UPTAKE OF SUB-DERMAL CONTRACEPTIVE IMPLANT IN THE IMMEDIATE POSTPARTUM PERIOD AT MOI TEACHING AND REFERRAL HOSPITAL

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SM/PGRH/03/10

This thesis is submitted to Moi University School of Medicine in partial fulfillment of the requirements for the award of the degree of Master of Medicine Reproductive Health.

DECLARATION

Declaration by the candidate

This thesis is my original work and has not been presented for a degree in any other University. No part of this thesis may be reproduced without the prior written permission of the author and/or Moi University.

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DEDICATION

I wish to dedicate this work to all those who work so hard to ensure that mothers have access to contraceptives throughout their reproductive years.

ABSTRACT

Background: Sub-dermal contraceptive implant is one of the safest and most effective contraceptive methods with the highest continuation rates; but its overall use is low at 0.3% globally and 1.3% in Kenya. In the postpartum period return to fertility is unpredictable and there is early return to sexual activity, yet the immediate postpartum period is a missed opportunity to offer the contraceptive implant, partly because only 4% of Kenyan women receive postnatal care.There is paucity of data on rates of uptakeof this method and factors which influence immediate postpartum uptake, both worldwide and in Kenya.

Objectives: To determine the proportion of women who adopt the sub-dermal contraceptive implant and the factors that influence its uptake in the immediate postpartum period at MTRH.

Methods: This was a descriptive cross-sectional study conducted among women who delivered at the MTRH's Riley Mother and Baby hospital. Eligible women in the immediate postpartum period were systematically sampled with every 4th and 4 per day recruited until the desired sample was reached. Data collection was performed between January and April 2014. Women who consented to participate in the study were counselled for all methods of contraception. The implant was inserted for all women who consented and the rest were referred to the family planning clinic.The Anderson model of health services utilization was used in relating factors affecting uptake. Data was collected using previously tested, structured interviewer-administered questionnaires and analysis was performed using STATA version 12 SE. Chi and t-test were used to determine associations among variables. Logistic regression at 5% alpha level was used to determine the relationship between variables and uptake of the sub-dermal contraceptive implant.

Results: Data was collected from 353 respondents. The mean age of respondents was 27 years (SD: 5 years), 92% (325) were Christians, 43% (152) had attained secondary level of education, 29% (102) said that trading was their main source of income, 74% (261) were married and 9% (31) were HIV-positive. The reported median desired number of children was 3 (IQR: 3-4) while 35% (124) had achieved their desired family size, 87% (306) had ever heard of contraceptive implant while 46% (161) had ever used it before the current pregnancy. Overall 44.6% (156) of women received the contraceptive implant. After logistic regression older women ($p=0.036$), those who had reached their desired family size ($p=0.003$), those who had planned for the current pregnancy ($p=0.027$), those who had used it before ($p<0.001$) and those who were HIV-positive ($p=0.001$) were more likely to use the sub-dermal contraceptive implant.

Conclusion: The uptake of sub-dermal contraceptive implant during the immediate post-partum period was higher (44.6%) than what is reported in previous Kenya based data (1.3%). Older age, achieved family size, previous use of the same method, HIV positivity and planned pregnancy positively affected uptake of this contraceptive method.

Recommendation: The sub-dermal contraceptive implant should be offered in the immediate postpartum period. Further studies are necessary to validate the findings and investigate the contribution of various factors on uptake of contraceptive implant immediately postpartum.

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LIST OF ABBREVIATIONS

ACOG	American College of Obstetricians and Gynaecologists
ANC	Antenatal Care
BTL	Bilateral Tubal Ligation
DHS	Demographic Health Surveys
FP	Family Planning
FSRH	Faculty of Sexual and Reproductive Healthcare
HIV	Human Immunodeficiency Syndrome
HTSP	Healthy Timing and Spacing of Pregnancy
IUDs	Intrauterine Devices
IQR	Inter-quartile Range
KNBS	Kenya National Bureau of Statistics
LAM	Lactational Amenorrhea
LARC	Long Acting Reversible Contraceptives
LAPM	Long Acting and Permanent Contraceptive Methods
MDGs	Millennium Development Goals
MTRH	Moi Teaching and Referral Hospital
OR	Odds Ratio
PMTCT	Prevention of Mother To Child Transmission
RMBH	Riley Mother and Baby Hospital
SPSS	Statistical Package for Social Sciences
SVD	Spontaneous Vaginal Delivery

UKMEC	United Kingdom Medical Eligibility Criteria
UN	United Nations
WHO	World Health Organization

DEFINITION OF TERMS

Contraceptive Implant is one or more small rods containing progestogen that are implanted under the skin of a woman's upper arm and release a steady dose of progestin thus preventing pregnancy

Immediate postpartum is the first two to six days after delivery or the period between delivery and discharge from the hospital

Maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (ICD-10).

Modern family planning methods include the pill, IUD, male and female condoms, implants, injectables, emergency hormonal contraception (EC), tubal ligation and vasectomy.

Postpartum Checkup is the health checkup by a trained health care provider, usually given to a woman six weeks after having a baby

Postpartum contraception is the initiation and use of a contraceptive method after childbirth or abortion, but before fertility returns.

Postpartum Period is the period of up to six weeks or 41 days after the birth of a child, when the woman’s uterus has largely returned to its pre-pregnancy state

Unmet contraceptive need is the proportion of fecund women who wish to space their next birth or to limit childbearing altogether but are not using contraception.

CHAPTER ONE

1.0 INTRODUCTION

1.1. Background of the study

Family planning (FP) and postpartum care are some of the core components of safe motherhood. FP can contribute to the reduction of poverty and hunger and would avert 32% of all maternal deaths and nearly 10% of childhood deaths, if it were available to all who wanted it when needed[1]. Thus, the need to mobilize resources for universal access to family planning to ensure that individuals everywhere have the information, the power, and the means to make their own decisions about how many children to have and when.

Pregnancy and delivery is still an important cause of mortality with an estimated 300,000 women dying every year as a result of pregnancy or delivery[2], yet many of these deaths are easily avoidable through simple proven strategies. Studies have shown that about 40% (70 million) of pregnancies in Sub-Saharan Africa are unintended (either unwanted or mistimed). Avoiding these pregnancies could result in a reduction of 150,000 maternal deaths every year, including over 50,000 deaths due to unsafe abortions[3], thus the need to advocate for FP to enable the achievement of Millennium Development Goal (MDG) 5 on improving maternal health.

Kenya has a population of 38,610,097 with a growth rate of 3%[4]. Every day approximately 3,000 children are born meaning that more than 1million people are added to the population yearly[4]. With the rapid population growth it is unlikely that the MDGs will be met and the country will be able to have sustainable economic development. Thus

it is imperative that the population growth rate is reduced to sustainable levels and this can only be achieved if people plan their families.

Among married women between the ages of 15 and 49 around the globe, 53 % use a modern contraceptive method. In Kenya, contraceptive prevalence rate stands at 46 % with 1.3 % using implants[5]. Family planning unmet need among married women aged 15-49 stands at 25% overall, while for HIV infected women it is 30-60%. Unplanned pregnancy rates are high - mistimed pregnancies at 26% and unwanted pregnancies at 17%. Consequently, Kenyans report an ideal family size that is smaller than the actual average family size[5].

According to an analysis of maternal deaths averted by contraceptive use in 172 countries, of 1.2 billion women of reproductive age who were married or sexually active, about 722 million were using contraception. The analysis estimated that contraceptive use averted 272,040 maternal deaths (uncertainty range 127,937–407,134) worldwide in 2008. Without contraceptive use, the number of maternal deaths would have been 1.8 times higher (equivalent to 614000 deaths) than with contraceptive use, meaning that contraceptive use averted 44.3% of maternal deaths (272,040 of 614,000) or 38 maternal deaths for every 100,000 reproductive-age women using contraceptive methods every year. In regions with high contraceptive prevalence rates (>65%), the proportion of maternal deaths averted was almost 60%. By contrast, in sub-Saharan Africa, only 22% of women who were married or sexually active were using contraception and only 32% of maternal deaths were averted by contraceptive use[6].

The maternal mortality ratio (MMR) for Kenya is 488/100,000 live births and 23% of infants are born less than 2 years after previous birth[5]. According to the estimates on the proportion of maternal deaths averted by contraceptive use, Kenya would avert 34.6% of maternal deaths[6], thus it would be possible for Kenya achieve MDG 5 leading to an improvement in the health of mothers and the community at large. Improving maternal health (MDG 5) has one of its targets as universal access to reproductive health whose indicators includes; increase of contraceptive prevalence and decrease of the unmet need for family planning[7]. Thus the need to assess the uptake of contraceptive implant by immediate postpartum women and factors that influence uptake to inform FP programs implementation.

1.2 Problem statement

Although widespread use of implants could substantially reduce the number of unintended pregnancies, abortions, and maternal deaths, worldwide use of implants is low. Among married women between the ages of 15 and 49 around the globe, 53 percent use a modern method of contraception but only 0.3 percent use implants[8].

In Kenya, only, 1.3 % of clients using a modern method of contraception use implant[5]. Data obtain from the MTRH records show that only 1.38% of clients seen in the family planning clinic used contraceptive implant during the extended post-partum period in the year 2011. Hence the study to establish the uptake of contraceptive implant in the immediate post-partum period and factors influencing uptake to inform program implementation so as to increase the contraceptive prevalence rate consequently improving maternal health.

1.3 Justification

Contraceptive implant is a long acting reversible contraception and is one of the most effective FP methods. With typical use, the pregnancy rate is 0.05% and it has the highest continuation rate of 84%[9]. It is safe in breastfeeding and is recommended for use in the immediate post-partum period as it offers immediate protection when inserted during this period[10]. Despite this knowledge contraceptive implant use in Kenya is low as only 2.6% of women have ever used implants and only 1.3% currently use implants[5]. Thus the Kenyan government has earmarked increasing uptake of LARC/permanent methods as a priority research area for 2010-2014.

It is also estimated that if just 100,000 (26 percent) of the nearly 400,000 oral contraceptive users in Kenya switched to implants, then more than 26,000 extra unintended pregnancies could be prevented within the same period and about 260 maternal deaths averted[11].

The immediate postpartum period could be considered as a missed opportunity for promoting birth spacing and reducing unintended pregnancies. This is because during this period most women are highly motivated to use contraception and the hospital setup is convenient for both the woman and the health care worker. In Kenya, nearly half (46%) of the population live below the poverty line and only 52% of Kenyans are within 5 kilometers of a functional health facility and 53% of women do not receive postnatal care after delivery. Only 4 percent receive postnatal care between 3 and 41 days after delivery[5]. Also the return to fertility is not predictable yet the return to sexual activity is early[9, 10]. Therefore the period after delivery and before discharge from hospital might

constitute an especially opportune time for health-care providers to promote the use of effective contraception postpartum.

