMS intervention was a predictor for family planning uptake as the odds of using increased. Sharing health information can help overcome some of the barriers to family planning uptake and increase awareness and use of available options (Bhatt *et al*., 2021). Such SMS programs can be tailored to specific settings, needs, and preferences, and help foster trust and engagement among individuals and communities (Blackwell *et al*., 2021). SMS interventions can be applied to men alone or together with their partners (Ladur et al., 2021).

A study on SMS intervention in informal settlements in Kenya revealed that uptake of maternal services like family planning increased among those who received the messages (Ochieng' *et al*., 2024). The results agreed with Leight *et al*., (2022) which revealed that text reminders increased use of family planning in Mozambique. Another study on effect of mobile phone messaging on uptake of maternal and child health service revealed that the intervention increased uptake of family planning significantly (Gilano *et al*., 2024). In Tanzania, use of interactive voice response increased uptake of family planning (Ngowi et al., 2023). Sampson et al., (2023) in their study on addressing barriers to accessing family planning services using mobile technology intervention revealed that male spouse increased knowledge, changed their attitude and thus became more involved increasing uptake.

5.2.5: Objective 5: Influence of male targeted short message service on knowledge, nature of attitude and male involvement on uptake of family planning

Results showed that male targeted short message service intervention influenced knowledge on family planning. There was a significant statistical association between male targeted short message and level of knowledge. Male targeted short message service increased level of knowledge significantly as compared to those who did not receive the messages. This increase in knowledge was attributed to the messages that the respondents received on different aspects of family planning. This study agrees with findings from Barro *et al*., (2022) which revealed that text messages on family planning helped improve the knowledge. Similar findings from a study on effects of text reminders on the use of family planning services revealed that knowledge level was higher among the respondents who received the messages (Leight *et al*., 2022). Consistent results were also reported from

a study on implications of digital messages on family planning intervention which revealed that with messages the number of respondents who had high level of knowledge significantly increased in Northern Nigeria (Okunlola *et al*., 2023). Further results also revealed that there was a significant statistical association between level of knowledge and uptake of family planning in the intervention group. This means that level of knowledge increased uptake of family planning among the respondents in the intervention group as compared to the control group. This study findings were consistent with another study on determinants of modern contraceptive utilization which revealed that knowledge made people more informed on the methods and benefits of family planning and thus demand for the services (Tesema *et al*., 2022). These findings however contradicted Namukoko *et al*., (2022) whose study revealed that as much as the knowledge was improved the uptake of family planning still did not significantly change due to the unmet needs. The difference could be due to this study recruiting male spouses who are believed to be the ones who do not approve their spouses to uptake family planning. Hence involving them directly touched on the main barrier to uptake hence significantly improved uptake.

Majority of those who had a positive attitude were from the intervention group. This means that the SMS intervention helped in changing the attitude of respondents towards family planning. There was a significant statistical association between male targeted short message and nature of attitude. Similar results were reported by Gelgelo *et al*., (2023) on their study on effectiveness of health education which revealed that the after the intervention the number of those with positive attitude significantly increased. Tazoe *et al*., (2024) also reported that effective interventions are likely to change attitude towards family planning among male spouses in developing countries. Nguyen & Jacobsohn (2023) in

their study revealed that male unwillingness to use condoms were the main reasons for continued negative attitude towards family planning even after male involvement intervention. There was no significant statistical association between nature of attitude and uptake of family planning for both arms. This means that even when the attitude changed this did not automatically translate to uptake of family planning. This may be attributed to other personal reasons or wife's unwillingness to uptake family planning. This study findings contradicted Abita & Girma, (2022) who revealed that exposure to mass media family planning messages among men led to change of their attitude which significantly increased contraceptive uptake as a result of the intervention. This difference could be due to the fact that this study was conducted in a Muslim dominated region where they believe more on large families hence the attitude towards family planning could change but couldn't translate to uptake.

Concerning male involvement, results revealed that majority of those who were involved were from the intervention arm. There was a significant statistical association between male targeted short message and male involvement. This means that male targeted short message service increased male involvement in providing financial support, accompanying spouse to clinics and discussing use family planning. After intervention men become involved in discussing use of family planning with their spouses (Mulatu *et al*., 2022). This study agrees with another one on implications digital messages intervention on family planning which revealed that upon receipt of messages the number of males who were involved increased (Okunlola *et al*., 2023). Results also revealed that there was a significant statistical association between male involvement and uptake of family planning. This means that male involvement increased uptake of family planning. This can be

attributed to the fact that male involvement makes them knowledgeable on the benefits and thus approving their wife or wives to use the services. These findings were consisted with another by Kwawukume *et al*., (2022) which revealed that male involvement intervention led to men approving family planning and thus increased uptake. Similar results from Uganda indicated that involving men through telehealth made them more involved in family planning and thus advising their spouses to uptake (Kamulegeya *et al*., 2022). Contrary results indicated that male involvement did not translate to increased uptake of family planning due to strong cultural beliefs favoring many children in some religions in Ghana (Allotey *et al*., 2024)

5.2.6: Objective 6: Health system factors associated with uptake of family planning

Results revealed that there was no association between all the health system factors and uptake of family planning among the respondents in the control arm. However, there was significant statistical association between availability of FP services at the nearest facility, main source of information, male friendliness of clinics offering FP services and uptake of family planning among the respondents in the intervention arm. These findings disagreed with others which revealed that in regions where by health system barriers have been addressed the uptake of family planning is high compared to the ones where the barriers are still existing (Logan *et al*., 2021). The difference could have been due to the inclusion criteria of this study which required the participants to have mobile phone. Research findings have shown a linkage between the distance to the nearest facility and uptake of family planning since clients are unwilling to walk long distance (Hamon *et al*., 2020). A study from an Eastern Nepal on perceptions of family planning and key barriers revealed

that long distances to healthcare facilities was the main barrier affecting uptake (Bhatt *et al*., 2021).

