

# **FACTORS INFLUENCING UPTAKE OF BILATERAL TUBAL LIGATION AMONG WOMEN WHO HAVE COMPLETED FAMILY SIZE IN CENTRAL AND EASTERN PROVINCES.**

**PURPOSE:** PART FULFILLMENT FOR THE DEGREE OF MASTERS OF MEDICINE IN OBSTETRICS AND GYNAECOLOGY, UNIVERSITY OF NAIROBI.

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## **DEDICATION**

This book is dedicated to; my wife, Ruth, who stood by me, supported me and encouraged me throughout this course, my children Adrian and Nina and my parents, for their love.

## **DECLARATION**

This is to declare that this dissertation is my original work and that it was done with the guidance of my supervisors.

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## **TERMINOLOGIES**

**Maternal morbidity:** Injury to the mother during pregnancy, labour and after delivery.

**Maternal death:** Death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of duration or site of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

**Total fertility rate:** the average number of children that would be born to a woman over her lifetime.

**Unmet need for family planning:** The difference between fertility preferences and current fertility behavior.

**Population growth rate:** is the rate at which the number of individuals in a population increases in a given time period as a fraction of the initial population

**Medically fit for BTL:** Free of any physical, mental, and social condition that may hinder undertaking of BTL procedure.

**Medical, surgical and obstetric complications:** any condition that affects the well-being of the patient physically, mentally or socially as a result of previous medical, surgical or obstetric procedure.

## **LIST OF ABBREVIATIONS**

BTL- Bilateral tubal ligation

DFS- Desired Family size

FP- Family Planning

HIV- Human immunodeficiency virus

IUD- Intrauterine Device

KDHS- Kenya demographic health survey

MDG- Millennium development goals

OBS/GYN- Obstetrician gynecologist

SPSS- Statistical package for social sciences

TFR- Total fertility rate

UK- United Kingdom

UON- University of Nairobi

UN- United nations

WHO- World health organization

## **ABSTRACT**

**Background:** Bilateral tubal ligation is a terminal event in a woman's life. The decision to undergo bilateral tubal ligation is a major one that affects the family and the community as a whole. While attainment of desired family size is an easy decision to reach for a couple, bilateral tubal ligation is not the first choice contraceptive to many such couples. As per KDHS 2008-2009, 49% of women interviewed expressed attainment of desired family size, yet only 5% took up BTL. Different factors may affect the decision to undergo BTL such as spousal refusal, level of communication among the couple, socioeconomic standing and even fear of child mortality. The purpose of this study was to elucidate the factors that affect couples that have attained the desired family size in choosing BTL.

**Objective:** To determine the factors that will influence uptake of bilateral tubal ligation among women who have attained desired family size.

**Setting:** The study was carried out in health centers in Central and Eastern provinces.

**Study design:** Cross sectional comparative study.

**Sample size:** A sample size of 710 was used.

**Methods:** Patients were recruited after obtaining informed consent. The entry point for the study was expression of attainment of desired family size. All participants in the study had achieved desired family size and were counseled on available contraceptive methods. A structured questionnaire was then administered and analyzed to determine the factors that influenced uptake or not of BTL. Data analysis was done using Statistical Package Social Scientist (SPSS) version 19.0.

**Results:** Socio-economic factors did not appear to influence uptake of BTL. Of women who took up BTL, 54.3% were earning more than Ksh.10,000 compared to 59% who declined to take it up ( $p=0.586$ ). However, those who were in gainful employment were more likely to take up BTL than those who were unemployed (66.9% and 33.1% respectively  $p=0.019$ ). At the same time those aged above 30 years were more likely to take up BTL than those who were below 30 years (84% and 16% respectively  $p=0.003$ ). It was also found that women who had been married for more than 5 years took up BTL more than those who had not (88.4% and 15.1% respectively  $p=0.836$ ).

Communication amongst the couple was vital and 80% of respondents who took up BTL reported that they had agreed on the number of children to get with their husbands, compared to 12.9% who had not agreed and did not take up BTL ( $p=0.024$ ). Most couples considered more 4 children and above to be enough in order to consider BTL while some who did not take up BTL considered 3 children to be enough (66.4% and 25.1% respectively  $p=0.07$ ). Women who had previously used long acting contraception were more likely to take up BTL. Amongst IUD users 12% took up BTL compared to 2.7% who declined ( $p<0.001$ ). Amongst implant users, 14.9% took up BTL compared to 9.8% who declined ( $p=0.069$ ). At the end of the study, 28% of respondents who had attained desired family size took up BTL.

**Conclusion:** While socioeconomic factors do not seem to have a causal relationship with decision to take up BTL, factors such as increasing age and parity, good communication amongst couples, previous use of long term contraception and knowledge of other women who had taken up BTL, were associated with uptake of BTL.

**Recommendations:** It is recommended that counseling on FP involve the husband, peer counseling be encouraged and women be empowered economically in order to increase uptake of BTL.

## **INTRODUCTION**

Bilateral tubal ligation is a terminal event in a woman's life. It signals an end to a woman's obstetric career by choice. Bilateral tubal ligation involves surgical disruption of the fallopian tube patency and may be carried out laparoscopically, by mini-laparotomy or during caesarian section. When it is performed within six weeks of delivery, it is referred to as postpartum BTL. On the other hand, interval BTL is performed after end of puerperium<sup>1</sup>.

The current Kenyan population stands at 38 million, while the fertility rate is 4.6 births per woman<sup>2</sup>. This translates to a population of 50 million by the year 2030. Such a population will be a strain on our economy, considering that only a small proportion of that population will be working. The bulk shall comprise children and unemployed people who will need social support from the government. Indeed, it is but a dream to expect adequate and equitable distribution amongst the Kenyan population if it continues increasing at the current rate. Better healthcare, free education and free healthcare for children below the age of 5 years are some of the factors that are encouraging couples to have many children<sup>2</sup>.

According to WHO, the UN millennium development goals aim at combating poverty, hunger, diseases, illiteracy, environmental degradation and discrimination against women by the year 2015<sup>3</sup>. These MDGs are aimed at improving the quality of life worldwide. One of the greatest challenges to attainment of the MDGs is over population with subsequent resource depletion. Indeed, it will be almost impossible to improve maternal health and reduce child mortality if the Kenyan population continues increasing at the current rate. Population growth remains the most important factor in attainment of the MDGs. In this context, family planning and limitation of

family size constitute the basis for population growth control and hence the epicenter in achieving MDGs<sup>4</sup>.