In Moi Teaching and Referral Hospital (MTRH) there is little or no practice of immediate postpartum contraception and factors which influence this kind of intervention are yet to be determined. The period during and after pregnancy might be one of the only times that many women receive formal health care, it is important not to miss this opportunity to provide FP services. Hence the study to establish uptake of contraceptive implant and factors influencing uptake among immediate post partum women so as to inform institutional and national protocols on the practice of immediate post partum FP.

1.4 Research questions

1. What is the uptake of contraceptive implant in the immediate postpartum period at Moi Teaching and Referral Hospital (MTRH)?
2. What factors influence uptake of contraceptive implant in the immediate postpartum period at Moi Teaching and Referral Hospital?

1.5 Objectives

1.5.1 Broad objective

To determine uptake and the factors influencing the uptake of immediate postpartum contraceptive implant at the Moi Teaching and Referral hospital (MTRH)

1.5.2 Specific objectives

1. To determine the proportion of women who adopt immediate postpartum contraceptive implant at MTRH

2. To determine factors that influence uptake of immediate postpartum contraceptive implant at MTRH

1.6 Conceptual framework

The Andersen's behavioural model was used.

The Andersen's behavioural model commonly known as the health services utilization model is frequently used to analyze patient utilization of health care services. It was developed in the late 1960s by Andersen to assist the understanding of why families use health services[12]. The model proposes that an individual's access to and use of health services is a function of; the predisposition of an individual to use services (predisposing factors), factors that enable or impede use (enabling factors) and an individual's need for services (need factors). In the 1970's it was expanded to include the health care system which includes; health policy, resources and organization as well as changes in these over time[13].

In this study the model was used to assess the uptake of immediate post-partum contraceptive implant and other modern family planning methods and analyze factors that influence the uptake of immediate post-partum contraceptive implant.

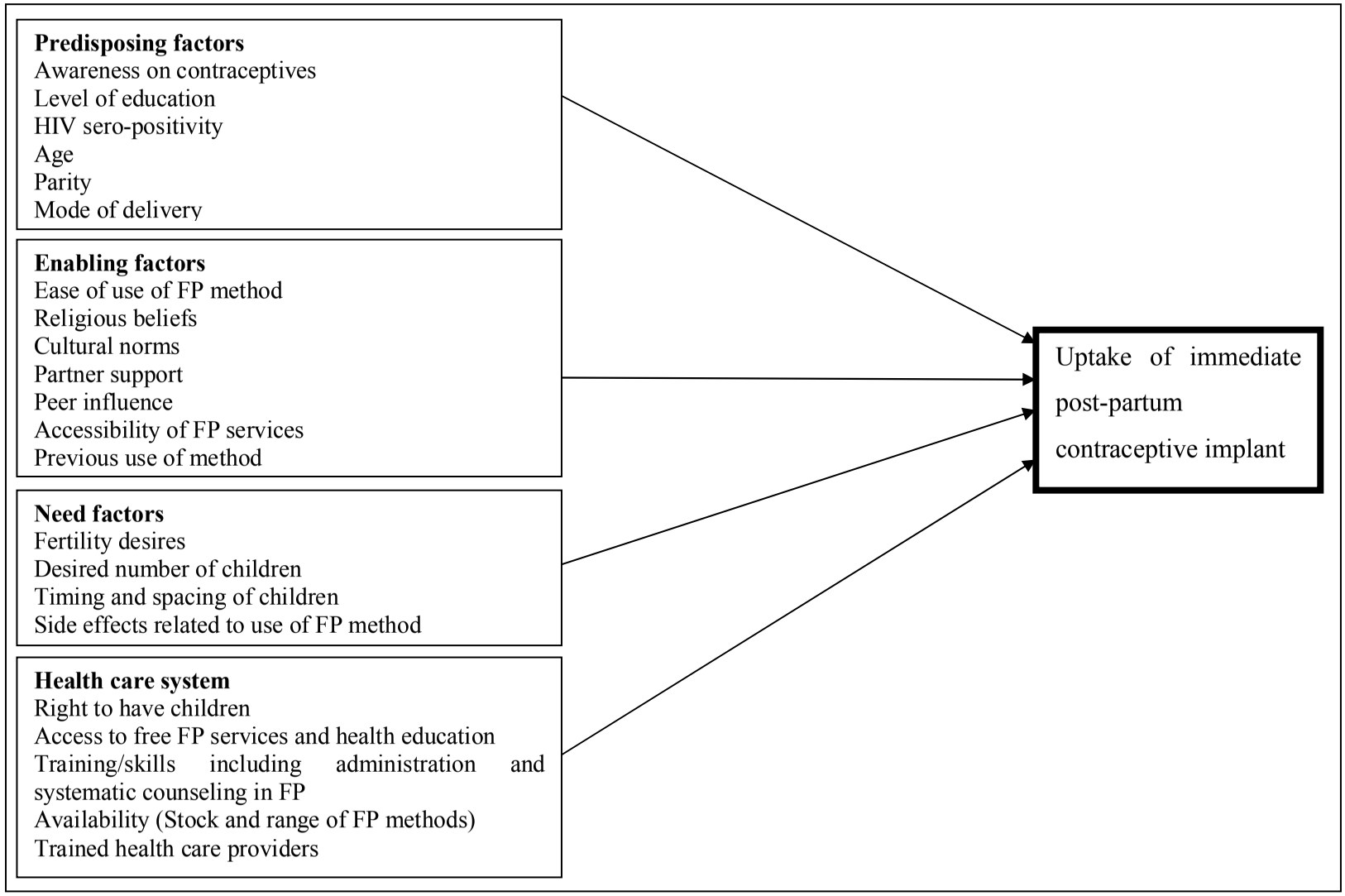

Figure 1: Conceptual framework on factors influencing uptake of immediate postpartum contraceptive implant

CHAPTER TWO

2.0 Literature review

2.1 Postpartum family planning

Globally, family planning (FP) is promoted to enable individuals and couples to choose when to have children (spacing) and the number of children to have (limits birth). It is based on demographic and health concerns and basic respect for human rights of individuals. Family planning programs recognize the importance of family planning in the postpartum period for several reasons which include factors associated with the return of fertility and pregnancy risk, short birth intervals, risk periods for mothers and babies and the concept of unmet need for contraception.

Family planning is a proven and cost-effective health intervention. A report by three United Nations agencies and the World Bank suggests that family planning has been a contributor to halving the number of maternal deaths worldwide between 1990 and 2010[50]. For example, East Asia which has made the greatest progress in preventing maternal deaths has a contraceptive prevalence rate of 84% while Sub-Saharan Africa, which has the highest rates of maternal death, has a contraceptive prevalence rate of 22%[1] indicating that family planning does indeed contribute to reduction of maternal mortality thus improving maternal health.

Research indicates that promotion of family planning in countries with high birth rates has the potential to reduce poverty and hunger and avert 32% of all maternal deaths and nearly 10% of childhood deaths[1], contribute substantially to women's empowerment,

achievement of universal primary schooling, and long-term environmental sustainability[14] leading to improved quality of life for the entire community.

With the current levels of modern contraceptive use 188 million unintended pregnancies would be prevented resulting in 112 million fewer abortions, 1.1 million fewer newborn deaths and 150,000 fewer maternal deaths averted yearly. If the unmet need for modern methods was fully satisfied, an additional 53 million unintended pregnancies would be averted each year, resulting in 22 million fewer unplanned births, 25 million fewer induced abortions and seven million fewer miscarriages. The immediate health benefits of averting these unintended pregnancies would be substantial as each year, an additional 90,000 women's lives would be saved and 590,000 newborn deaths would be averted[15].

Studies have shown that breastfeeding women are unlikely to conceive before 6 weeks postpartum but a recent US-based study demonstrated that 8% of newly postpartum women who were planning to breastfeed at the time of their discharge from the hospital never initiated breastfeeding, and another 22% discontinued breastfeeding before the sixth week[16]. Thus, early contraception in the postpartum period may be necessary to avoid unintended pregnancies and the health risks associated with unplanned pregnancy as empirical studies have argued that the risk of unwanted pregnancies and unmet need during this period is high.[5]

Contraception is critical for postpartum women not only for the women's health but also for the health of the children. In a study on family planning; the unfinished agenda *Cleland et al* calculated that eliminating inter-birth intervals of less than two years through using effective postpartum family planning could decrease nearly 10% of under-

five deaths annually[14]. In another study, it was estimated that between 25% and 40% of maternal deaths could be avoided if unplanned and unwanted pregnancies were prevented[17].

The risk of unwanted pregnancy is high during the year following the birth of a child[18] thus it is important to provide contraception for postpartum women since evidence shows that unmet need is extremely high during this period. Data analysis across twenty seven countries using the 1993 Demographic Health Survey concluded that two-thirds of women who were within one year of their last birth had an unmet need of contraception and nearly 40% of all women who were within one year of their last birth said that while they are not currently doing so, they planned to use a method in the next twelve months[19]. Postpartum contraception is not only determined by demographic and socio economic characteristics, but also the length and intensity of breastfeeding, postpartum abstinence and postpartum amenorrhea among many factors[18].

Postpartum family planning programs have the potential to affect the timing of pregnancies which would result in optimum birth intervals. In order to reduce the risk of adverse maternal, perinatal and infant outcomes it is recommended that the interval between a live birth and an attempt at the next pregnancy should be 24 months[20]. Demographic and Health Survey (DHS) data analysis from 17 developing countries found that the risk of the newborn and infant dying decreases with increasing birth interval lengths up to 36 months[21]. In addition, short birth intervals (<24 months) also have a potential effect on the increased risk of maternal death and complications of pregnancies[22]. Another study in Matlab, Bangladesh also found that women with short

birth intervals have a considerably higher risk of the incidence of preeclampsia and high blood pressure compared to those with an interval of 27-50 months[23].

The period immediately postpartum is particularly favourable for insertion of IUD or Implant. It is presumed that women who have recently given birth are often highly motivated to use contraception, they are known not to be pregnant and the hospital setting offers convenience for both patient and healthcare provider. In addition women are at risk of unintended pregnancies in the period immediately after delivery as shown by a study in which women were instructed to abstain from sexual intercourse until six weeks postpartum but 45% of the participants reported unprotected sex before that time[9].

After childbirth a woman has special needs, which include the challenge of caring for her newborn, recovery from pregnancy and delivery, and the desire to space or limit childbirth. In spite of these specific needs, little attention is paid to postpartum contraception. Thus the provision of quality family planning services in the immediate postpartum period should be considered to meet the contraceptive needs of postpartum women so as to reduce maternal and child mortality and morbidity, as well as prevent the risk of unwanted pregnancies and unsafe abortion.