Cost was not associated with uptake of family planning services. Similar findings were reported by Chukwu & Adibe (2023) which revealed that cost was not a barrier to uptake of family planning services. Contrary research findings have also shown that transport cost to the facilities to get sexual and reproductive services was among the barriers to uptake (Bouanchaud *et al*., 2022). Also, findings from Bangladesh revealed that affordability of services was a major predictor of family planning uptake (Khan *et al*., 2022). The difference could be due to the fact that this study location family planning services were provided free of charge hence cost was not an issue.

Concerning availability of family planning commodities, results showed a statistically significant association in the intervention group but no association in the control group. This may be attributed to the SMS intervention where respondents were given information on family planning thus seeking for them. This means that you can only determine availability on when you seek for the service. When the commodities are always available on demand clients are likely to seek for the services unlike when there are issues with stock outs (Yadav *et al*., 2020). These findings agreed with a study on impact of stock-outs on uptake of family planning services revealed that stock-outs limited individuals' ability to use their preferred contraceptive method, influenced where contraceptive methods were obtained and how much they cost, and limited providers' and facilities' abilities to provide contraceptive care (Zuniga *et al*., 2022). A study by Githinji *et al*., (2022) revealed that stock-out of family planning commodities hindered uptake.

Among the respondents in the control group, male friendliness of clinics was not associated with uptake of family planning. This disagreed with a finding from Nigeria which revealed that in urban centers where the clinics were somehow male friendly and accommodative, the uptake of sexual and reproductive health services was higher (Amuzie *et al*., 2022). The difference could be due to the fact this study was conducted in a largely a rural place where most facilities were not male friendly as compared to urban set ups. In the intervention group, male friendliness was associated with uptake of family planning. In fact, presence of male friendly clinics positively influenced uptake of sexual and reproductive health services such as family planning. This study agreed with a study on attitude of reproductive age women towards male involvement in family planning which revealed that there was a significant statistical association between male friendly FP clinics and uptake of family planning (Wambete *et al*., 2022).

There was no significant statistical association between health provider attitude and uptake of family planning. The study agreed with another from Rwanda which revealed that health provider's attitude did not influence uptake of family planning since the clients were not concerned with other people's perception so long as they received the services (Schwandt *et al*., 2022). This contradicted Kriel *et al*., (2021) whose study revealed that some provider's negative attitude may discourage people from seeking services. Poor attitude of health providers especially towards the unmarried women or adolescents when seeking family planning service affects uptake (Saïzonou *et al*., 2021). The differences could be attributed to the most male spouses of this study who were not participating in matters of family planning since they perceived them to be a women affair hence might have not gone

to facilities over the same to be able to provide the right response to health provider's attitude.

In the control arm, source of information was not significantly associated with uptake of family planning. On the contrary, source of information was associated with uptake among the respondents in the intervention arm. This agrees with research findings which documented that when people get access to correct, reliable and adequate information especially from health care providers, they get informed and thus seek for services (Demissie *et al*., 2021). Other findings also indicated that use of community health extension workers to educate people on family planning significantly improved uptake (Douthwaite *et al*., 2021). Similar findings also revealed that use of media to deliver information led to a significant increase in contraceptive prevalence (Corey *et al*., 2022).

5.3: Conclusions

1. The study concludes that there was low level of uptake of family planning in Marsabit County however at endline the level of uptake increased significantly for the intervention group.
2. Majority of the respondents had low level of knowledge on family planning however as a result of the intervention at endline there were significant changes in levels of knowledge.
3. Majority of the respondents had negative attitude towards family planning however, there were significant changes at endline where especially in the intervention group where proportion of those who had positive attitude increased.
4. Male targeted short message service significantly increased uptake of family planning significantly in intervention group.

5. The study concludes that male targeted short message service significantly increased knowledge, changed attitude and increased male involvement. The changes were largely in the intervention group where the SMS predicted changes in knowledge, nature of attitude and male involvement.
6. The study concluded that there was no association between all the health system factors and uptake of family planning among the respondents in the control arm. However, in the intervention arm there was significant statistical association between availability of FP services at the nearest facility, main source of information, male friendliness of clinics offering FP services and uptake of family planning among the respondents.

5.4 Recommendations

5.4.1 Recommendations for policy and practice

The study recommends that:

1. Male targeted short message service intervention should be integrated in provision of family planning services to increase uptake.
2. There should be the dissemination of information in different media to increase the level of knowledge on family planning among male partners.
3. The interventions targeting family planning should be provided in culturally appropriate manner though focusing on child spacing rather than limiting the number of children to help change the attitude towards uptake.