It is up to reproductive healthcare providers to advocate for policies aimed at controlling population increase in the country. Such policy would ensure affordable, accessible and acceptable methods of contraception on one level, and a step towards improvement of quality of life through limitation of family size. While policy on family planning is already in place, uptake of contraceptive methods still remains below 50% in Kenya. Furthermore, permanent contraception is still generally not taken up by most couples with less than 5% of women taking up BTL<sup>2</sup>.

Permanent sterilization should be the ideal choice for couples who have attained desired family size. In addition, it has fewer side effects compared to hormonal contraceptive methods and hence can be used in special cases such as in women with cardiac disease. BTL is an acceptable method of contraception to most communities in Kenya. Unfortunately, it may not be easily accessible to those who have no access to a medical facility with theatre facilities. At the same time, not all health care providers are competent in carrying out interval BTL by mini laparotomy. This creates challenges in accessibility and affordability of the BTL to most women in the rural areas<sup>4</sup>.

Many readily express that they have attained their desired family size but most shy away from choice of a permanent contraceptive. The reasons for this are by and large unknown but may be due to interplay of several socioeconomic factors. This study aims at delving into the factors that influence the decision to take up or not to take up BTL as a method of contraception by women who have attained their desired family size.

## LITERATURE REVIEW

Bilateral tubal ligation (BTL) was first performed in 1823 to prevent pregnancy in women who would need repeated caesarian sections<sup>1</sup>. This practice has evolved over the years and BTL is now not just for those who need repeated caesarian sections. Women who have attained desired family size can opt for a permanent contraceptive method. BTL can now be performed at any time convenient to a woman and not just at caesarian section. Interval BTL is easy to perform and is affordable to the patient as it can be done under local anesthesia. The most common method used is Pomeroy's technique<sup>5</sup>. BTL can be performed safely in poor resource areas by mini-laparotomy using local anesthesia<sup>6</sup>. It was found that acceptance of BTL increased with use of mini-laparotomy and local anesthesia due to low cost and appropriateness<sup>7</sup>. Despite the ease and affordability of BTL, it has been found to have a very low uptake. Indeed, 49% of the married women interviewed during the Kenya Demographic health survey of 2008-2009 did not want another child. Yet only 5% opted for BTL<sup>2</sup>. The women who were interviewed in the survey took up other temporary methods despite having expressed their attainment of desired family size.

The Kenya Demographic and Health Survey 2008-2009 found that 75% of women with five or more children did not want another child<sup>2</sup>. Rural women were found to have attained desired family size more than the urban women. This was mainly because women in rural areas had more children than their urban counterparts. This shows that the number of living children a woman has will be a factor in determining whether or not she has attained desired family size. Attainment of desired family size was not related to the age of the respondents. It was found that many young respondents who had five or more children did not want any more children. However, the survey found that respondents with higher education level and wealth index had



attained desired family size early. Among married women with 3 children, 23% with no education desire no more children compared to 71% with secondary school education. The survey found that the highest proportion of women who did not want more children were in Central and Eastern provinces (64-65%) and lowest in North Eastern province (5%). This study is thus to be carried out in the two provinces as they have a large proportion who have desire for no more children. A study done in Ethiopia showed that women had a stronger desire to limit the family size as the number of surviving children increased<sup>8</sup>. This shows that fear of child mortality has an impact on the decision to take up BTL once they have achieved DFS. In New Guinea, a study done showed that on average mothers achieved DFS after 5.96 live births and that fear of death of a child impacted negatively on uptake of BTL<sup>9</sup>. In this study, women who opted for BTL were found to have achieved DFS and had less fear of losing a child.

At the same time, the KDHS 2008-2009 observed a remarkable decline in levels of childhood deaths compared to the KDHS 2003 and 1998 surveys. The infant mortality rate decreased to 52 deaths per 1,000 live births in 2008-2009 from 77 in 2003<sup>10</sup>. This means that strides are being made in management of early childhood morbidity and mortality. As such, each woman is assured of survival of her children in the coming years. This in turn translates to a population increase like has never been seen in the country, further stretching our resources. A permanent contraceptive method such as BTL would go a long way in controlling Kenya's population growth.

The millennium development goals are targets that 191 UN member states aim to achieve by the year 2015. There are 8 goals which aim to combat poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women<sup>3</sup>. Kenya as a country has set a target of 2015 to achieve the MDGs and various policies geared towards the achievement of

these goals have been set in motion. Already, the government is providing free basic healthcare for all children aged below 5 years and also free primary school education nationwide. The effect of such progressive initiatives will be a net increase in population and an increase in fertility rates. It is estimated that 215 million women globally lack access to safe and effective contraception, and satisfying this unmet need for contraception would reduce maternal deaths by a third<sup>11</sup>. Putting this in the Kenyan context means that BTL would be a permanent solution to our already high maternal mortality rates. Encouraging uptake of BTL amongst women who have attained desired family size should be a key pillar in achieving the MDGs. According to the United Nations, the current world population is estimated to be 7 billion as at 2011<sup>12</sup>. The population growth for the world from 2000 to 2005 was 383 million with 92 million being in Africa only. Africa was found to be the second most populated continent after Asia<sup>3</sup>. Population growth rate in developing nations such as Kenya was 2.3% annually compared to that of developed nations at 1.2%<sup>13</sup>. With such high growth rates in the developing countries achievement of the MDGs is impeded<sup>11</sup>. The UN considers lowering this high population growth rates to be a priority in order for the MDGs to be achieved by 2015<sup>11</sup>. In order to curb the high population growth rates seen in developing nations, the UN passed a resolution to: urge governments to prioritize universal access to reproductive healthcare including family planning, provide access to a variety of family planning methods and to fund family planning methods<sup>14</sup>. BTL is thus a key pillar in the reduction of population growth rates and consequently the achievement of MDGs.

None of the MDGs can be achieved with an unsustainable population. At the rate Kenya's population is growing, by 2030 the country will have swollen to 50 million stretching resources beyond manageable levels. Most of the Kenyan population resides in rural areas and it is this

population that has a high fertility rate despite having fewer resources than their urban counterparts. According to the KDHS 2008-2009, total fertility rate in rural areas was 5.2 per woman while TFR in urban areas was 2.9<sup>2</sup>. KDHS 2008-2009 also found that 73% of people in the rural areas were below the middle wealth quartile compared to the urban population where 78.5% were in the highest wealth quartile<sup>2</sup>. The KDHS 2008-2009 survey also found that women in the rural areas used contraception less than their urban counterparts and generally had more children. The MDGs cannot be achieved if the status quo remains in the rural areas. The situation will only get worse.