Long-acting reversible contraceptive (LARC) is the name given to methods with long duration of action and without the need for active adherence once initiated. They include intrauterine devices (IUDs) and contraceptive implant. Unlike other user-dependent methods including pills, patch, ring, condoms, and injections LARC methods only require intervention to discontinue. They are characterized by low failure and high continuation rates, earning them a position at the top tier of contraceptive methods; side

by side with sterilization[24]. They hold great promise in the United States and globally to reduce unintended pregnancy. Although oral contraceptives and condoms are the most commonly used reversible contraceptive methods, their effectiveness is limited by their relatively high failure and low continuation rates in typical use. Many unintended pregnancies occur in women who use these methods inconsistently, incorrectly or both which are problems that can be overcome by the use of long-acting reversible contraceptives.

Women who have recently given birth need augmented attention from family planning and reproductive health programs if they are to reduce their numbers of unwanted births, abortions and to lengthen subsequent birth intervals. Prenatal visits, delivery services and subsequent health system contacts are promising avenues for reaching postpartum women with an unmet need for and a desire to use family planning services. Providing family planning services in the immediate postpartum period can be more cost-effective than providing them after the six-week post-delivery period since mothers will get delivery and FP services at the same point saving on costs incurred for transport and time spent seeking services.

2.2 Contraceptive implant

WHO recommends progestogen only contraceptives as one of the few types of methods that is widely available and accessible to breastfeeding women[25]. UK Medical eligibility criteria for progestogen only implant use, generally places postpartum use at category 1 and the American College of Obstetricians and Gynecologists places it in category 2[9, 10].

Contraceptive implants are flexible, hormone-releasing rods made of medical-grade silicon. They consist of small, thin, flexible plastic rods, each about the size of a matchstick, that release a progestin hormone into the body. They are inserted under the skin of a woman's upper arm, are a safe, acceptable, effective, and reversible form of contraception. Implants prevent pregnancy for an extended period after a single administration thus they do not require regular action by the user or routine clinical follow-up except when the user experiences adverse side effects or removal. The most common types include Implanon (one rod, effective for three years); Jadelle (two rods, effective for five years); and Sino-implant (II), which is currently marketed as Zarin in much of Africa (two rods, effective for at least four years). Although implants were developed more than 25 years ago, they remain one of the least widely available methods. Contraceptive implants are one of the most effective contraceptive methods. In three years of Implanon use, less than one pregnancy per 100 users can be expected. For Jadelle, the cumulative pregnancy rate at the end of five years is 1.1 per 100 users. For Sino-implant (II), the cumulative pregnancy rate at the end of four years is 0.9-1.06 percent[15]. These efficacy rates are comparable to those of other long-acting and permanent methods, including the IUD and female and male sterilization. The contraceptive effect of implants ends immediately after removal and fertility returns rapidly. In general, long-acting methods, including implants, are more effective in practice than shorter acting methods, including oral contraceptives and injectables, because compliance and continuation rates are higher with methods that do not require regular action by the user.

Implants are generally safe for use by many women, including lactating mothers, HIV-positive women, women who smoke cigarettes, women over the age of 35, post abortion women, diabetic women, women at risk for cardiovascular disease (including those with high blood pressure) and adolescents. Studies have also shown that use of implants has no impact on breast-feeding or the healthy development of breast-fed babies[24].

In a study titled lactogenesis after early postpartum use of the contraceptive implant: a randomized controlled trial showed that early (1-3 days postpartum) insertion of the etonogestrel implant does not affect lactogenesis, and fosters contraceptive compliance. It also showed that 13% of the women in the standard group (4 to 8 weeks postpartum) were not using any birth control thus putting them at an increased risk of getting an unintended pregnancy[26].

Contraceptive implants are inserted and removed by a trained provider hence users rarely experience complications during insertion and removal[27]. Thus it is important to utilize services of skilled providers available during the immediate postpartum period before the woman leaves the hospital. Compared to nonusers, users of implants could have reduced risk of ectopic pregnancies and pelvic inflammatory disease (PID). In some women, implants might help alleviate iron-deficiency anemia through reduced menstrual bleeding. Implanon might also help with dysmenorrhea and can help treat symptomatic endometriosis[28, 29, 30, 31].

Studies also indicate that implants appear to have a very low metabolic effect and they have no negative effect in healthy women on bone mineral density; blood pressure; or

liver, kidney, or thyroid function[32, 33, 34]. While another study revealed that Implanon did not increase cardiovascular risk factors among healthy women[35].

Side effects that can be attributed to implant use include; menstrual disturbances, weight gain, vaginitis, acne, breast pain, headache, abdominal pain, ovarian cysts (which typically resolve spontaneously), and mood changes. Fortunately the hormone does not remain in the body after discontinuation, so side effects usually resolve quickly after removal of the implant[36]. However, with prior adequate counseling on expected side effects discontinuation rates due to side effects are reduced.

Despite a high incidence of adverse menstrual events when using implants, overall levels of user satisfaction are high. Clients are satisfied with them because they are convenient to use, long-lasting and highly effective as they prevent pregnancy for an extended period after a single administration. Also no regular action needs to be taken by the user and no routine clinical follow-up are required[27]. Furthermore, implants have higher continuation rates than most other reversible methods with a recent Cochrane review indicating that implants have continuation rates as high as 82 percent after two years[37].

Users' attitudes about side effects are strongly influenced by the quality of information and counseling provided. Evidence indicates that proper pre-insertion counseling can help women accept side effects and as a result, can reduce their early discontinuation of the method[38]. Providers should address not only menstrual disturbances but also the possibility of infection at the insertion site, the fact that implants do not protect against HIV or other STIs, and other contraceptive options.

2.3 Factors influencing uptake of contraceptive implant

Although it could be reasonably assumed that decreasing the distance women have to travel to access family planning services would increase use of such services research suggests that this is not the only important factor. Evidence suggests that access to services involves more than just the distance that individuals have to travel to reach their nearest family planning facility (geographical/physical accessibility), it can also include economic accessibility (whether the price of travel to nearest facility or of contraceptives is affordable), administrative accessibility (whether unnecessary rules inhibit use of services e.g. restrictive opening hours), cognitive accessibility (whether individuals know about the services) and psychosocial accessibility (whether clients are constrained by psychosocial factors, such as perceived stigma in accessing services)[39].

Women who received family planning advice during prenatal care were more likely to use a contraceptive postpartum than were those who did not (OR, 2.2). Women living in communities with high quality care were more likely to use a method than were those in communities with lower quality of care (OR 1.4). In addition, women who had a higher number of prenatal visits were more likely than those with fewer prenatal visits to use contraceptives; in absolute terms, the effect is equivalent to a 4% increase in odds with each additional visit. Institutional delivery was an important predictor. Women delivering in government or private facilities were more likely to use a contraceptive postpartum than were women who delivered at home (OR 1.9–3.1). As expected, the odds of contraceptive use were positively associated with household wealth (OR 1.3), being married (OR 1.9) and older age of infant (OR 1.1)[40].

Another study also indicates that women who had antenatal counseling were significantly more likely to use contraceptives than those who did not have counseling (OR 0.29; 95% CI 0.14–0.59; *P*=0.0002). Also, women who had postnatal counseling were significantly more likely to use contraception than those who did not (OR 0.18; 95% CI 0.08–0.38; *P*= 0.0002). Other variables significantly associated with contraceptive use were parity (*P* 0.0231), infant feeding method (*P*= 0.0116), and reproductive goal (*P*= 0.0303) while women who had tertiary education were significantly more likely to use contraception than those who had less education (OR 0.54; 95% CI 0.28– 1.04; *P*= 0.0470)[41].

A study on the intended use of contraceptives showed that the prevalence of previous contraceptive use was 35.5% and 54% of the respondents intended to use contraceptive. Advanced age and high parity significantly predicted intention to use postpartum contraceptives (P = 0.02 and 0.01, respectively). Also high level of respondent's education and family planning counseling by doctors and nurses increased the intention to use postpartum contraceptives (P = 0.03 and 0.01, respectively)[42].

The demand for contraception fluctuates over the course of a woman's reproductive life therefore the timing of service delivery must be considered as part of any integration effort. The postpartum period is particularly important because appropriate birth spacing can improve maternal and infant health. Moreover, the demand for effective contraception may be high immediately after delivery as previous cross-sectional studies report positive associations between maternal and child health service use and subsequent contraceptive use[22]. In addition, prenatal services offer the opportunity to reach women who would be the primary target of family planning services.

Studies have shown that making contraceptive methods available in the postpartum period leads to higher contraceptive prevalence rates. A study in Peru compared a cohort of women who were offered counseling and temporary methods, including the intrauterine device (IUD), in one ward at a hospital in Peru with a cohort of women in a different ward who were discharged without being offered comparable services. Six months after delivery, 82 percent of the women who were offered methods were using one, with 40 per cent using the IUD. By comparison, 69 percent of women who had not been offered the methods were using one, with 27 percent using an IUD[43].

Half of married women worldwide now use a modern method of contraception, but globally 200 million women still have an "unmet need" — they would like either to stop having children or delay their next birth for at least two years, but are not using an effective contraceptive method. Unmet need is fueled by lack of information, fear of social disapproval or a husband's opposition, and concern for contraceptive side-effects or impacts on health. Unmet need can be considerably reduced by expanding access to methods that are currently underutilized and by assuring clients that a variety of modern methods are available to meet their diverse needs[44].

Using the 2003 Egypt Demographic Health Survey, Afifi assessed the association of exclusive breastfeeding and amenorrhea with the use of modern contraceptive methods among nursing mothers of children under two years old. It was found that amenorrhea, exclusive breast feeding, and having a wanted child decreased the likelihood of modern contraceptive use, whereas higher education, urban residence, and a positive attitude towards contraception increased its likelihood[45]. Other DHS analyses in Kenya,

Indonesia, the Dominican Republic and Peru have demonstrated that the likelihood of initiating postpartum contraception increased with exposure to the media, level of education, wealth status and the place of delivery[18]. The result of a field study in a rural district of Thanh Hoa, a province located in North Central Vietnam, found that age, sufficient knowledge on contraceptives, and husband/partner opinion can significantly affect the contraception decision[46].

In many parts of the world, women and girls often fear punishment—including violence by their partners or families—or stigma, if they try to use contraceptives. Many do not have money to pay for family planning services or for transportation to reach these services, or are unable to take time away from their families, work, or school to use these services, even when they are available[1]. These obstacles must be overcome if the contraceptive needs of women are to be met.

In another study the reasons given by married women for not using long acting and permanent contraceptive methods (LAPM) included; the use of another method of contraceptive (93.3%), developing side effects (3.9%), not allowed by husband (1.6%), medical problem 11.4% and the non availability of service (1.3%)[47]. Another study indicated that the reasons for non-contraceptive use included personal objection, which was related to issues of acceptability such as: medical concerns of side effects (15.1%), psychological concern of future fertility (10.2%) [41].