4. The policy makers should implement guidelines on short message services and disseminate them in an appropriate language and period to both spouses to a larger impact.
5. Engage community, religious and opinion leaders in family planning to help in advocating, educating and changing the attitude of the men towards family planning and thus become more involved.
6. Setting up of more male friendly sexual and reproductive health clinics to encourage men to seek and/ or advise their partners to uptake the services.

5.4.2 Recommendations for further study

1. A further study should be conducted on the best approach of making male partner involvement in family planning uptake more acceptable to different cultural backgrounds.
2. A further study should also be conducted on male partner's perception on utilization of long-acting family planning methods

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APPENDICES

Appendix I: Consent form

I am……. Kenyatta University PhD student. I am conducting a study on "**Utilization of male targeted short message service in enhancing family planning uptake among spouses in Marsabit County, Kenya**". I am kindly seeking permission for your engagement.

Study purpose

The purpose of this study is to explore the "Influence of health education on male involvement in promoting family planning uptake among couples in Marsabit County, Kenya". The findings would help the County and Ministry of Health in making decisions regarding male involvement intervention in enhancing family planning uptake.

Procedures to be followed

To participate in this study, will need you to fill a questionnaire or be interviewed. It's within your rights to accept or refuse to be involved. Please note that participation in this study is voluntary. You may seek clarifications through questions related to the study at any time. You may choose not to respond to any question and at any time you can withdraw from the interview or study.

Risks

Participating in this study will not expose you to any risks whatsoever.

Benefits

To participate in this study, you accept that you will not get any financial benefit but your involvement will help the Ministry of Health to know how to address the uptake of family

planning through providing health education to increase male involvement and thus enhance family planning uptake in Marsabit County, Kenya.

Alternative to Participation

Should you feel, you cannot continue with study at any point, you are fee to stop. If you make this choice, please note that my appreciation for your willingness to participate in the study will not be affected. You are not obligated to provide a response to any inquiry that can make you feel embarrassed or unpleasant.

Confidentiality

You may choose to fill the questionnaire on your own or be interviewed and your name will not be recorded. The questionnaire shall be safely kept and your information will be kept confidential. You will also be interviewed in private set up.

Contact information

Should you have any questions kindly contact Mr. Vincent Omwenga 0726246864, Dr. E. Gitonga on 0721406609, Dr. I. Owaka on 0725870089 or the Kenyatta University Ethical Review Committee on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke,

Participant's statement

To my satisfaction, the above information regarding my participation in clear to me. I have been allowed to ask questions and I acknowledge they have bee well answered to the point of my satisfaction. I am aware that my participation in this research is entirely voluntary. I have been assured that my information will be kept private and confidential. I have been well informed that I can choose to withdraw from the study at any point without any consequences.

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Signature Date

Investigators statement

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

Name of the interviewer: ……

Signature…… Date…….....

Appendix II: Questionnaire for Male Spouse

Section 1: Socio-demographic characteristics

1.1 Age in years?.....

1.2 What is your highest level of education attained?

[1] Never been to school [2] Pre-primary completed

[3] Primary completed [4] Secondary completed

[5] College/University completed

1.3 Your religion?

[1] Catholics [2] Protestants [3] Pentecostal churches

[4] African traditional churches [5] Muslim

1.4 Your Occupational status?

[1] Formal Employment [2] Self Employed [3] Not Employed

1.5 Type of marriage

[1] Monogamous [2]Polygamous

1.6 If polygamous, how many wives?.....

1.7 Number of times your wife or wives has given alive birth…….

1.8 Ideal desired number of children……

1.9 What is your household monthly income?

[1] < Kshs 5000 [2] Kshs 5001-10000 [3] Kshs10001-15000

[4] Kshs 15001-20000 [5] > Kshs 20000

Section 2: Knowledge on family planning

(Pick the most appropriate answer to the following statements**)**

Meaning of family planning

2.1 Family planning refers to a deliberate effort which allows people to regulate the number of children and determine healthy spacing and timing of births between pregnancies

[1] True [2] False [3] Don't know

2.2 Family planning refers to the means of deciding the sex of the child to bear

[1] True [2] False [3] Don't know

Eligibility

2.3 Any woman at any age can use a family planning method

[1] Yes [2] No [3]Don't know

2.4 Only women are eligible to use family planning

[1] True [2] False [3] Don't know

2.5 Women aged more than 50 years MUST use family planning method to prevent unwanted pregnancy

[1] Yes [2] No [3] Can not tell

2.6 Family planning can be used by sexually active women who are at their reproductive age (15-49)

[1] True [2] False [3] Don't know

2.7 Only married couples are eligible for family planning services

[1] True [2] False [3] Don't know

2.8 Family planning can also be used by sexually active men

[1] True [2] False [3] Don't know

Methods of family planning

2.9 Condoms are the only type of family planning method that can also protect one from sexually transmitted infections

[1] True [2] False [3] Don't know

2.10 Male sterilization (vasectomy) is a permanent method family planning for male partners

[1] True [2] False [3] Don't know

2.11 Female sterilization (tubal ligation) is a permanent method of family planning for female spouses

[1] True [2] False [3] Don't know

2.12 It is not a good idea to use emergency contraceptive pill (ECP) instead of lactational amenorrhea as your regular method of contraception