One of the MDGs aims at promoting gender equality and empowering women. This aims at empowering women to be able to make decisions on their own without male dominance. In most homes, the choice of whether to take up a contraceptive method can be vetoed by the male head of the house. This creates a situation where a woman bears more children than she desires. Communication levels between the husband and wife are an important factor in empowering women and their choice of contraception<sup>15</sup>. This study aims at delving into communication levels between husband and wife and how this would affect their choice of contraceptive once family size is achieved. In Malaysia, a study done showed that couples that had good communication were 2.8 times more likely to practice family planning than those with poor communication<sup>16</sup>. This is supported by a study done in Kenya which showed that lack of couple agreement and communication were primary reasons for non-use of contraception. It was found that the barriers to contraceptive use included lack of agreement on contraceptive use and on reproductive intentions<sup>17</sup>.

BTL is often chosen by women who desire no children specifically because of its irreversibility. A study done in the UK by the University of Lincoln showed that women chose sterilization for

one of three main reasons: to avoid the possible side-effects of hormones; to avoid continually having to make decisions regarding child-bearing; and/or a lack of information regarding reversible methods<sup>18</sup>. This goes to show that once fully informed, a woman who has attained desired family size would opt for a permanent method of contraception. The study found that information on permanent contraception was not widespread. However, in our set up, the KDHS 2008-2009 shows that there is good knowledge on methods of contraception. 94% of respondents in KDHS 2008-2009 had knowledge on a method of contraception of which 67% were aware of female sterilization<sup>2</sup>. Yet despite the widespread knowledge on permanent sterilization, the uptake has remained low in Kenya. A mixed method systematic review done in North Wales by the Conway and Denbighshire Local Health Boards in the UK showed women's contraceptive choice was influenced by education level, general awareness of available methods, fear of side effects, women's social standing, religious and cultural beliefs<sup>19</sup>. The review noted that knowledge and ongoing husband influences were some of the main factors that influenced uptake of contraception. This means that communication levels between husband and wife can play a role in deciding which contraceptive the couple chooses once desired family size is attained. Locally, a study done in 1990 showed that married couples discussing their options promoted the acceptance of BTL<sup>20</sup>.

In a study done in rural Kenya in 2007, 30% of respondents would not opt for BTL because they felt that a need might arise for another child<sup>21</sup>. The same study showed that 49% of women in rural Kenya would opt for BTL once desired family size is achieved. The fear of child mortality seems to thus influence uptake of a permanent method like BTL. This is supported by another study done in rural Kenya that showed that uptake of BTL was favored by large family size and being married<sup>22</sup>. These findings correspond to those of a retrospective review done over five

years in Nigeria which showed that grandmultiparity was the most common indicator for BTL<sup>23</sup>. However, BTL uptake was found to be low in this study with only 0.044% of patients taking it up despite attainment of DFS. This difference in current fertility behavior and fertility preference is known as the unmet need for family planning. The unmet need for family planning in Kenya stands at 24%<sup>2,24</sup>, while in Uganda the unmet need for family planning stand at 37.8%<sup>24</sup>. This unmet need is due to different characteristics that are unique to each woman. Some studies however discourage use of unmet need for family planning to identify prospective clients as it may misrepresent the actual family planning needs of a population, given that a large population of women has ambivalent fertility preferences<sup>25</sup>.

According to National Policy, unmet need for family planning amongst married women in Kenya is 24% and this is partly attributed to low involvement of males<sup>26</sup>. Thus a key priority area in increasing uptake of family planning, especially permanent contraception, is to increase the involvement of men in FP. At the same time, strategies aimed at improving the uptake of BTL in Kenya involve correcting misconceptions and addressing fears associated with long term contraception<sup>27</sup>.

A lot of consideration is therefore necessary for a couple who have chosen BTL once desired family size has been achieved. In the 21<sup>st</sup> century, with dwindling resources and more access to information by couples, the dynamics in choosing a permanent method of contraception need to be well understood. Indeed, many challenges are faced in reaching a decision to take up BTL such as traditions, beliefs, fear of unprecedented outcomes, fear of divorce, fear of loss of libido and cultural practices. This study intends to delve into the mind frame of the 21<sup>st</sup> century woman in trying to understand what factors will determine her taking up BTL or not once desired family size is achieved.

## **RESEARCH QUESTION**

What are the current factors that influence the uptake of bilateral tubal ligation in women in Central and Lower Eastern region among those who have attained desired family size?

## **RATIONALE**

Bilateral tubal ligation is a terminal event in a woman's reproductive career. While it has been shown that bilateral tubal ligation is taken up mainly by women who desire no more children, there are women who will not take up permanent contraception despite completing their family.

In a survey by KDHS 2008-2009, 49% of women in their reproductive age expressed achievement of desired family size, yet only 4.8% opted for bilateral tubal ligation. This shows that more needs to be done in order to encourage women to take up permanent contraception once they attain desired family size.

This study will help us understand the factors influencing uptake of bilateral tubal ligation and thus help in creating programs aimed at encouraging women to choose permanent sterilization. Unique to this study is that the question of why women who desire no more children fail to take up BTL, will be answered. Thus an unmet need for BTL can be exploited. This in turn will lead to a better population, better maternal health, better child health and an equitable distribution of resources. Cases of maternal mortality will be greatly reduced if women who have achieved desired family size take up BTL as their method of contraception. This in turn will drastically improve our health indicators as a country. A healthier nation will in turn lead to a better nation and improvement of social amenities. An increased uptake of permanent contraception leads to

demographic and socio-economic benefits such as better resource availability, better health for the family, reduced maternal morbidity and mortality and reduced childhood morbidity and mortality.

Studies have been done locally and globally to determine factors that influence uptake of BTL, but little is known on why women who have attained desired family size take up or fail to take up permanent sterilization. Hence, there is a need for gap analysis and consequently intervention measures will be constituted based on the results of the study. This in turn will translate to achievement of the millennium development goals.

## **CONCEPTUAL FRAMEWORK**

### **NARRATIVE**

Millennium development goals (MDGs) are achievable only if poverty is combated, hunger eliminated, disease epidemics reduced, literacy enhanced, environment protected, and women empowered. None of this can be attained if the population is greater than what the environment can sustain. In our Kenyan set up, an over population coupled with high maternal and child mortality rates has created a vicious cycle whereby none of the MDGs can be achieved by the year 2030 as envisioned.