The period during and after pregnancy might be the only time that many women receive formal health care, it is important not to miss this opportunity to provide FP service so as

to widen access and improve the availability and utilization of trained health professionals for family planning during the postpartum period.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study population

Women who had delivered at the MTRH's Riley Mother and Baby hospital during the study period

3.2 Study area

The study was undertaken at the Riley Mother and Baby hospital (RMBH) at the Moi Teaching and Referral hospital (MTRH). MTRH is Kenya's second national teaching and referral hospital and is located in the town of Eldoret, Uasin Gishu County in the North Rift Area of Western Kenya with a catchment population of approximately 20 million. RMBH is a unit which offers maternity and neonatal care services. RMBH has a bed capacity of 115 with bed occupancy of 130%. It serves approximately 2,500 patients per month with an average of 1,000 deliveries per month.

3.3 Study design

This was a descriptive cross-sectional study. The design was used since the aim of the study was to determine the uptake and factors influencing uptake of immediate postpartum contraceptive implant and the women were interviewed at a point in time with no further follow up.

3.4 Sample population and sampling technique

The sample population was women who had delivered at the RMBH and were eligible for immediate postpartum contraceptive. Data collection was undertaken over a period of 4 months [88 days (weekdays only)].

The calculated sample size was divided by the number of days data was to be collected i.e. (350/88 days) so as to determine the number of respondents to be interviewed per day which was approximately four (4) respondents per day. Then using the delivery register at the RMBH, mothers who met the inclusion criteria were assigned numbers from number one to the highest possible number as per the number of deliveries for that day. The researcher then picked four numbers randomly from the prepared list. The mothers whose names corresponded with the selected numbers were interviewed after giving consent. In case a client declined to participate, the researcher selected an equal number of participants from the already prepared list as replacements. The procedure was repeated for each day of data collection.

3.5 Sample size calculation

The Fisher's formula was used in sample size determination i.e.

$$n = \frac{Z_{\alpha}^{2} PQ}{d^{2}}$$

Where

- **n** is the sample size
- $\mathbf{Z_{\alpha}}$ is the normal variate associated significance level α at 95%
- **P** is population (estimated) proportion [This was taken as 39% which is the contraceptive prevalence rate for any modern method in Kenya for women of reproductive age] [5].
- **Q = 1-P**
- **d** is the required level of precision / discrepancy at 0.05

Therefore the sample size was;

$$n = 1.96^2 (0.39) (1-0.39)/0.05^2$$

$$n = 366$$

But the number of deliveries at the Riley mother and baby hospital (RMBH) in 2011 was 7890 which was less than 10,000; hence the number of women studied was;

$$nf= (n*N)/ (n+ N)$$

Where:

- **nf:** desired sample size when the population is less than 10,000
- **n:** is the sample size when the population is more than 10,000
- **N:** is the estimate population size.

Therefore

$$nf= (366*7890)/ (366+7890)$$

$$nf= 350.$$

3.6 Data collection instruments

Data was collected using structured, interviewer-administered questionnaires. The questionnaire was translated into Kiswahili and back to English to check for consistency of the questions.

3.7 Data collection procedures

Data was collected using pre-tested structured, interviewer-administered questionnaires which collected data on social demographic characteristics, factors affecting uptake and choice of family planning method.

One research assistant was recruited. He was a qualified clinical officer who had been trained on contraceptive implant insertion and removal. He was trained and informed about the purpose of the study and was involved in the pilot study and worked under the supervision of the researcher. A room was identified in the RMBH where counseling and implant insertion took place. Data was collected after the client had received the service they came for (delivery). Immediate postpartum women (up to 6 days postpartum) who gave consent to participate in the study were interviewed using the structured questionnaire.

After the interview they were counseled on various contraceptive methods with an emphasis on the advantages and disadvantages of contraceptive implant. Those who accepted to be given the implant were given the implant with documentation of why they chose to use the method. Depending on the fertility desires of each respondent they were offered either Implanon or Jadelle. Infection prevention measures were observed during the procedure.

Mothers were then counseled on wound care, signs of local infection and informed to go to the nearest health facility for routine post natal checks. They were then given the number of the researcher which they could call in case of any side effects. Those who refused the implant gave the reasons for refusal which were documented and they were asked which method they intended to use in future and it was documented. They were then referred to the family planning clinic where they could be given their method of choice.

3.8 Data analysis

The questionnaires were checked for completeness at the end of each data collection session to ensure that all sections were correctly filled. The data was then coded and entered into the computer in a database designed in SPSS version 16.0 for windows. Data analysis was done using STATA version 12 SE. Categorical variables were summarized as frequencies and the corresponding percentages. Continuous variables that assumed the Gaussian distribution were summarized as the mean and the standard deviation (SD) while the variables that violated the assumptions of normality were summarized as the median and the corresponding inter quartile range (IQR). Normality assumptions were assessed using Shapiro Wilks, and Shapiro francia tests for normality. The association between categorical variables was assessed used Pearson's Chi Square test. The Fisher's exact P value was reported whenever the expected cell count of at least one cell in created 2x2 tables was less than 5. The association between the binary variables and the continuous variables was assessed using the two-sample t-test if the continuous variable was normally distributed. If the continuous variable was skewed the two-sample Wilcoxon rank sum test was used.

3.9 Data presentation

Data is presented using descriptions, tables, graphs and charts.

3.10 Inclusion criteria and exclusion criteria

Immediate postpartum women (up to 6 days postpartum) admitted in the Riley Mother and Baby Hospital (RMBH) during the study period irrespective of mode of delivery.

Exclusion criteria

Severely ill patients who are unable to give informed consent

Mentally ill women as they are unable to give informed consent

Women with the following conditions in which contraceptive implant is contraindicated;

- ❖ serious liver disease such as liver tumours, severe cirrhosis or active hepatitis
- ❖ women who have breast cancer currently or in the past

3.11 Pilot study

This was undertaken at the MTRH - RMBH before the main study so as to enable the researcher identify logistical issues that may face the main study. Thirty five (35) respondents were interviewed and those who chose the contraceptive implant, it was provided as per the main study while those who chose any other method were referred to the family planning clinic. The pilot study results showed a likely demand for the contraceptive implant which enabled planning to ensure availability of adequate supply of the implants. It also enabled the identification of the room, equipments and supplies that would be used during the main study.

3.12 Dissemination of findings

Findings will be disseminated through presentations during thesis defense, availing a copy of the thesis in the departmental library for reference purposes, presentation in scientific conferences, and publication in local and international journals. Feedback will be provided to, MTRH management, the department of reproductive health at MTRH and Moi University, County Health Department, Ministry of Health and other relevant stakeholders.

3.13 Ethical consideration

Voluntary participation – respondents were not coerced into participating in the study and they could freely withdraw at any time during the interview.

Informed consent – respondents were informed about the aim of the study and those who accept to participate in the study gave written consent. Those who chose contraceptive implant were informed of the possible side effects before insertion and for those who still wanted the contraceptive implant still it was then inserted.

Confidentiality – it was maintained by ensuring that raw data was handled by research assistant and the researcher alone and no identifying information was included on the questionnaires. A private room was identified to offer the FP counseling and contraceptive implant. Data was entered in a password-protected computer. All completed forms were kept in a secure locked up safe in a locked room that is accessible only to the research assistant and the researcher.

Every eligible person had an equal chance of participating in the study.

Approval – this was sought from IREC, permission was also sought from the MTRH management and the department of reproductive health.

3.14 Study limitation

This study was facility based and conducted among 353 women only hence it might be difficult to extrapolate to other populations of post partum women.

4.0 RESULTS

4.1 Social demographic characteristics

A total of 353 participants had their data included for analysis. Their mean age in years was 27 (SD: 5) years with a minimum of 15 years and a maximum of 40 years. Three hundred and twenty five (92.1%) of the participants were Christians while 261 (73.9%) were married. Most of the participants 152 (43.1%) had attained secondary level of education as shown in table 1.

Table 1: Social demographic characteristics

Characteristic	Frequency (%)
Religion	
Christian	325 (92.1)
Islam	27 (7.6)
Other	1 (0.3)
Marital status	
Single	71 (20.1)
Married	261 (73.9)
Widowed	12 (3.4)
Divorced/separated	9 (2.6)
Level of education	
None	9 (2.5)
Primary	74 (21.0)
Secondary	152 (43.1)
Tertiary	118 (33.4)
Main source of income (n=349)	
Trading	102 (29.2)
Salaried employment	72 (20.6)
Casual employment	64 (18.3)
Farming	64 (18.3)
Other	47 (13.5)

Two hundred and eighty one (80.3%) said that they worked outside the home to earn money. Trading was the main source of income for 102 (29.2%) of the women with the average monthly income of the women being Kshs. 12,000 (IQR: 5,000 – 20,000).

Table 2: Summary of pregnancy related characteristics

Variable	**Sample size**		**Median (IQR)**
Times pregnant	352		2 (1-3)
Number of children	352		2 (1-3)
Number of boys	338		1 (1-2)
Number of girls	318		1 (0-2)
Number of children desired	347		3 (3-4)
Variable	**Sample size**	**Levels**	**N (%)**
When to have next child	353	< 1 year	13 (4%)
		2 years	58 (16%)
		>2 years	158 (45%)
		Never	124 (35%)
Mode of delivery for the current child	353	SVD	256 (73%)
		CS	97 (27%)
Pregnancy outcome	349	Live birth	328 (94%)
		Still birth	21 (6%)

The participants have been pregnant for a median of 2 (IQR: 1-3) times. However the distribution of this shows that 276 (90.5%) participants reported that they have never miscarried, 24 (7.9%) have had one miscarriage, 4 (1.3%) have had two miscarriages, and 1(0.3%) had had six miscarriages. The median number of children per participant was

2(IQR: 1-3). Stratified by gender, the median number of boys was 1 (IQR: 1-2) while the median number of girls was 1 (IQR: 0-2) as shown in table 2.

The participants desire a median number of 3 (IQR: 3-4) children and majority of them would wish to have the next child in the next 2 years (Table 2). 124 (35%) of the participants don't want to have another child. The results show that those participants who no longer wish to have another child have a median number of children of 3 (IQR: 2-4) while the median number of children for those who still desire to have children was 3 (IQR: 3-4). The test for differences in the number of children for those who no longer wish to have and those who still desire a child was not statistically significant, P=0.788.

The mode of delivery for most of the participants was normal (SVD), 256 (73%) and the outcome of the pregnancy was live birth for 328 (94%) of all the 349 participants who responded to this question.