[1] True [2] False [3] Don't know

2.13 Oral contraceptive pills can help women to prevent unwanted pregnancy

[1] True [2] False [3] Don't know

2.14 Oral contraceptive pills can be taken twice a day to prevent unwanted pregnancy

[1] Yes [2] No [3] Can not tell

2.15 Intrauterine device (IUD) is a long-acting reversable contraceptive method

[1] True [2] False [3] Don't know

2.16 Contraceptive implant is a form of long-acting reversable family planning method

[1] True [2] False [3] Don't know

2.17 Use of traditional herbs is a modern method of family planning

[1] Yes [2] No [3] Don't Know

2.18 Depo Provera injection is a long-acting method of family planning

[1] Yes [2] No [3] Don't Know

2.19 Fertility awareness is learning the signs of fertility in your menstrual cycle to help you plan or avoid a pregnancy

[1] True [2] False [3] Don't know

Benefits of family planning

2.20 Use of family planning helps reduce maternal deaths

[1] Yes [2] No [3] Don't Know

2.21 Use of family planning helps in improving the health of the child

[1] True [2] False [3] Can not tell

2.22 Pregnancies that are too close together or poorly timed contribute to high infant mortality

[1] True [2] False [3] Don't Know

2.23 Family planning use cannot lead to improved health of women

[1] Yes [2] No [3] Don't Know

2.24 Use of some family planning methods cannot help in reducing transmission of sexually transmitted diseases

[1] Yes [2] No [3] Don't Know

2.25 Use of contraceptives is only beneficial to the mother and child

[1] Yes [2] No [3] Don't Know

2.26 Increased uptake of family planning can be a solution to population pressures on resources

[1] Yes [2] No [3] Don't Know

2.27 Use of contraceptives helps in reducing stress and demands to meet in the family

[1] True [2] False [3] Don't Know

Place of offering family planning services

2.28 Family planning services are only offered in public hospitals

[1] Yes [2] No [3] Don't Know

2.29 Family planning services can be offered in both private and public hospitals

[1] Yes [2] No [3] Don't Know

Common side effects of family planning

2.30 Use of family planning can lead to lose of appetite

[1] True [2] False [3] Don't Know

2.31 Heavy bleeding can be a side effect of use of family planning

[1] True [2] False [3] Don't Know

2.32 Women using family planning methods can sometimes feel dizzy

[1] Yes [2] No [3] Don't know

2.33 Women who use family planning stop experiencing monthly periods

[1] True [2] False [3] Don't Know

2.34 Use of all contraceptives can lead to some headache

[1] Yes [2] No [3] Don't know

2.35 When using family planning, a lady may experience irregular bleeding

[1] True [2] False [3] Don't Know

2.36 Women who use modern family planning methods suffer from server diarrhea

[1] True [2] False [3] Don't Know

2.37 Use of family planning can lead to changes in weight of women

[1] Yes [2] No [3] Don't know

Section 3: Attitude towards family planning

On a scale of 1-5, please tick one response which best describes your opinion where "1" means "Strongly disagree" "2" means "Disagree" "3" means "Neither Agree nor Disagree" "4" means "Agree" and "5" means "Strongly Agree"

	Statement	1	2	3	4	5
3.1	I discuss family planning issues with my wife (wives) and I would want us to use it in future					
3.2	I belief family planning use will not expose my spouse to infertility.					
3.3	Use of family planning doesn't contradict with the religious beliefs					
3.4	Spousal use of family planning doesn't contradict with my cultural beliefs.					
3.5	I belief family planning use doesn't influence sexual activity					
3.6	I belief that family planning use do not have enormous side effects and thus should be used.					
3.7	I belief that use of family planning does not encourage promiscuity.					
3.8	I belief that large family size affects economic conditions negatively					
3.9	I belief that large family size affects negatively the maternal and child health					
3.10	I think large family size doesn't earn the respect by the husband					
3.11	I belief that the use of family planning doesn't predisposes my wife to cancer					
3.12	Family planning services when used correctly and consistently their chances of failing are very low					

Section 4: Health system factors

4.1 What is the approximate distance between your home and the nearest facility?

[1] Less than 1km [2] between 1-2km [3] between 3-5km [4]more than 5 km

4.2 Kindly rate the accessibility of family planning services

[1] Very accessible [2] Accessible [3] Less accessible [4]Not accessible at all

4.3 Kindly rate the availability of family planning services at the nearest facility?

[1] Easily available [2] moderately Available [3] Less available [4]Not available at all

4.4 Have you ever received any information about family planning

[1]Yes [2]No

4.5 If yes, what was the main source of information regarding family planning?.....

[1] Radio/Television [2] Social media (facebook, whatsapp, tiktok) [3]Community health promoters [4] Posters [5]Health worker at the facility/Outreach facility [6] Friends/Relatives [7] Religious meetings