Once a woman has attained desired family size, certain factors will determine her choice of contraceptive. The factors that may influence a woman's choice of contraceptive may be grouped into four: socioeconomic factors, socio-demographic factors, socio-cultural factors, and spousal factors. These factors are often interrelated and usually determine a woman's choice of contraceptive.

Communication between husband and wife may be instructional whereby a wife is treated as a daughter, especially when the wife is much younger. A couple that has open communication about their family planning options will reach an amicable agreement on their choice. At the same time, a wife who is instructed by the husband will continue conceiving as long as the husband demands and as such will not take up a permanent method of contraception. Indeed, most men do not involve themselves with their wives' choice of contraceptive. At the same time, women will fear taking up a permanent method such as BTL without informing the husband. This is interrelated with the couples beliefs, religion and experiences.

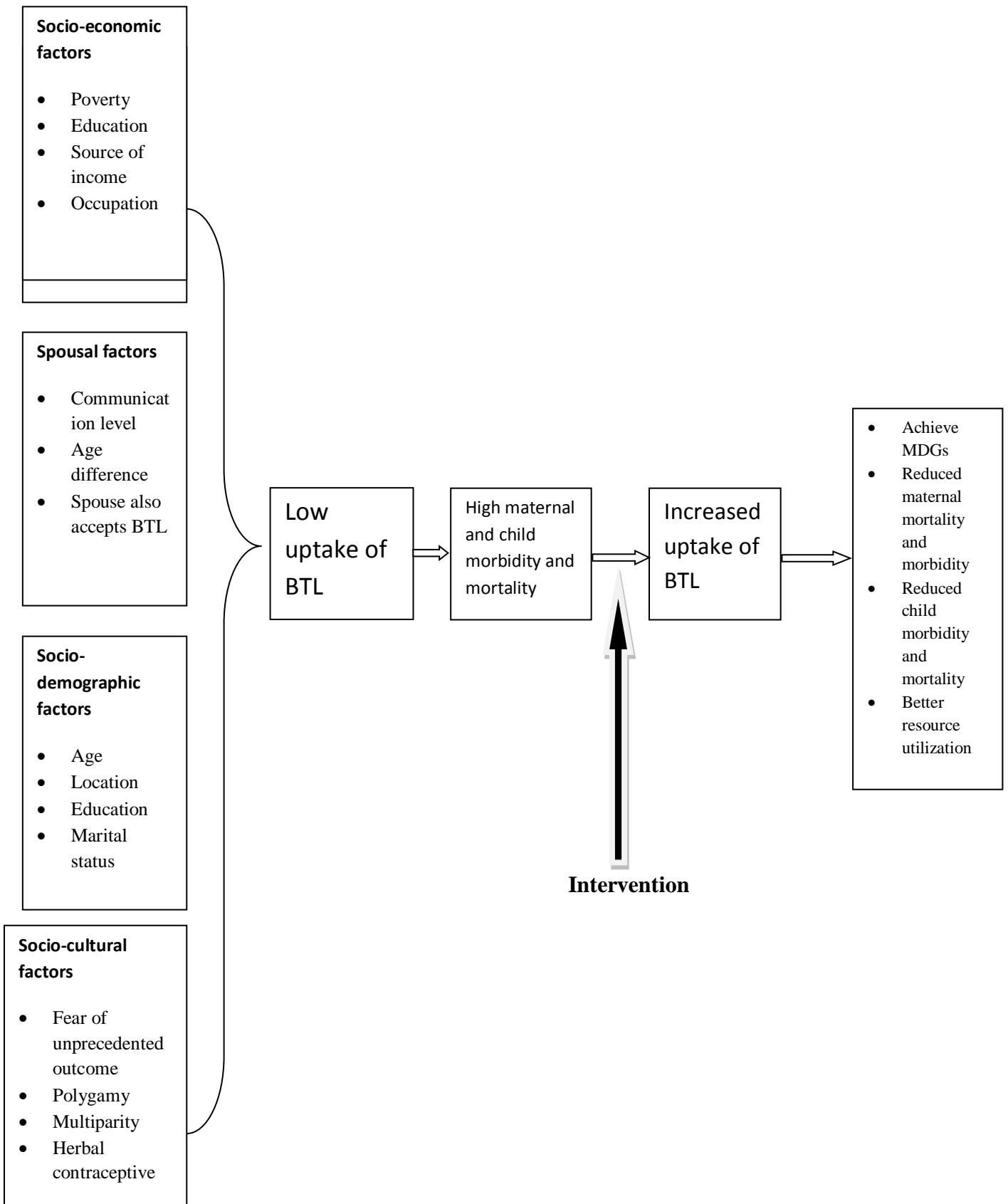


Socioeconomic factors such as poverty greatly impact the choice of whether or not a woman will take up BTL. Poverty is directly tied to the number of dependants in the house compared to the income available. A survey done in Kenya showed that poor rural women with many children opted for more long term contraceptives. This was closely related to the education level which in turn affects health seeking habits. A poor couple with low education level will more often than not have a higher number of children but have little or no access to contraceptives in a health centre.

At the same time, access to a health center which offers family planning services may be out of reach for many rural women. This may be due to distance from the health centre or poor infrastructure and transport. Poor information on available options for family planning and their availability may impact the choice of contraceptive a woman takes up. Most women get their information on contraception from their friends and relatives who may not have the correct information. This coupled with lack of access to a health facility means that a couple may base their decision on wrong information and end up avoiding BTL. At the same time, the health centre may not have the necessary resources to carry out BTL.

These factors will all be looked into in this study in order to elucidate how they impact on a woman's decision to take up BTL. This in turn will help in creating a better approach that will encourage a woman to have permanent sterilization. As a result, we can improve maternal and child mortality and morbidity and thus achieve our millennium development goals. This is simply explained by the fact that once a woman has BTL performed on her, she no longer can conceive and thus can concentrate on her family. It is important to involve the whole family and community so that a woman is able to plan her family and get permanent contraception once desired family size is achieved.

## DIAGRAMMATIC



## **Broad objective**

To determine characteristics that influence uptake of bilateral tubal ligation in women who have attained their desired family size.

## **Specific objective**

1. To determine the effect of sociodemographic characteristics, socioeconomic and sociocultural factors on decision to take up bilateral tubal ligation or not.
2. To determine knowledge, attitude and effect of previous use of other family planning methods on uptake of bilateral tubal ligation.
3. To determine the effect of previous reproductive outcomes on decision to take up BTL or not.
4. To determine the communication patterns amongst couples who take up bilateral tubal ligation
5. To determine the impact of relationships and marriage outcome on uptake of bilateral tubal ligation.