4.2 Uptake of immediate postpartum contraceptive implant

Among the 350 respondents who answered the question on whether they would like to get contraceptive implant before leaving the hospital, 156 (44.6%) said they wanted to get the implant and it was inserted before discharge from hospital. Some of the reasons they gave for using contraceptive implant included; it was easy to use 81 (23%), partner support 104 (30%), peer influence 91 (26%), accessibility 42 (12%) and previous use 19 (5%).

Those who did not want to use contraceptive implant would have liked other family planning methods including; pills 27 (14%), injectables 77 (39%), intrauterine devices 23 (12%), BTL 10 (5%), LAM 13 (6%) and natural method 27 (14%). Twenty (10%) of the

respondents reported that they did not intend to use any family planning method as shown in Fig. 2 below;

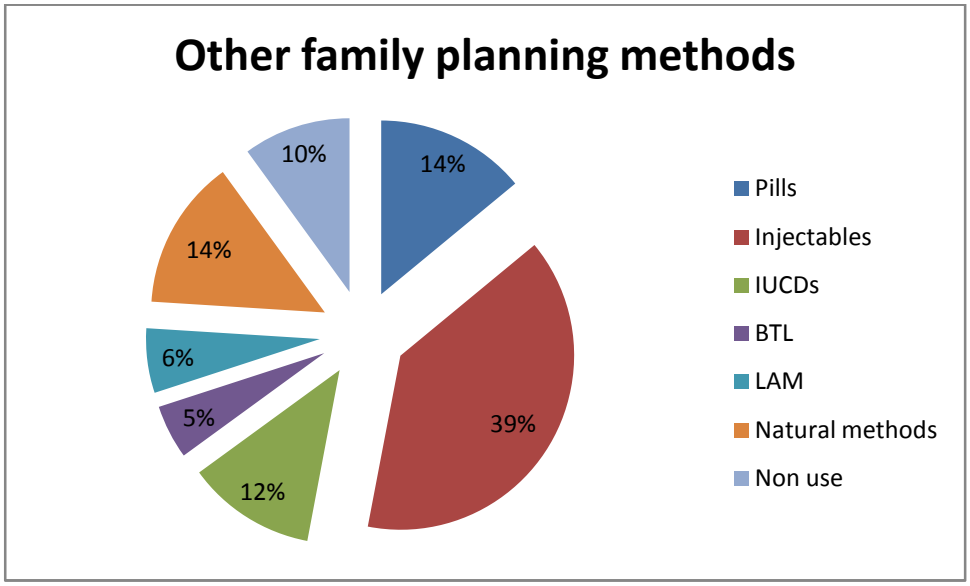

Figure 2: The other family planning methods the respondents intended to use

Almost all the participants, 342 (97%) were aware of family planning and 301(86%) said that family planning is practiced in order to help in the spacing of children. 260 (74%) of the participants reported that they had planned for the current pregnancy while 93 (26%) said their pregnancy was unplanned. 327(93%) of the participants intend to use some family planning method in the next 12 months with 201(57%) planning to do family planning before six weeks postpartum.

Most of the participants 306 (87%) had ever heard of contraceptive implant while 161 (46%) had ever used it before the current pregnancy. 195 (55%) said they would get the contraceptive implant from hospital, 104 (29%) from health centres, 33 (9%) private clinics with 3 (0.9%) reporting that they did not know where to get the contraceptive implant.

Among those who responded to the question on HIV status (n=345), 31 (9%) said they were HIV positive while 314 (91%) were HIV negative.

4.3 Factors influencing uptake of contraceptive implant

The results show that contraceptive implant uptake was high among the married compared to the single, widowed, separated or divorced, P=0.008. This indicates that those who were married were more likely to use contraceptive implant compared to those who were not married as shown in table 3.

There was no association between level of education (p=0.936), being employed or self employed (p=0.378) and uptake of contraceptive.

Those who would use contraceptive implant were significantly older than those who would not use, mean age 27 (SD: 5) vs. 26 (SD: 5), P=0.036. The median average income was not significantly different between the two groups, P=0.320. However, those who were willing to use contraceptive implant had higher median average income 15000 (IQR: 5000-21000) compared to those who were not yet ready to use contraceptive implant, median average income: 10000 (IQR: 5000-20000).

The participants who reported that they never wanted to have other children were more likely to use contraceptive implant compared to those who wanted another child after two years (p=0.003).

Table 3: Association between contraceptive implant use and social demographic characteristics

			Contraceptive implant uptake		
Variable	**Sample size**	**Levels**	**No (n=197, 56%)**	**Yes (n=156, 44%)**	**P-value**
Marital status	353	Married vs. Single, widow, separated, divorced	157 (80%)	105 (67%)	0.008
Education	353	Tertiary/secondary vs. primary or none	151 (77%)	119 (76%)	0.936
Source of income	349	Employed vs. self employed	72 (37%)	64 (42%)	0.378
Continuous variables		**Mean (SD) or Median (IQR)**	**Mean (SD) or Median (IQR)**		**P**
Age	352	26(5)	27(5)		0.036[t]
Average income	296	10000 (5000-20000)	15000 (5000-21000)		0.320[w]

"t" – two-sample test, " [w] " – two-sample Wilcoxon rank sum test

There was no significant association between contraceptive implant uptake and mode of delivery, pregnancy outcome, and awareness on family planning, P=0.835, 0.304, and 0.379 respectively as shown in table 4.

Those who reported that they use family planning to enable spacing of children were more likely to use contraceptive implant compared to those who gave other reasons (p=0.041). Those who had planned for the current pregnancy were more likely to use contraceptive implant compared to those with an unplanned pregnancy (p=0.027). Also those who intended to practice family planning in future were more likely to use contraceptive implant (p<0.001).

Table 4: Association between pregnancy-related characteristics and uptake of contraceptive implant

			Contraceptive implant uptake		
Variable	**Sample size**	**Levels**	**No (n=197, 56%)**	**Yes (n=156, 44%)**	**P-value**
When the next child is likely to be born	353	Never vs. <= 2 years	56 (28%)	68 (44%)	0.003
Mode of delivery for the current child	353	Normal (SVD) vs. CS	142 (72%)	114 (73%)	0.835
Pregnancy outcome	349	Live birth vs. still birth	181 (93%)	147 (95%)	0.304
Ever heard of family planning?	351	Yes vs. No	190 (97%)	152 (98%)	0.379[f]
Why do people practice FP methods	352	Spacing of children	160 (82%)	141 (90%)	0.041[f]
		Have enough children	32 (16%)	12 (8%)	
		Others	4 (2%)	3 (2%)	
Wanted to be pregnant	353	Yes vs. No	136 (69%)	124 (79%)	0.027
Wanted to wait for sometime before becoming pregnant	353	Yes vs. No	181 (92%)	150 (96%)	0.099
Didn't want to be pregnant	353	Yes vs. No	7 (4%)	4 (3%)	0.595
Intention to use FP	352	Yes vs. No	172 (88%)	155 (99%)	<0.001
Previous use of implant	352	Yes vs. No	64(32%)	97(63%)	<0.001
HIV status	345	Positive vs. Negative	6(3%)	25(16%)	<0.001
Continuous variables		**Mean (SD) or Median (IQR)**	**Mean (SD) or Median (IQR)**		**P**
Parity	352	2 (1-3)	2 (2-4)		0.005[w]
Number of children	352	2 (1-3)	2 (1-4)		0.003[w]
Number of boys	338	1 (1-2)	1 (1-2)		0.094[w]
Number of girls	318	1 (0-2)	1 (1-2)		0.022[w]
Number of children desired	347	3 (3-4)	3 (3-4)		0.258[w]

"f" – Fisher's exact test, " [w] " – two-sample Wilcoxon rank sum test

Those who reported that they had used contraceptive implant before were more likely to use it compared to those who had not used it before (p<0.001). Those who reported that they were HIV positive were more likely to use contraceptive implant compared to those who reported that they were HIV negative (p<0.001) as shown in table 4.

The logistic regression showed that age and parity were not significant predictors of uptake of post-partum contraceptive implant as shown in table 5.

Those who were married were 55% more likely to use post partum contraceptive implant compared to those who were single, widowed, separated or divorced. OR: 0.55 (95% CI: 0.32, 0.95)

Table 5: Logistic regression model for factors associated with contraceptive implant uptake

Variable	**Levels**	**UOR(95% CI)**	**AOR(95% CI)**
Age		1.05(1.00, 1.09)	0.99(0.93, 1.06)
Parity		1.20(1.04, 1.39)	1.15(0.93, 1.41)
Married	Married vs. Single, widow, separated, divorced	0.52(0.32, 0.85)	**0.55(0.32, 0.95)**
Religion	Christian vs. Islam	3.80(1.40, 10.27)	**4.41(1.54, 12.67)**
Previous use of implant	Yes vs. No	3.48(2.24, 5.40)	**3.60(2.22, 5.86)**
HIV status	Positive vs. Negative	6.14(2.44, 15.38)	**5.29(2.01, 13.88)**

UOR – Unadjusted Odds ratio, AOR – Adjusted odds ratio

Christians were more than four times likely to use post partum contraceptive implant compared to Muslims. OR: 4.41(95% CI: 1.54, 12.67). Similarly, those who had previously used contraceptive implant were more than three times more likely to use it now, OR: 3.60(95% CL: 2.22, 5.86).

CHAPTER FIVE

5.0 DISCUSSION/INTERPRETATION OF RESULTS

Contraceptive implant is one of the long-acting reversible contraception which should be provided to all eligible women of reproductive age to enable them plan their families. The immediate post partum period is considered as a missed opportunity to initiate family planning for most post partum women thus this study to assess demand during this period.

The period immediately postpartum is particularly favourable for insertion of IUD or Implant. It is presumed that women who have recently given birth are often highly motivated to use contraception, they are known not to be pregnant and the hospital setting offers convenience for both patient and healthcare provider. In addition women are at risk of unintended pregnancies in the period immediately after delivery as shown by a study in which women were instructed to abstain from sexual intercourse until six weeks postpartum but 45% of the participants reported unprotected sex before that time[9].

In this study the uptake of contraceptive implant was 44.6% compared to 50.2% in a study undertaken at Mbagathi and Naivasha district hospitals[48]. This is high compared to the reported global usage of 0.3%[8] and the reported Kenyan usage of 1.3%[5]. This could be explained by the fact that this was a hospital based study while the Kenyan results are from a community based survey. It could also be explained by the fact that the respondents received postnatal counseling on available family planning methods as studies have shown that women who had postnatal counseling were significantly more likely to use contraception than those who did not (OR 0.18; 95% CI 0.08–0.38; *P*=

0.0002)[41, 42]. Also the high intake could be attributed to the fact that contraceptive implant was provided to the women after delivery as studies in Peru showed high intake of implant among women who were offered the method after delivery compared to those who were not offered the method[43].This indicates that if family planning is readily available and provided to all women during the immediate postpartum period then the contraceptive prevalence rate would increase substantially which would consequently lead to improved maternal and child health hence achievement of MDGs 4 (reduce child mortality)and 5 (improve maternal health)[7].