4.6 How long do you think it can take one to receive a family planning service at the facility?

[1] 30 Min [2] 1 Hour [3] 2 Hours [4] 3 or more Hours

4.7 How could you rate the attitude of health care provider(s) with respect to your past encounter?

[1] Good [2] Fair [3]Poor [4] Never had an encounter

4.8 Kindly rate the male friendliness of clinics offering family planning services?

[1]Very friendly [2] friendly [3]Less friendly [4] Not friendly at all

Thank you for your participation

Appendix III: Questionnaire for Female Spouse

Section 1: Socio-demographic Characteristics

1.1 Age in years?.....

1.2 What is your highest level of education attained?

[1] Never been to school [2] Pre-primary completed

[3] Primary completed [4] Secondary completed

[5] College/University completed

1.3 Your religion?

[1] Catholics [2] Protestants [3] Pentecostal churches

[4] African traditional churches [5] Muslim

1.4 Your Occupational status?

[1] Formal Employment [2] Self Employed [3] Not Employed

1.5 Type of marriage

[1] Monogamous [2]Polygamous

1.6 Number of times you have given birth to alive baby…….

1.7 Ideal desired number of children……

1.8 What is your household income?

[1] < Kshs 5000 [2] Kshs 5001-10000 [3] Kshs10001-15000

[4] Kshs 15001-20000 [5] > Kshs 20000

Section 2: Uptake of modern family planning

2.1 Are you currently using a family planning method?

[1]Yes [2]No

2.2 If yes, which method?

[1] Oral contraceptive pills [2]Intrauterine device (IUD)

[3] Lactational amenorrhea [4] Contraceptive injections

[5] Contraceptive implant [6] Vasectomy/female sterilization

[7]Condoms

2.3 If using what was the main motivation to use a modern family planning method?

[1] Birth spacing [2] Reduce number of children

[3] Prevent un-intended pregnancy

2.4 If you using, who decided which type of family planning/ birth spacing/child spacing method to use?

[1] Myself [2] my husband [3] Both of us (Husband and I)

[4] Friends/relatives [5] Health care provider

2.5 When did you start using your current family planning method?

[1] Current month [2] l-2 month ago [3] 3-4 months ago

[4] 5-6months ago [5] >6months ago

2.6 If not using, what is the main reason?

[1] Fear of side effects [2]Opposition by husband

[3] Opposition by other family members [4] Religious or cultural reasons

[5] Access and cost [6] Provider related

[7]Individual unwillingness

2.7 Does your husband approve use of family planning

[1] Yes [2] No

Section 3: Male involvement on family planning

3.1 Is your spouse involved in any of the following matters of family planning ?(Tick all that pply)

[1] Discussing use [2] Financial support

[3] Moral support [4] Accompanying to place of uptake

3.2 If no, will you like your spouse to be involved in matters of family planning?

[1]Yes [2]No

3.3 If yes, how will you like him to be involved

[1] Discussing use [2] Financial support

[3]Moral support [4] Accompanying to place of uptake

[5] Others (specify)……..

Section 4: Health system factors

4.1 What is the approximate distance between your home and the nearest facility?

[1] Less than 1km [2] between 1-2km [3] between 3-5km [4]more than 5 km

4.2 Kindly rate the accessibility of family planning services

[1] Very accessible [2] Accessible [3] Less accessible [4]Not accessible at all

4.3 Kindly rate the availability of family planning services at the nearest facility?

[1] Easily available [2] moderately Available [3] Less available [4]Not available at all

4.4 Have you ever received any information about family planning

[1]Yes [2]No

4.5 If yes, what was the source of information regarding family planning?.....

[1] Radio/Television [2] Social media (facebook, whatsapp, tiktok)