## **METHODOLOGY**

### **Study area**

This study was carried out in Central and Eastern provinces of Kenya. Central province is located north of Nairobi, the capital city of Kenya, and measures 13176 square kilometers. It has a population of 4,383,743 as per the last census carried out in 2009 of which 2,230,760 are female. The province has 89 health centers and 372 dispensaries.

Eastern province is found to the east of Nairobi, and extends from the border with Ethiopia to the north bordering with Coast province to the south. It covers an area of 159,891 square kilometers. It has a population of 5,668,123 as per the 2009 census and a female population of 2,884,776. There are 80 health centers in Eastern province and 692 dispensaries. The dispensaries and health centers are now termed Level 1 and 2 by the Ministry of Health.

Residents of Central province are mainly farmers and businesspeople and were found to have a higher wealth index than those from Eastern province who are mainly peasant farmers and pastoralists. According to KDHS 2008-2009, 66.4% of women aged 15-49 in Central province were in current employment compared to 55.4% in Eastern province. As a source of income, agriculture and sales & services made up 51% and 12% respectively in Central province as compared to Eastern province where they made up 57% and 9% respectively. The two provinces are therefore ideal because both have a high number of health facilities offering family planning services and the population can afford them. The study will compare whether the factors are different between the two populations that have different wealth indices.

The TFR in Central province was 3.4 children per woman while in Eastern province it was 4.4. Central province was found to have the highest prevalence of contraceptive use in Kenya at 67%

while Eastern province had a prevalence of 52%. Of these women using family planning services, 8.1% in Central province were using BTL compared to only 3.9% in Eastern province. This is despite the fact that 64% of women in each of the two provinces did not want another child. The unmet need for limiting the number of children in Central province was 9.5% while in Eastern it was 13.4%. The study population in both areas is unique due to the fact that despite having the highest prevalence in contraceptive use in Kenya, there is a low uptake of BTL and an unmet need for limiting the number of children.

The study was carried out in 53 health centers in the two provinces that offer family planning services. There were 30 health centers visited in Central region, and 23 in lower Eastern region, 355 patients were recruited in each province. The health centers where the study was carried out were chosen randomly in order to reduce bias. The study was carried out during free outreach services offered for family planning at the health center. Clients were informed of the free services beforehand by mass media, thus assuring large turnouts. The two provinces have many outreach services that are available but uptake of BTL has remained low despite 49% of women having attained their desired family size.

### **Study population**

The study population was made up of women attending the health centers in the two provinces looking for contraception having achieved their desired family size. The entry point for the study was expression of attainment of desired family size. Any woman who did not express attainment of desired family size was therefore excluded.

The study population was made up of the women who had presented at the health centre for free outreach family planning services. The health centers provide an optimal study point because

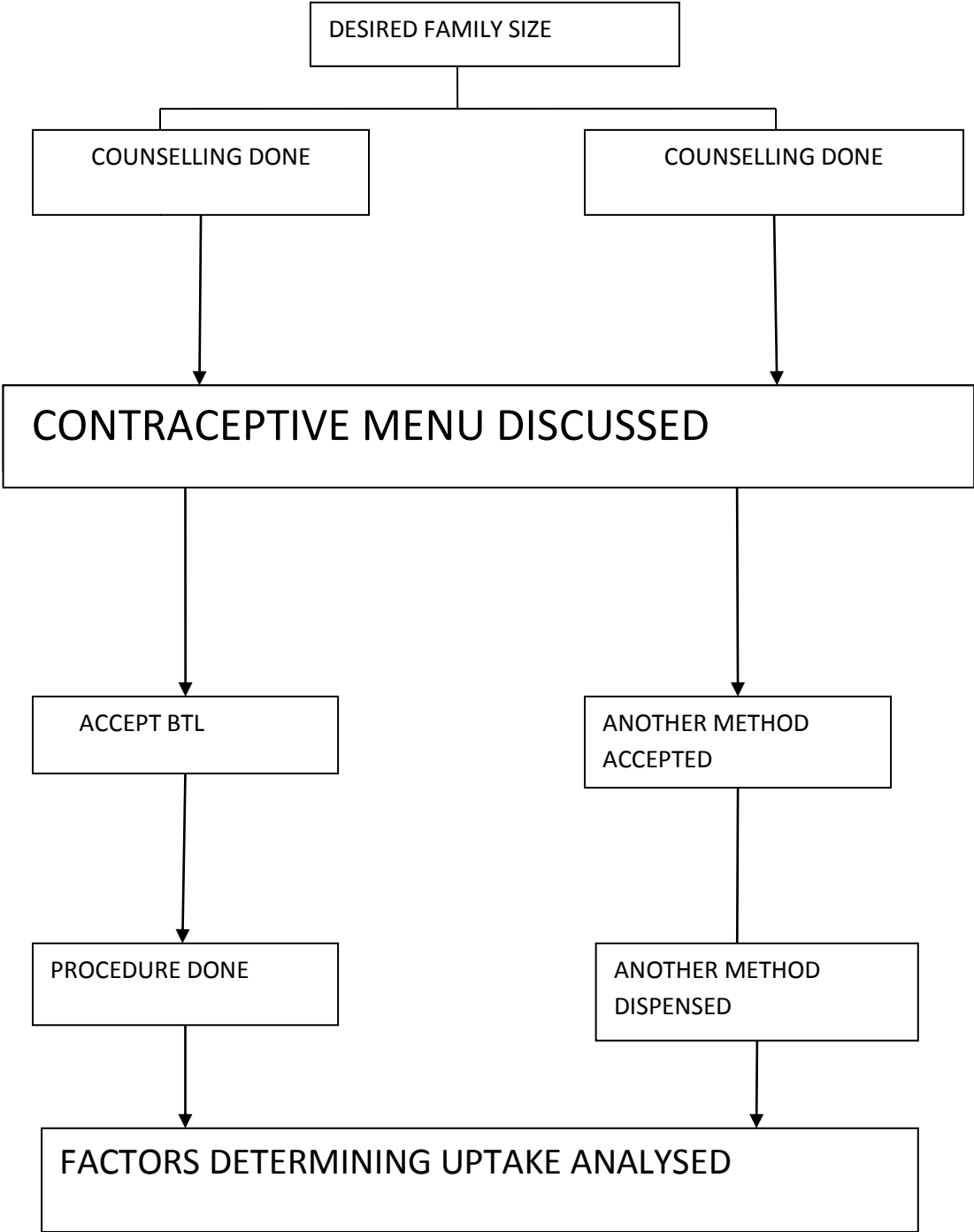
they are accessible and affordable for the population around them. However, the health centers do not usually offer BTL services due to lack of trained personnel. These services are instead offered by outreach teams that visit the health centers on a regular basis. The free services ensure that more women turn up at the health centers during the outreach camps. This was an added advantage to carrying the study in the centers because no woman was turned away due to lack of funds. This also ensured that a woman made the best decision regarding her choice of contraception and not just an affordable compromise. An added advantage to this study is that the woman went home on the same day the contraceptive was offered. This ensured that even lactating mothers were served and discharged on the same day.