In this study the level of education was not associated with the uptake of contraceptive implant (p=0.936) which has been shown in a similar study[48]. Other studies have shown that women who had tertiary education were more likely to use contraception than those who had less education (OR 0.54; 95% CI 0.28– 1.04; *P*= 0.0470)[41, 42]. This could be attributed to the fact that those studies looked at contraception in general while this study was looking specifically at contraceptive implant.

In this study those who reported that they had achieved their desired family size were more likely to use contraceptive implant (p=0.003) which has also been shown in other studies[41]. This could be because contraceptive implant is a long acting reversible contraception method which can be used as an alternative to sterilization.

In this study previous use of contraceptive implant was associated with uptake of contraceptive implant (p<0.001) which was also shown in a study in Uganda (p<0.001)[49]. This could be because those who have used the implant already understand the advantages thus they would like to maintain contraceptive implant as a method of choice.

In this study those who reported that they were HIV positive were more likely to use contraceptive implant compared to those who were HIV negative ($p<0.001$). This differs with another study in Kenya where those who were HIV negative were more likely to use contraceptive implant compared to those who were HIV positive ($p=0.047$)[48]. This could be because HIV positive mothers feel that they need to avoid having more children due to the fear of infecting their children. It could also be because of the information provided during PMTCT sessions on the need for them to practice family planning which is prong 2 of PMTCT.

In this study those who were married were 55% more likely to use post partum contraceptive implant compared to those who were single, widowed, separated or divorced OR: 0.55 (95% CI: 0.32, 0.95). This could be attributed to the assumption that those who are married are more aware of their fertility needs compared to those who were not.

The findings from this study point to possible missed opportunities for promoting healthy birth spacing and reducing unintended pregnancies. Women who do not receive prenatal care, for example, might benefit from more consultation about postpartum contraceptive options. This population likely does not routinely access preventive health-care services. Therefore, for these women the period after delivery and before hospital discharge might constitute an especially opportune time for health-care providers to promote the use of effective contraception postpartum and adequate birth spacing.

Consideration should be made to offer family planning especially contraceptive implant to all women during the postpartum period so as to increase the contraceptive prevalence

rate among women of reproductive age. This would lead to a decrease in the number of unintended pregnancies hence reducing the number of abortions and consequently a reduction in the maternal mortality ratio in Kenya.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The uptake of sub-dermal contraceptive implant during the immediate post-partum period was higher (44.6%) than what is reported in previous Kenya based data (1.3%) [5]. Older age, achieved family size, previous use of the same method, HIV positivity and planned pregnancy positively affected uptake of contraceptive implant.

6.2 Recommendations

The sub-dermal contraceptive implant should be offered in the immediate postpartum period to increase the proportion of women using highly effective contraception in order to achieve optimal birth spacing.

Further studies are necessary to validate the findings and investigate the contribution of various factors on the uptake of contraceptive implant immediately postpartum.

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APPENDIX IA: ENGLISH QUESTIONNAIRE

CONFIDENTIAL INFORMATION TO BE USED FOR RESEARCH PURPOSES ONLY

Questionnaire No: _____

Respondent's unique ID: _____

CONSENT FORM

Good morning/afternoon/evening. My name is Dr. Richard Mogeni.

I am a Mmed, reproductive health student at Moi university school of medicine. I am speaking with mothers attending this health facility about family planning. The results of this survey will be used to help improve family planning programs for women. You have been selected for the interview by means of a random or chance selection process. I would like to ask you a few questions but you can refuse to answer any question I ask. You may end the interview at any time. You can also refuse to participate in the study entirely. The interview will last approximately one (1) hour. The information I collect from you will not be shown to anyone who is not authorized to access the information. At the end of the interview I would also like to let you know that if you choose to use contraceptive implant as a family planning method it will be administered to you.

May I proceed with the questions? Yes/No

Respondent's signature _____

Date _____

CONSENT FOR SUBDERMAL CONTRACEPTIVE IMPLANT

I…….. ……. request sub-dermal contraceptive implant (IMPLANON□/JADELLE□) as my family planning method.

I understand the implant is good for 3 years (Implanon) / 5 years (Jadelle) and I have received information about the benefits, risks, side effects, and the use of a sub-dermal contraceptive implant as my method of birth control.

I understand that no birth control method is perfect and that some women have gotten pregnant while using the implant (1 out of every 1000 women during the first year of use).

I understand that the implant will not protect me from HIV infection or other sexually transmitted infections and I need to use condoms for protection from these infections.

I understand that certain medicines may interact with the implant to decrease the effectiveness of the implant as a contraceptive. I know it is important to tell all my health care providers that I am using an implant for birth control.

I understand that it is important to tell my health care provider if I have ever had any of the following conditions before using a sub-dermal contraceptive implant:

- ❖ Unexplained bleeding from the vagina
- ❖ Cancer of the breast or uterus
- ❖ Liver disease

I understand that side effects sometimes associated with the sub-dermal contraceptive implant include:

- ❖ Changes in menstrual bleeding pattern, or even no periods

- ❖ Spotting or bleeding between periods
- ❖ Weight gain
- ❖ Headaches
- ❖ Acne
- ❖ Depression, mood swings, nervousness

I understand that certain problems can be related to the insertion or removal of the implant:

- ❖ Pain, irritation, swelling, or bruising at the insertion/removal site on the arm
- ❖ Thick scar tissue around the implant making it difficult to remove
- ❖ Infection at the insertion/removal site
- ❖ Need for hospitalization to remove the implant (the cost is your responsibility)
- ❖ IMPLANON□/JADELLE□ must be removed at the end of three years / five years, but can be removed sooner if I want.
- ❖ If I have trouble finding a healthcare provider to remove IMPLANON□/JADELLE□, have any questions or experience any side effects I can call **0722998250** for help.

I have had a chance to ask questions and have had my questions answered.

Date: ……. Client Signature: ……..

Date:……Researcher/ Research assistant Signature: ……..

Section 1: Social demographic information

1. In which year were you born? _____
2. What is your religion?
    1) Christian □
    2) Islam □
    3) Other (Specify)_____
3. What is your marital status?
    1) Single □
    2) Married □
    3) Widowed □
    4) Divorced/Separated □
    5) Other (Specify) _____
4. What is the highest level of education you have attained?
    1) Never been to school □
    2) Primary □
    3) Secondary □
    4) Tertiary □
5. Aside from housework, do you work outside of the home to earn money?
    1) Yes □
    2) No □
6. What is your main source of income?

1) Trading □
2) Salaried employment □
3) Casual employment □
4) Farming □
5) Any other (Specify)_____

7. What is your average monthly income? _____
8. How many times have you carried a pregnancy for more than 28 weeks (7 months) {parity?} _____
9. How many times have you miscarried below 28 weeks? _____
10. How many living children do you have?
    1) Boys _____
    2) Girls _____
11. How many children in total do you desire to have? _____
12. When do you intend to have your next child?
    1) Less than 1 year
    2) 2 years
    3) More than 2 years
    4) Never
13. How did you deliver this child?
    1) Normal delivery (SVD)
    2) Caesarean section

14. How did your pregnancy end?

    1) Live birth

    2) Stillbirth

Section 2: Family Planning

15. Have you ever heard of family planning?

    1) Yes

    2) No

16. Why do you think people practice family planning?

    1) Spacing of children □

    2) Have enough children □

    3) Other (Specify) _____

17. Just before you became pregnant did you want to;

    1) Become pregnant then Yes _____ No _____

    2) Wait longer to become pregnant Yes _____ No _____

    3) Did not want to become pregnant then or at any time in future Yes __No ___

18. Do you plan to use any family planning method in the next 12 months?

    1) Yes

    2) No

    3) Don't know

19. When do you plan to start using any family planning method?

    1) Less than six weeks postpartum

2) At six weeks postpartum
3) After six weeks postpartum
4) Never
5) Don't know

20. Have you ever had of contraceptive implant as a method of family planning?

1) Yes
2) No

21. Have you ever used the method before?

1) Yes
2) No

22. Have you ever received any information on how to use the method?

1) Yes
2) No

23. Where can you get the contraceptive implant as a method of FP?

1) Hospital
2) Health centre
3) Private clinic
4) Market
5) Friends /relatives
6) Community health workers
7) Pharmacy
8) Don't know

24. What are the problems you think you might experience when using contraceptive implant?

    1) Lack of access
    2) Opposition to use
    3) Method related
    4) No problem

25. What are some of the reasons that would make you want to use this method?

    1) Ease of use
    2) Religious beliefs
    3) Cultural norms
    4) Partner support
    5) Peer influence
    6) Accessibility
    7) Previous use
    8) Other(specify)

26. What are some of the reasons that would make you not want to use this method?

    1) Not easy to use
    2) Religious beliefs
    3) Cultural norms
    4) Lack of partner support
    5) Peer influence
    6) Lack of accessibility

7) Never used the method before

27. What do you consider as barriers that will prevent you from using contraceptive implant as your FP method?
    1) Fertility related reasons
    2) Opposition to use
    3) Lack of knowledge
    4) Method related reasons
    5) Lack of access
28. What is your HIV status
    1) HIV positive
    2) HIV negative
    3) Don't know
29. Would you like to get contraceptive implant as an FP method before you leave the hospital?
    1) Yes
    2) No
    3) Not decided
30. If no to contraceptive implant which method would you prefer?
    1) Pills
    2) Injectables
    3) Intra uterine device
    4) Voluntary surgical contraception

5) LAM
6) Natural family planning
7) None

Thank you for participating in this study.

APPENDIX I B: KISWAHILI QUESTIONNAIRE {HOJAJI}

HABARI YA USIRI ITAKAYOTUMIKA TUU KWA MINAJILI YA UTAFITI

Nambari ya hojaji _____

Nambari ya siri wa mhojiwa _____

FOMU YA IDHINI

Habari ya asubuhi/mchana/jioni? Jina langu ni daktari Richard Mogeni.

Mimi ni mwanafunzi wa Afya ya Uzazi katika chuo kikuu cha Moi. Ninaongea na akina mama wanaoudhuria kituo hiki cha afya juu ya upangaji wa uzazi. Matokeo ya utafiti huu yatasaidia usimamizi wa kiafya kwenye siku zijazo katika mpango wa upangaji wa uzazi. Umechaguliwa kushiriki katika mahojiano haya kupitia njia ya mpangilio inayompa kila mmoja fursa sawa ya kuchaguliwa kushiriki. Ningependa kukuuliza maswali machache lakini unaweza kukataa kujibu swali lolote nitakalokuuliza. Unaweza kutamatisha mahojiano haya wakati wowote. Unaweza pia kukataa kushiriki katika utafiti huu kabisa. Mahojiano haya yatadumu kwa muda wa saa moja. Habari nitakayopata kutoka kwako haitaonyeshwa kwa mtu mwingine yeyote asiyeruhusiwa kuiona. Baada ya mahojiano ningependa kukujulisha kuwa ukichagua kutumia kifaa cha ugandamuaji (implant) kama njia ya kupanga uzazi utawekewa kabla ya kutoka hospitalini.