[3] Community health promoters [4] Posters

[5]Health worker at the facility/Outreach facility [6] Friends/Relatives

[7] Religious meetings

4.6 How long do you think it can take one to receive a family planning service at the facility?

[1] 30 Min [2] 1 Hour [3] 2 Hours

[4] 3 or more Hours

4.7 How could you rate the attitude of health care provider(s) with respect to your past encounter?

[1] Good [2] Fair [3]Poor [4] Never had an encounter

4.8 Kindly rate the male friendliness of clinics offering family planning services?

[1]Very friendly [2] friendly [3]Less friendly [4] Not friendly at all

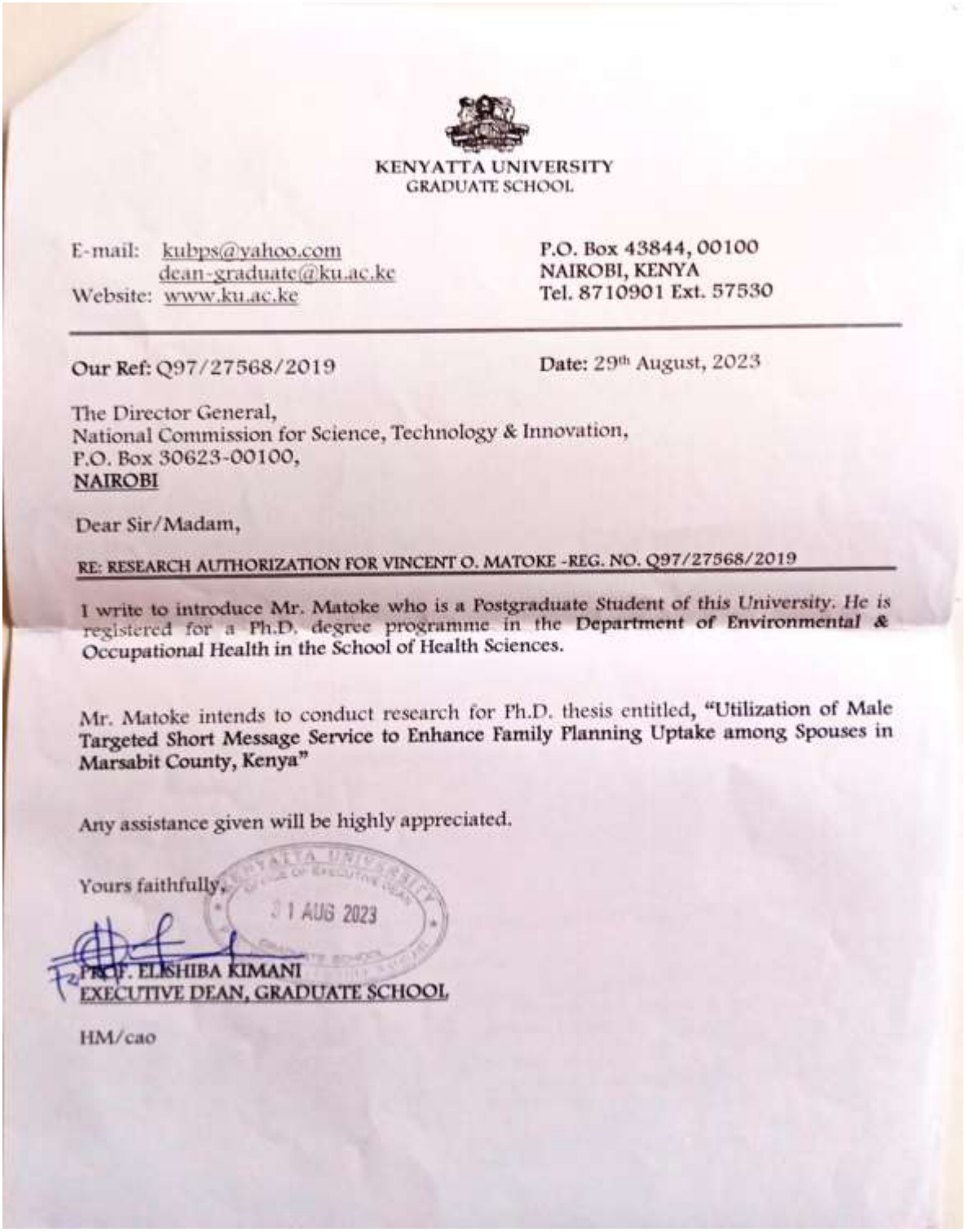
Thank you for your participation

Appendix IV: Key informant Guide

1. What can you say about the uptake of family planning in this place?
2. Do you think socio-demographic factors influence the rate of family planning uptake? If yes which are these demographic factors?
3. Do you think male's level of knowledge on family planning can influence uptake?
4. Do you the nature of attitude towards family planning can influence its uptake?
5. Do you think men should be involved in matters of family planning, if yes how?
6. Which health system factors hinder uptake of family planning services?
7. In your capacity, what do you think should be done to increase uptake of family planning services in this county?

END

Appendix V: Research authorization from Kenyatta University Graduate School



KENYATTA UNIVERSITY
GRADUATE SCHOOL

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

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: Q97/27568/2019

Date: 29th August, 2023

The Director General,
National Commission for Science, Technology & Innovation,
P.O. Box 30623-00100,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR VINCENT O. MATOKE -REG. NO. Q97/27568/2019

I write to introduce Mr. Matoke who is a Postgraduate Student of this University. He is registered for a Ph.D. degree programme in the Department of Environmental & Occupational Health in the School of Health Sciences.

Mr. Matoke intends to conduct research for Ph.D. thesis entitled, "Utilization of Male Targeted Short Message Service to Enhance Family Planning Uptake among Spouses in Marsabit County, Kenya"

Any assistance given will be highly appreciated.