The health centers normally provide basic healthcare for the communities around them, and are usually the first contact a patient has with a healthcare provider. They also offer affordable family planning services with a trained nurse on site to counsel the patient and offer the service. The health centers are provided with the necessary contraceptives by the Kenya Medical Supplies Agency.

### **Study design**

The study was a comparative cross sectional study whose entry point was expression of attainment of desired family size, where 710 women were involved in the study. The factors that influenced the decision to take up or to decline the BTL were then elucidated using a structured questionnaire. The number of women interviewed in each health center differed depending on the number that were present and had expressed attainment of desired family size.

DIAGRAMMATIC REPRESENTATION OF OVERALL DESIGN



## **INCLUSION CRITERIA**

1. Women attending the health center during outreach for family planning services.
2. Women who had expressed attainment of desired family size.
3. Previous deliveries should have been vaginal.
4. No medical, surgical or obstetrical complications.
5. Should have consented to take part in the study.

## **EXCLUSION CRITERIA**

1. Women who had not attained desired family size.
2. Women not medically fit for BTL.
3. Women who had had caesarian section delivery.
4. Women with psychiatric illness.
5. Women who did not consent to taking part in the study.
6. Women not willing to take up a method of contraception.



## Sample size Justification

The sample size was determined by the use of the following formulae to achieve an adequate sample to accurately estimate the willingness to accept BTL as a form of family planning in the study population.

$$n = \frac{Z_{\alpha/2}^2 * P (1-P) * DEFF}{D^2}$$

Where

$n_0$  = required sample size

P = proportion of female who have attained their desired family size in the two provinces (64%), based on the estimated from the KDHS 2008-09.

D = Precision with which to measure prevalence, set at plus or minus 5%.

DEFF = This is a design effect for the study (set at 2.0).

The  $Z_{\alpha/2}$  is the cut off points along the x-axis of the standard normal probability distribution that represents probability matching the 95% confidence interval (1.96).

Substituting the above in the formulae we get;

$$\begin{aligned} n_0 &\approx 710 \text{ participants across Central and Eastern} \\ &= 710 \end{aligned}$$

Using the finite population correction factor equation for proportion, we get

$$n = \frac{n_0 N}{n_0 + (N-1)}$$

N = estimated total population of female in the productive age (15 - 49) years.

$n \approx 703.6 = 704$  participants.

### **Sampling procedures.**

This was a two stage sampling, in which stage 1 was a simple random sampling (SRS) of the health centres that host outreach camps and the second stage involved a convenient sample of all women attending the postnatal clinic and had attained DFS during the study period being recruited till the desired sample size was achieved.

Assumption was that the above sample size was representative of the whole population and that two stage sampling would reduce bias.

## **Data collection instrument**

Data was collected using an interviewer administered questionnaire. The questionnaire was in English. The interviewer was fluent in English, Kiswahili and the local language such as Kikuyu, Kamba, Meru and Embu. The questionnaire was divided into topics that cover: Sociodemographic factors, Sociocultural factors, socioeconomic factors, Knowledge, Attitude, Perceptions, Spousal factors, Levels of communication and Impact of relationship and marriage outcome.

Any woman that presented at the health center for contraceptives was informed of the study and those that qualified were consented. After consent, counseling was done by a qualified nurse. Those that accepted BTL gave informed consent for the procedure. A research assistant then took the subject through the questionnaire.

The questionnaire is attached and labeled appendix 3.

## **Data collection and management**

Permission was first sort from the Ethics and Research committee to carry out the study. Permission was also given by Marie Stopes Kenya as they are the ones that carry out the free outreach services. The District Medical Officer of Health or the Health Center in-charge was then approached for permission.

The basic assumption in patient recruitment and data collection was that the patient had been adequately informed on all family planning methods and allowed to make an informed choice.

Data collection and recruitment into the study took place at the various health centers visited in Central and Eastern provinces. The data was collected by the researcher assisted by trained

research assistants and entered daily. Once a woman presented at the health center, they were interviewed by the in-charge and those that had attained desired family size were recruited into the study. Those that had attained desired family size were informed about the study and its purpose. They were then be given counseling on BTL and how the procedure would be carried out. The counseling on BTL and the procedure were done by the researcher or by a trained healthcare provider. Questions from the women were answered in the best way possible. Emphasis was made that the method was offered as a terminal procedure for regular reproductive ability. The basic counseling frame and contents included the following aspects: privacy, permission, translation and an interview. Once the woman presented at the health center, they were assembled in a waiting bay and informed that a study was being carried out simultaneously with the outreach camp. They were then divided, with those who expressed achievement of desired family size being taken to a separate room for further counseling. The women were then asked to state their willingness to take part in the study. Those that agreed to take part in the study were then taken to a separate room for interviewing. Once in the room, the woman's bio data was first taken and filled on the questionnaire. Other questions on the other characteristics of the patient were then asked. The contraceptive menu was then discussed and counseling done. A choice was then made by the client and those that accepted, had BTL done, while those who did not accept were allowed to choose another method. All women had their vital signs assessed and a medical history taken in order to ascertain their fitness to undergo BTL.

Those that accepted to take up BTL had to sign a consent form and the procedure carried out. Those that refused to take up BTL were allowed to choose another method, for which they were counseled on.

All data forms were stored in a safe lockable cabinet and access to it limited. The raw data was then entered into a database and cleaned up. The data collected from the two groups of women was then analyzed using Statistical package for Social Scientists (SPSS) version 19.0 and STATA 12. The data was then presented in tables as per the objectives of the study.

## **Limitations of study**

Due to the vastness of both provinces, it was impossible to visit all the health centers and dispensaries for purposes of the study. The health centers where the study took place were chosen randomly, based on where the outreach team was going.