Je, ninaweza kuendelea na maswali? Ndio / La

Sahihi ya Mhojiwa _____

Tarehe _____

IDHINI YA KUWEKEWA KIFAA CHA UGANDAMUAJI (IMPLANT)

Mimi ..... ninaomba kuwekewa kifaa cha ugandamuaji (implant) {IMPLANON□/JADELLE□} kama njia yangu ya kupanga uzazi.

Ninaelewa kifaa cha ugandamuaji ni kizuri kwa miaka mitatu (Implanon)/ mitano (Jadelle) na nimeeezwa kuusu uzuri wake na madhara yake na jinsi kinatumika kama njia yangu ya kupanga uzazi.

Ninaelewa kuwa hakuna njia ya kupanga uzazi iliyo kamilifu na mama wengine wamepata mimba huku wakitumia kifaa cha ugandamuaji (mmoja kati ya kila mama 1000 katika mwaka wa kwanza wa matumizi)

Ninaelewa kwamba kifaa cha ugandamuaji hakinikingi dhidi ya kupata ukimwi au magonjwa mengine ya zinaa na ninahitaji kutumia mpira ili kujikinga na magonjwa haya

Ninaelewa kwamba madawa mengine yakitumika yanaweza kupunguza nguvu za kifaa cha ugandamuaji. Ninajua ni muhimu kumweleza daktari wangu kwamba ninatumia kifaa cha ugandamuaji kama njia ya kupanga uzazi.

Ninaelewa ni muhimu kumweleza daktari wagu kama nimewahi kuwa n shida zifuatazo za kiafya kabla ya kutumia kifaa cha ugandamuaji.

- ❖ Kutokwa na damu kusikoeleweka kutoka kwa njia ya uzazi
- ❖ Saratani ya matiti au nyumba ya uzazi
- ❖ Ugonjwa wa ini

Ninaelewa madhara yanayoweza kutokana na kutumia kifaa cha ugandamuaji ni kama vile;

- ❖ Kubadilika kwa damu ya mwezi au kutokuwa na damu ya mwezi
- ❖ Kuoka na du katikati ya mwezi
- ❖ Kuongeza kilo
- ❖ Kuumwa na kichwa
- ❖ Uso kuharibika na kuwa na uvimbe ndogo ndogo nyeusi
- ❖ Kuwa n mawazo mengi

Ninaelewa kwamba kuna shida zinazotokana na kuweka au kutolewa kwa kifaa cha ugandamuaji;

- ❖ Uchungu, kuwasha au kufura kwa sehemu ya kuweka au kutolewa kwa kifaa cha ugandamuaji
- ❖ Kubaki na alma kubwa bada ya kupona inayoweza kufanya kutoa ie ngumu kidogo
- ❖ Kugonjeka kwenye mhali pa kuingishia au kutoa kifaa cha ugandamuaji
- ❖ Kuhitajika kwenda hospitalini kutolewa kifaa cha ugandamuaji kwa malipo yako mwenyewe
- ❖ (IMPLANON□/JADELLE□) lazima itolewe baada ya miaka mitatu/ mitano lakini inaweza kutolewa wakati wowote nitakapo taka
- ❖ Nikipata shida kupata dakitari wa kutoa (IMPLANON□/JADELLE□), nikiwa na maswali yoyote au nikipata shida yoyote nitapiga **0722998250** ili kupata usaidizi.

Nimepata nafasi ya kuuliza maswali na maswali yangu yamejibiwa.

Tarehe ..... Sahihi ya mteja .....

Tarehe ..... Sahihi ya mtafiti/mtafiti msaidizi .....

Sehemu ya kwanza: Taarifa ya kidemografia

1. Ulizaliwa mwaka gani?.....
2. Dini yako ni ipi?
    1) Mkiristo
    2) Mwislamu
    3) Nyingine (Taja)…….
3. Hali yako ya ndoa ni ipi?
    6) Mpweke
    7) Nimeolewa
    8) Nimefiwa na mwenzi
    9) Tumetengana/tumewachana
    10) Nyingine (fafanua) _____
4. Kiwango cha juu sana cha elimu ulichohitimu ni kipi?
    5) Sijawahi kuwa shuleni
    6) Shule ya Msingi
    7) Shule ya Upili
    8) Kiwango cha juu.
5. Mbali na kazi zako za nyumbani, unafanya kazi zingine amboa inakupatia pesa?
    1) Ndio
    2) Hapana
6. Wewe hupata mapato yako kutoka wapi?
    6) Biashara

7) Kazi ya mshahara
8) Kazi ya rejareja
9) Ukulima
10) Nyingineyo (fafanua)_____

7. Ni nini kiwango cha kadiri cha mapato yako ya kila mwezi? _____
8. Je, umebeba mimba zaidi ya wiki 28 (miezi 7) mara ngapi?_____
9. Je, umepoteza mimba chini ya wiki 28 (miezi 7) mara ngapi? _____
10. Una watoto wangapi ambao wako hai?
    1) Wasichana_____
    2) Wavulana_____
11. Ungependa kuzaa watoto wangapi kwa jumla?_____
12. Unapanga kuzaa mtoto mwingine lini?
    1) Chini ya mwaka mmoja kuanzia sasa
    2) Miaka miwili ijayo
    3) Baada ya miaka miwili ijayo
    4) Sitaki kuzaa tena
13. Ulizaa mtoto huyu kupitia njia gani?
    1) Njia ya kawaida
    2) Njia ya upasuaji
14. Mimba yako iliishaje? Mtoto alizaliwa akiwa,
    1) Hai

2) Amekufa

Sehemu ya pili: Upangaji uzazi

15. Je, umewahi kusikia juu ya upangaji wa uzazi?

1) Ndio
2) Hapana

16. Kwa maoni yako, kwa nini watu wanapanga uzazi?

1) Kumpa mtoto nafasi ya kukua
2) Wametosheka na watoto walionao
3) Nyingine _____

17. Kabla ya mimba yako ya mwisho je,

1) Ulitaka kupata mimba wakati huo?

   Ndio____Hapana___

2) Ulitaka kungoja kabla ya kushika mimba?

   Ndio____Hapana ___

3) Haukutaka kushika mimba wakati huo ama wakati wowote?

   Ndio____Hapana ___

18. Je, unapanga kutumia njia yoyote ya kupanga uzazi kwa muda wa mwaka moja ujao?

1) Ndio
2) Hapana
3) Sijui

19. Je, ni lini unapanga kuanza kutumia njia yoyote ile ya kupanga uzazi?

1) Kabla ya wiki sita baada ya kujifungua

2) Wiki sita baada ya kujifungua
3) Baada ya wiki sita tangu kujifungua
4) Sitatumia kabisa
5) Sijui

20. Umewahi kusikia juu ya kifaa cha ugandamuaji (implant) kinachotumika kwa upangaji wa uzazi?
    1) Ndio
    2) Hapana
21. Umeshawahi kutumia kifaa cha ugandamuaji (implant) kwa upangaji wa uzazi?
    1) Ndio
    2) Hapana
22. Umewahi kupata habari au mafunzo juu ya kutumia kifaa cha ugandamuaji?
    1) Ndio
    2) Hapana
23. Je, unaweza kupata wapi huduma ya kuweka kifaa cha ugandamuaji kama njia ya kupanga uzazi?
    1) Hospitali
    2) Kituo cha afya
    3) Kliniki ya kibinafsi
    4) Sokoni
    5) Marafiki/jamaa
    6) Mhudumu wa afya y jamii (CHW)

7) Duka la dawa
8) Sijui

24. Je baadhi ya shida ambazo unaweza kupata ukitumia njia hii ya ugandamuaji ni zipi?

1) Kutopatikana kwa urahisi
2) Pingamizi dhidi ya kutumia
3) Sababu ya njia ya ugandamuaji
4) Hakuna shida

25. Je,baadhi ya sababu zinazoweza kukufanya utumie njia hii ya ugandamuaji ni zipi?

1) Ni rahisi kutumia
2) Imani ya kidini
3) Utamaduni
4) Mume kukubaliana nami
5) Ushawishi wa marafiki
6) Kupatikana kwa rahisi
7) Nimeitumia hapo awali

26. Je,baadhi ya sababu zinazoweza kukufanya usitumie njia hii ya ugandamuaji ni zipi?

1) Si rahisi kutumia
2) Imani yangu ya kidini
3) Utamaduni
4) Kupingwa kwa hiyo njia na mume wangu
5) Ushawishi wa marafiki
6) Kutopatikana kwa urahisi

7) Sijawahi kuitumia hapo awali

27. Kwa maoni yako ni vikwazo vipi vinavyoweza kukufanya usitumie ugandamuaji kama njia ya kupanga uzazi?
    1) Njia zinazohuziana na hali ya rotuba ya mwili
    2) Upinzani wa matumizi
    3) Ukosefu wa elimu
    4) Njia za matumizi
    5) Kutopatikana kwa urahisi
28. Je, hali yako ya HIV ni ipi?
    1) Niko na viruzi
    2) Sina viruzi
    3) Sijui
29. Ungependa kupata au kuwekewa kifaa cha ugandamuaji (implant) kama njia ya kupanga uzazi kabla hujatoka hospitalini?
    1) Ndio
    2) Hapana
    3) Sijaamua
30. Kama hutaki kutumia kifaa ch uandamuaji (implant), ungependa kutumia njia ipi ya kupanga uzazi?
    1) Tembe
    2) Sindano
    3) Kifaa kinachowekwa katika nyumba ya uzazi (IUCD)

4) Upasuaji
5) Kunyonyesha
6) Njia za kiasili za kupanga uzazi
7) Hakuna

Ahsante sana kwa kushiriki katika utafiti huu.

APPENDIX II: IREC APPROVAL

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471/2/3

MOI UNIVERSITY
SCHOOL OF MEDICINE
P.O. BOX 4606
ELDORET
Tel: 33471/2/3

Reference: IREC/2012/236
Approval Number: 000969

8th April, 2013

Dr. Richard Mogaka Mogeni,
Moi Teaching and Referral Hospital,
P.O. Box 03-30100,
ELDORET-KENYA.

Dear Dr. Mogeni,

RE: FORMAL APPROVAL

The Institutional Research and Ethics Committee have reviewed your research proposal titled:-

"Uptake of Immediate Postpartum Contraceptive Implant in Moi Teaching and Referral Hospital."