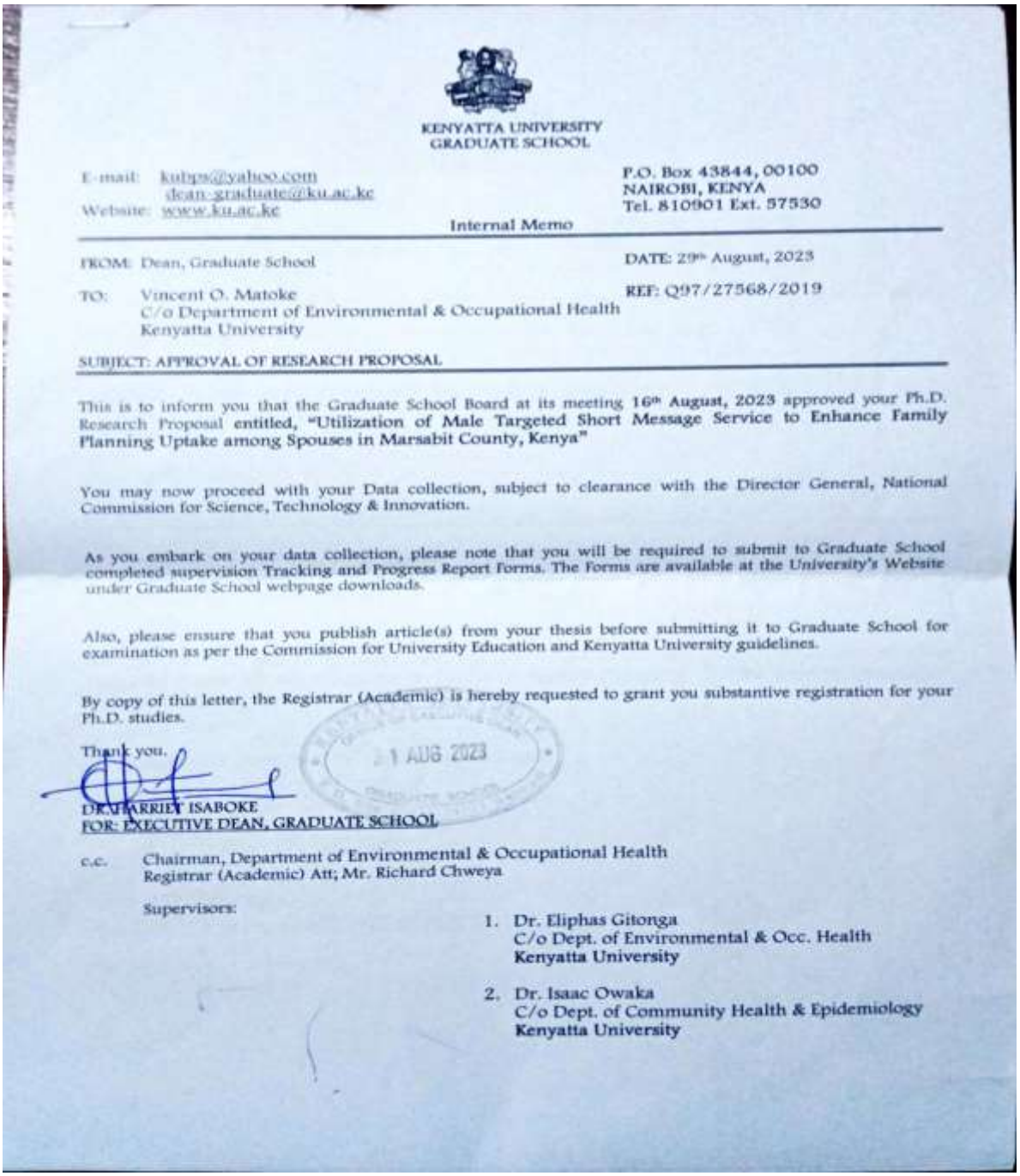
Yours faithfully,

31 AUG 2023

PROF. ELISHIBA KIMANI
EXECUTIVE DEAN, GRADUATE SCHOOL

HM/cao

Appendix VI: Research Approval from Kenyatta University Graduate School



KENYATTA UNIVERSITY
GRADUATE SCHOOL

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

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 29th August, 2023

REF: Q97/27568/2019

TO: Vincent O. Matoke
C/o Department of Environmental & Occupational Health
Kenyatta University

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that the Graduate School Board at its meeting 16th August, 2023 approved your Ph.D. Research Proposal entitled, "Utilization of Male Targeted Short Message Service to Enhance Family Planning Uptake among Spouses in Marsabit County, Kenya"

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

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. The Forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your thesis before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines.

By copy of this letter, the Registrar (Academic) is hereby requested to grant you substantive registration for your Ph.D. studies.

Thank you.

1 AUG 2023

DR. HARRIET ISABOKE
FOR: EXECUTIVE DEAN, GRADUATE SCHOOL

c.c. Chairman, Department of Environmental & Occupational Health
Registrar (Academic) Att; Mr. Richard Chweya

Supervisors:

1. Dr. Eliphas Gitonga
C/o Dept. of Environmental & Occ. Health
Kenyatta University

2. Dr. Isaac Owaka
C/o Dept. of Community Health & Epidemiology
Kenyatta University

Appendix VII: Ethical clearance from KU Ethics and Review Committee

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: 18th October, 2023

Vincent Omwenga Matoke
P.O Box 43844, 00100
Nairobi.

Dear Vincent,

APPLICATION NUMBER: PKU/2809/I1933- UTILIZATION OF MALE TARGETED SHORT MESSAGE SERVICE TO ENHANCE FAMILY PLANNING UPTAKE AMONG SPOUSES IN MARSABIT 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/2809/I1933.**The approval period is **18th/10/2023 to 18th /10/2024.**

This approval is subject to compliance with the following requirements;

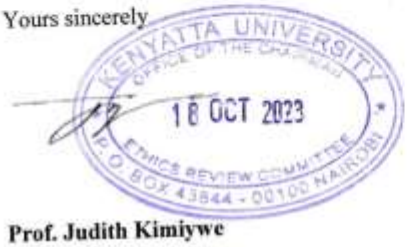
i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***
iii. Death and life threatening problems and serious 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



Prof. Judith Kimiywe

Director: Centre for Research Ethics and Safety

Appendix VIII: Research License from National Council for Science, Technology and Innovation

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 294978

Date of Issue: 26/October/2023

RESEARCH LICENSE

This is to Certify that Mr.: VINCENT OMWENGA MATOKE of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Marsabit on the topic: UTILIZATION OF MALE TARGETED SHORT MESSAGE SERVICE TO ENHANCE FAMILY PLANNING UPTAKE AMONG SPOUSES IN MARSABIT COUNTY, KENYA for the period ending : 26/October/2024.