As the study was carried in two different provinces, culture issues and language barriers were encountered. In order solve this, the research assistants were fluent in English, Kiswahili and the local language. The research assistant in Central province spoke and understood the Kikuyu language while the research assistants in Eastern province spoke and understood the Kamba language. This ensured that the study participants were interviewed in a language they best understood thus assuring the best possible results.

Due to lack of theatre facilities at the health centers, women who expressed attainment of desired family size but had undergone previous abdominal surgery were not included in the study. This was in order to avoid any injury to any intra-abdominal structure. Such women were referred to the nearest health facility with a working operation theatre. Alternative contraceptive methods were also offered to such patients.

# ORGANOGRAM

	Jan 2011	Feb 2011	March 2011	April 2011	May 2011	June 2011	July 2011	Aug 2011	Sept 2011	Oct 2011	Nov 2011	Dec 2011	Jan 2012	Feb 2012
Concept paper	↔													
Draft proposal	↔													
Proposal completed											↔			
Ethics board consideration													↔	
Entry into community														

## **ETHICAL CONSIDERATIONS**

All patients who participated in the study were informed on the purpose of the study and consent obtained from them in order to recruit them into the study. Any patient who declined to take part in the study was excluded and offered any other form of medical care they may have presented in the health center for. Participation in the study was voluntary and no inducement whatsoever was offered to the participants. All patients were given proper analgesia and antibiotics during and after the BTL. Any patient presenting with complications after the procedure was treated at the health center.

Minors were excluded from this study. This is because BTL is a terminal event and as such any patient under the age of 18 was offered alternative methods of contraceptive. Any minor who had already given birth, and as such considered to be an emancipated minor, was also excluded from the study even though they may have expressed attainment of DFS.

Names of the subjects were not on the questionnaire. Each questionnaire was coded in order to maintain confidentiality of the subjects' details. At the same time informed consent was obtained from all subjects. All records were stored safely and access restricted to the investigator and the trained research assistants only.

Conduct of the study was subject to ethical clearance by the Ethics and Research Committee of Kenyatta National Hospital.



## RESULTS

The study population consisted of clients attending outreach family planning clinics in Central and Eastern provinces. All participants in the study had expressed attainment of desired family size. Data from these clients was collected and results analyzed in accordance with the set objectives. Of 710 women who fulfilled the inclusion criteria, 199(28%) accepted BTL while 511(72%) declined.

### A) Influence of sociodemographic, socioeconomic and sociocultural characteristics on uptake of BTL

**Table 1: Socio-demographic characteristics by BTL uptake**

Socioeconomic characteristics	Uptake of BTL				p value
	Yes(n=199)		No(n=511)		
	Freq.	%	Freq.	%	
<b>Age</b>					
< 30	32	16.0	141	27.5	<u>0.003</u>
30+	167	84.0	370	72.5	
<b>Marital Status</b>					
Married	168	85.1	433	84.5	0.836
Not Married	30	14.9	79	15.5	
<b>Duration of marriage to current partner</b>					
< 5	19	11.6	66	15.1	0.313
5+	144	88.4	372	84.9	
<b>Education level</b>					
Secondary & Above	42	21.1	110	21.5	0.92
Primary & Below	157	78.9	401	78.5	
<b>Occupation</b>					
Employed	133	66.9	389	76.1	<u>0.019</u>
Unemployed	66	33.1	199	23.9	
<b>Religion</b>					
Christian	198	100.0	507	99.1	0.213
Muslim	0	0.0	5	0.9	

Table 1 shows that 84% of clients who took up BTL were over 30 years of age, while 72.5% in the same age group declined. Respondents aged below 30 made up 27.5% of those that did not take up BTL. These differences were statistically significant ( $p=0.003$ ). Amongst the clients who had gainful employment, 66.9% took up BTL, compared to 76.1% who did not take up BTL. 58% of unemployed respondents took up BTL compared to 23% who did not. These differences were statistically significant ( $p=0.019$ )

Of the respondents interviewed, 84.7% were married at the time. 85.1% of respondent who took up BTL were married, while only 14.9% were single. 15.5% of those that did not take up BTL were single. These differences were not statistically significant ( $p=0.836$ ). On education, 21.1% of respondents who took up BTL had secondary education and above, while 21.5% declined. These differences were not statistically significant ( $p=0.92$ ). Marital status, duration of marriage, education level and religion did not appear to influence the decision to take up BTL.

**Table 2: Socio-economic characteristics by uptake of BTL**

Socio-economic characteristics	Uptake of BTL				P value
	Yes(n=199)		No(n=511)		
	Freq.	Percent	Freq.	Percent	
<b>Principal source of income</b>					
Husband	98	49.7	246	48.1	0.305
Both	100	49.2	266	51.4	
<b>Average Monthly income</b>					
<10,000	108	54.3	302	59.0	0.586
>10,000	91	45.7	209	41.0	
<b>Dependants</b>					
Nuclear	172	86.3	424	82.9	0.206
Extended + Nuclear	27	13.7	87	17.1	
<b>Principal provider of money for FP</b>					
Self	102	51.4	291	57.0	0.057
Spouse	95	48.0	200	39.2	
Relatives	3	0.6	20	3.7	
<b>Principal home budget controller</b>					
Spouse	56	28.0	103	20.2	0.303
Both	140	70.3	408	79.8	
In-laws	4	1.7	0	0.0	

As table 2 shows, socio-economic factors did not appear to influence the decision to take up BTL. More women earning less than Ksh. 10,000 took up BTL than women earning more than Ksh. 10,000 (54.3% and 45.7% respectively  $p=0.586$ ). This was not significant.