Your proposal has been granted a Formal Approval Number: **FAN: IREC 000969** on 8th April, 2013. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; it will thus expire on 7th April, 2014. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.

Sincerely,

PROF. E. WERE
CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

APPROVED
08 APR 2013

cc:
Director	-	MTRH
Principal	-	CHS
Dean	-	SOM
Dean	-	SPH
Dean	-	SOD
Dean	-	SON

APPENDIX III: MTRH PERMISSION

MOI TEACHING AND REFERRAL HOSPITAL

Telephone: 2033471/2/3/4
Fax: 61749
Email: director@mtrh.or.ke
Ref: ELD/MTRH/R.6/VOL.II/2008

P. O. Box 3
ELDORET

8th April, 2013

Dr. Richard Mogaka Mogeni,
Moi Teaching and Referral Hospital,
P.O. Box 03-30100,
ELDORET-KENYA

RE: APPROVAL TO CONDUCT RESEARCH AT MTRH

Upon obtaining approval from the Institutional Research and Ethics Committee (IREC) to conduct your research proposal titled:-

"Uptake of Immediate Postpartum Contraceptive Implant in Moi Teaching and Referral Hospital."

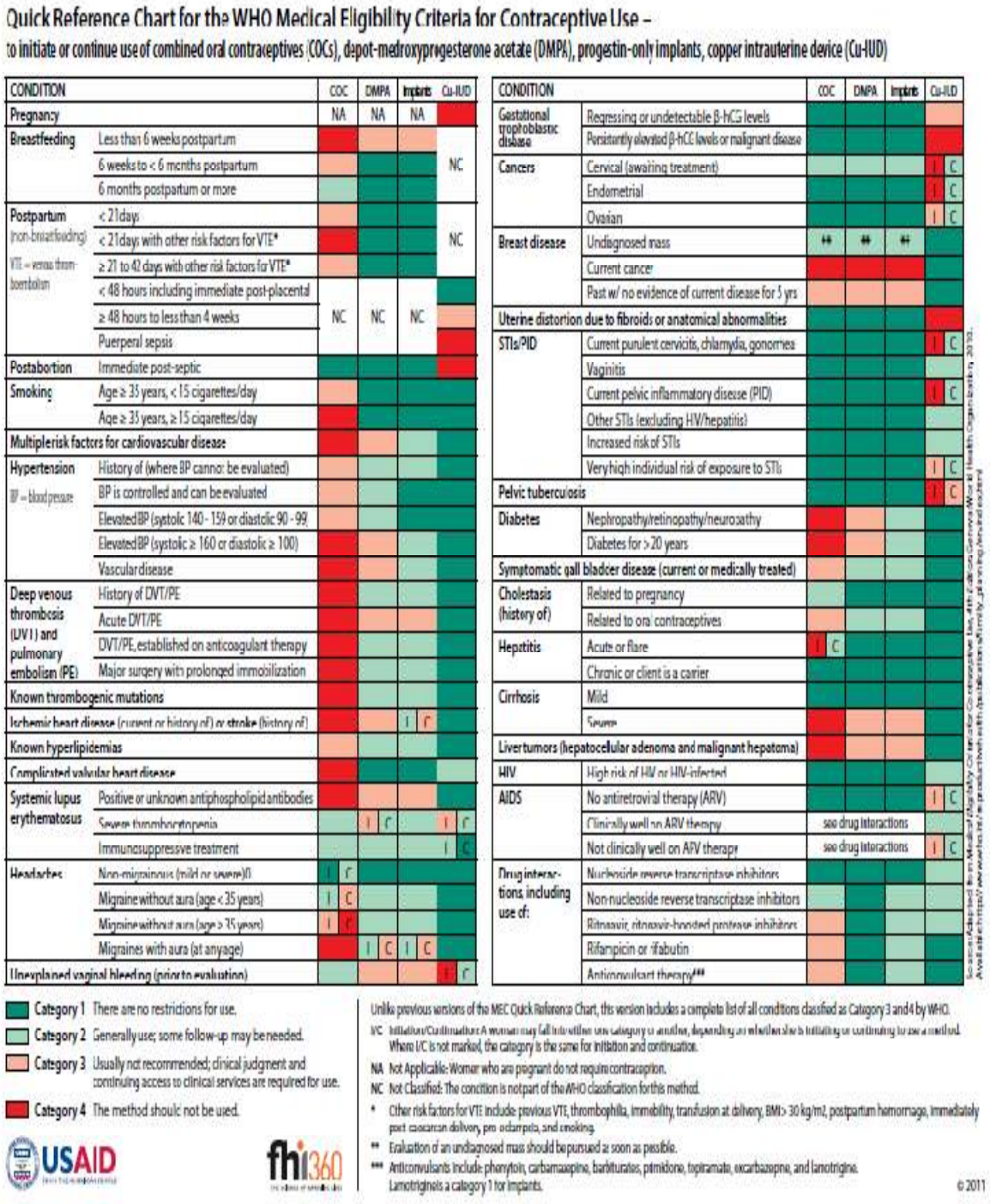
You are hereby permitted to commence your investigation at Moi Teaching and Referral Hospital.

DR. J. KIBOSIA
DIRECTOR
MOI TEACHING AND REFERRAL HOSPITAL

APPROVED
08 APR 2013

CC - Deputy Director (CS)
- Chief Nurse
- HOD, HRISM

APPENDIX IV: WHO MEDICAL ELIGIBILITY CRITERIA FOR CONTRACEPTIVE USE



Quick Reference Chart for the WHO Medical Eligibility Criteria for Contraceptive Use –
to initiate or continue use of combined oral contraceptives (COCs), depot-medroxyprogesterone acetate (DMPA), progestin-only implants, copper intrauterine device (Cu-IUD)

CONDITION		COC	DMPA	Implants	Cu-IUD
Pregnancy		NA	NA	NA	
Breastfeeding	Less than 6 weeks postpartum				NC
	6 weeks to < 6 months postpartum				
	6 months postpartum or more				
Postpartum (non-breastfeeding) VTE = venous thromboembolism	< 21 days				NC
	< 21 days with other risk factors for VTE*				
	≥ 21 to 42 days with other risk factors for VTE*				
	< 48 hours including immediate post-placental	NC	NC	NC	
	≥ 48 hours to less than 4 weeks				
	Puerperal sepsis				
Postabortion	Immediate post-septic				
Smoking	Age ≥ 35 years, < 15 cigarettes/day				
	Age ≥ 35 years, ≥ 15 cigarettes/day				
Multiple risk factors for cardiovascular disease					
Hypertension BP = blood pressure	History of (where BP cannot be evaluated)				
	BP is controlled and can be evaluated				
	Elevated BP (systolic 140 - 159 or diastolic 90 - 99)				
	Elevated BP (systolic ≥ 160 or diastolic ≥ 100)				
	Vascular disease				
Deep venous thrombosis (DVT) and pulmonary embolism (PE)	History of DVT/PE				
	Acute DVT/PE				
	DVT/PE, established on anticoagulant therapy				
	Major surgery with prolonged immobilization				
Known thrombogenic mutations					
Ischemic heart disease (current or history of) or stroke (history of)				I	C
Known hyperlipidemias					
Complicated valvular heart disease					
Systemic lupus erythematosus	Positive or unknown antiphospholipid antibodies				
	Severe thrombocytopenia		I	C	I C
	Immunosuppressive treatment				I C
Headaches	Non-migrainous (mild or severe)†	I	C		
	Migraine without aura (age < 35 years)	I	C		
	Migraine without aura (age > 35 years)	I	C		
	Migraines with aura (at any age)		I	C I C	
Unexplained vaginal bleeding (prior to evaluation)					I C

CONDITION		COC	DMPA	Implants	Cu-IUD
Gestational trophoblastic disease	Regressing or undetectable β-hCG levels				
	Persistently elevated β-hCG levels or malignant disease				
Cancers	Cervical (awaiting treatment)				I C
	Endometrial				I C
	Ovarian				I C
Breast disease	Undiagnosed mass	**	**	**	
	Current cancer				
	Past w/ no evidence of current disease for 5 yrs				
Uterine distortion due to fibroids or anatomical abnormalities					
STIs/PID	Current purulent cervicitis, chlamydia, gonorrhea				I C
	Vaginitis				
	Current pelvic inflammatory disease (PID)				I C
	Other STIs (excluding HIV/hepatitis)				
	Increased risk of STIs				
	Very high individual risk of exposure to STIs				I C
Pelvic tuberculosis					I C
Diabetes	Nephropathy/retinopathy/neuropathy				
	Diabetes for > 20 years				
Symptomatic gall bladder disease (current or medically treated)					
Cholestasis (history of)	Related to pregnancy				
	Related to oral contraceptives				
Hepatitis	Acute or flare	I	C		
	Chronic or client is a carrier				
Cirrhosis	Mild				
	Severe				
Liver tumors (hepatocellular adenoma and malignant hepatoma)					
HIV	High risk of HIV or HIV-infected				
AIDS	No antiretroviral therapy (ARV)				I C
	Clinically well on ARV therapy	see drug interactions			
	Not clinically well on ARV therapy	see drug interactions			I C
Drug interactions including use of:	Nucleoside reverse transcriptase inhibitors				
	Non-nucleoside reverse transcriptase inhibitors				
	Ritonavir, ritonavir-boosted protease inhibitors				
	Rifampicin or rifabutin				
	Anticonvulsant therapy***				

Source: Adapted from Medical Eligibility Criteria for Contraceptive Use, 4th Edition, Geneva: World Health Organization, 2010. Available at http://www.who.int/reproductivehealth/publications/family_planning/MEC-4/en/

Category 1 There are no restrictions for use.
Category 2 Generally use; some follow-up may be needed.
Category 3 Usually not recommended; clinical judgment and continuing access to clinical services are required for use.
Category 4 The method should not be used.

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Unlike previous versions of the MEC Quick Reference Chart, this version includes a complete list of all conditions classified as Category 3 and 4 by WHO.

I/C Initiation/Continuation: A woman may fall into either one category or another, depending on whether she is initiating or continuing to use a method. Where I/C is not marked, the category is the same for initiation and continuation.

NA Not Applicable: Women who are pregnant do not require contraception.

NC Not Classified: The condition is not part of the WHO classification for this method.

* Other risk factors for VTE include: previous VTE, thrombophilia, immobility, transfusion at delivery, BMI > 30 kg/m2, postpartum hemorrhage, immediately post caesarean delivery, pre-eclampsia, and smoking.

** Evaluation of an undiagnosed mass should be pursued as soon as possible.

*** Anticonvulsants include: phenytoin, carbamazepine, barbiturates, primidone, topiramate, oxcarbazepine, and lamotrigine. Lamotrigine is a category 1 for implants.

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