License No: NACOSTI/P/23/30798

294978

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code

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

See overleaf for conditions

Appendix IX: Research authorization from Marsabit County

REPUBLIC OF KENYA
COUNTY GOVERNMENT OF MARSABIT
P.o Box 384-60500, Marsabit
DEPARTMENT OF HEALTH SERVICES

30/10/2023

Ref: MCG/DHS/ADM/23(10) VOL.II

To Whom it My Concern

Der Sr/Madam,

REF AUTHORIZATION TO CONDUCT RESEARCH AND DATA COLLECTION

This is to introduce Vincent Omwega of Kenyatta University, Vincent is currently a PHD student at Kenyatta University, He will be conducting research on **UTILIZATION OF MALE TARGETED SHORT MESSAGE SERVICE TO ENHANCE FAMILY PLANNING UPTAKE AMONG SPOUSES IN MARSABIT COUNTY. KENYA**

Please accord him necessary assistance and support.

Yours Faithfully

Dr Boru Ali

Ag County Director Health Services

COUNTY DIRECTOR O... HEALTH
30 OCT 2023
Bo...
MARSABIT COUNTY

Appendix X: MAP

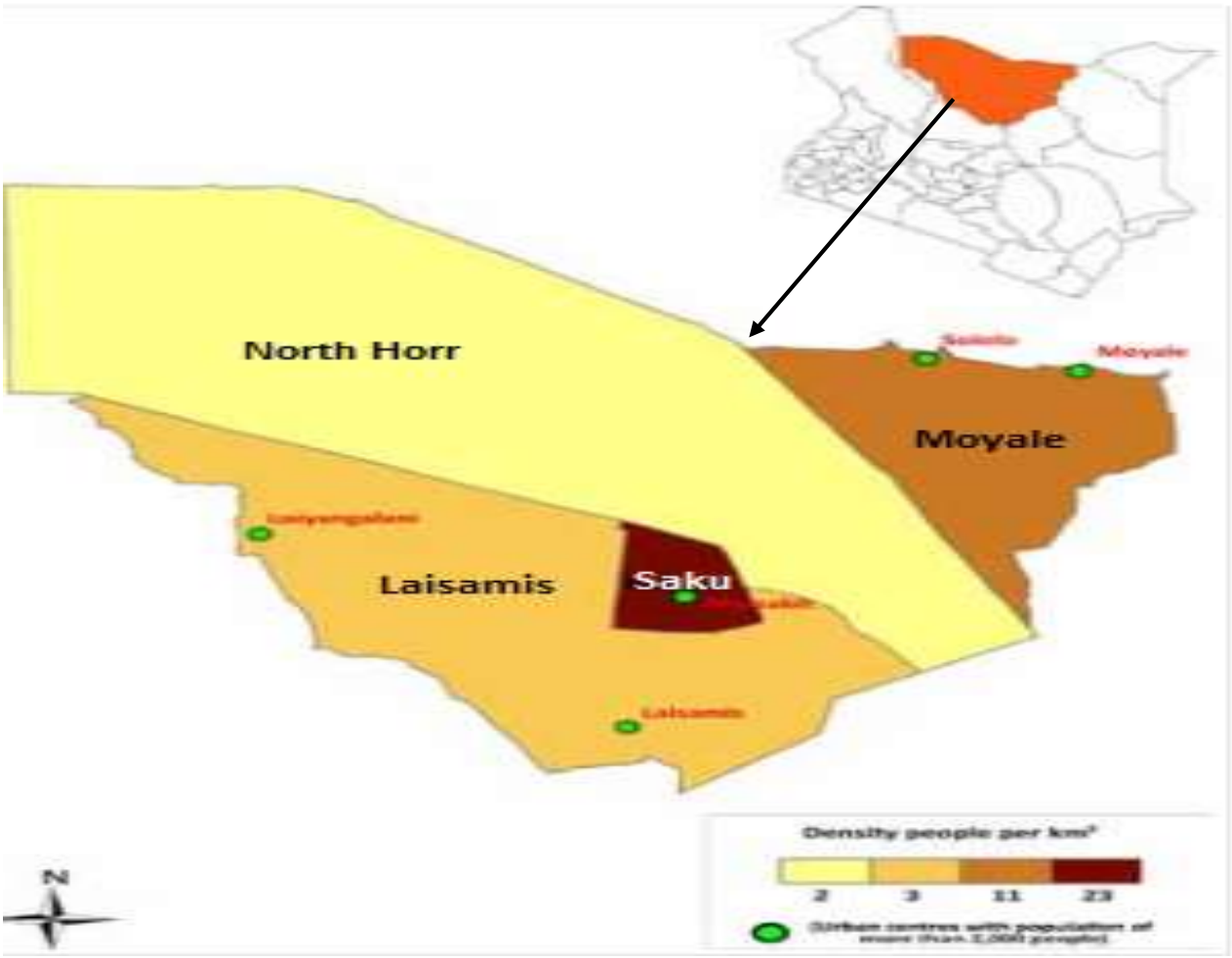


***Figure 3.2*: Map of Marsabit county showing the Moyale and Laisamis Sub-counties.**