**Table 3: Socio-cultural factors by BTL uptake**

Socio-cultural characteristics	Uptake of BTL				p value
	Yes(n=199)		No(n=511)		
	Freq.	%	Freq.	%	
<b>Desired family size</b>					
$\leq 3$	90	45.1	264	51.7	
$\geq 4$	109	54.9	246	48.3	0.338
<b>Number of children husband desires</b>					
$\leq 3$	66	33.1	223	43.7	
$\geq 4$	133	66.9	287	56.3	0.037
<b>Agree on number of children</b>					
Yes	159	80.0	444	86.9	0.024
No	40	20.0	67	13.1	
<b>Number of children agreed on</b>					
$\leq 3$	62	31.2	168	32.9	
$\geq 4$	137	68.2	343	67.1	0.469
<b>Number of children desired to consider BTL</b>					
$\leq 3$	57	28.6	128	25.1	
$\geq 4$	142	72.4	383	74.9	0.507
<b>Principal decision maker on BTL</b>					
Spouse	5	2.3	23	4.4	
Both	194	97.7	488	95.6	0.512
<b>Need permission to get BTL</b>					
Yes	157	78.9	405	79.2	
No	42	21.1	106	20.8	0.94
<b>Need permission to attend FP clinic</b>					
Yes	110	55.4	283	54.1	
No	89	44.6	227	45.9	0.765
<b>Source of advice on FP</b>					
Spouse	5	2.3	10	2.0	
Friends	16	8.0	48	9.3	
Relatives	0	0.0	12	2.4	0.151
Mass Media	7	3.4	8	1.6	
Health Facility	171	86.3	433	84.7	

Table 3 shows that the number of children desired play an important role on decision to take up BTL. 53.7% of women who took up BTL wanted 4-6 children, while 51.7% of women who did not want BTL wanted 1-3 children. The number of children a respondent wanted was not statistically significant ( $p=0.338$ ). 50.3% of husbands of respondents who took up BTL wanted 4-6 children, compared to 45.2% for those that did not take up BTL. The number of children desired by the husband was statistically significant ( $p=0.037$ ).

Most of the couples agreed on the number of children to get, with 80% of those that took up BTL agreeing. Only 12.9% of couples who disagreed on the number of children declined to take up BTL. These differences were statistically significant ( $p=0.024$ ).

Of the respondents who took up BTL, 64% felt that 4-6 children were enough. 67.2% of women who did not take up BTL felt that 4-6 children were enough. These differences were statistically significant ( $p=0.07$ ).

Permission was sought from the spouse by 78.9% of respondents who accepted BTL, compared to 79.2% of those that declined. This was not statistically significant ( $p=0.94$ ).

## B) Effect of knowledge, attitude and previous FP use on uptake of BTL

**Table 4: Knowledge, attitude and effect of previous FP use by BTL uptake**

	Uptake of BTL				p value
	Yes(n=199)		No(n=511)		
	Freq.	%	Freq.	%	
<b>Previous FP used</b>					
Oral Pills	93	46.9	244	47.7	0.855
Implants	30	14.9	50	9.8	0.069
Injectables	146	73.1	384	75.2	0.602
Intrauterine Devices	24	12.0	14	2.7	<0.001
Condoms	19	9.7	25	4.9	0.024
Natural Method	0	0.0	1	0.2	0.533
None	13	6.3	28	5.5	0.72
<b>Perceived BTL side effects</b>					
Loss of libido	10	5.1	76	14.9	0.001
Dyspareunia	10	5.1	86	16.9	<0.001
Reduced male pleasure	16	8.0	117	22.8	<0.001
Reduced female pleasure	18	9.1	121	23.7	<0.001
Abnormal vaginal discharge	10	5.1	56	10.9	0.027
Menstrual abnormalities	15	7.4	54	10.6	<0.001
Long term pain	24	12.0	138	27.1	<0.001
<b>Knowledge on BTL procedure</b>					
Fallopian tubes tied	159	80.0	377	73.8	0.004
Ovaries Removed	2	0.6	7	1.3	
Uterus Removed	2	1.1	7	1.3	
<b>Attitude towards BTL</b>					
Have you been afraid to take up BTL	34	17.1	113	22.2	0.441

Table 4 shows that most respondents were aware of other family planning options. Injectables were the most commonly used contraceptive with 73.1% of those who took up BTL. 75.2% of

those that did not take up BTL had used Injectables. This difference was not statistically significant (p=0.602).

Perception of side effects was a major factor in choice of contraceptive. 27.1% of those that refused to take up BTL were afraid of long term pain, compared to 12% who took up BTL. This difference was statistically significant (p<0.001). Only 5.1% of those that took up BTL perceived loss of libido as a side effect, compared to 16.9% who did not take up BTL. This difference was statistically significant (p<0.001).

Of the respondents who took up BTL, 80% knew what the procedure entailed while of those who declined, 73.8% knew. Knowledge of what BTL entailed was statistically significant (p=0.004).

Of respondents who took up BTL, 17.1% were afraid of the procedure, while 22.2% who did not take it up were afraid. This difference was not statistically significant (p=0.164).

### C) Impact of previous reproductive outcomes on uptake of BTL

**Table 5: Uptake of BTL by previous reproductive outcomes**

Previous reproductive outcomes	Uptake of BTL				p value
	Yes(n=199)		No(n=511)		
	Freq.	%	Freq.	%	
<b>Number of pregnancies</b>					
Once	8	4.0	48	9.3	0.036
2 - 3	51	25.7	150	29.3	
3+	140	70.3	313	61.4	
<b>Number of children alive</b>					
1 - 3	70	34.9	212	41.5	0.164
3 - 4	71	35.4	144	28.2	
5+	58	29.7	155	30.4	

Table 5 shows that 70.3% of respondents who took up BTL had 3 or more pregnancies, compared to 61.4% of those that declined. Only 4% of those who took up BTL had only one pregnancy. These differences were statistically significant (p=0.036).

Of the respondents who took up BTL, 65.1% had more than 3 children alive. 58.6% of respondents who did not take up BTL had 3 or more children. Only 34.9% of respondents who took up BTL had less than 3 children. These differences were not statistically significant (p=0.164).

#### D) Influence of Spousal Factors on uptake of BTL

Table 6 shows that 70.3% of respondents who took up BTL had spousal support, while 44.1% of those that did not take up did not have support from their spouses. This difference was statistically significant (p<0.001).

2.9% of those that took up BTL, compared to 13.3% who did not, were afraid of child mortality. This difference is statistically significant.

78.9% of those that took up BTL, compared to 55.2% of those that did not, knew other women who had taken up BTL. This difference was statistically significant (p<0.001).

Partners of 75.4% of the women who took up BTL did not know which contraceptives their wives had used before. 81.6% of those that did not take up BTL had partners that were not aware of their previous contraceptive use. This difference was not statistically significant (p=0.084).

**Table 6: Spousal factors by Uptake of BTL**

Spousal factors	Uptake of BTL				OR (95% CI)	p value
	Yes(n=199)		No(n=511)			
	Freq.	Percent	Freq.	Percent		
Spousal support	140	70.3	225	44.1	1.5 (0.9 - 2.5)	<b>&lt;0.001</b>
Fear of Children Mortality	6	2.9	68	13.3	0.2 (0.1 - 0.9)	<b>0.001</b>
Fear of loss of Libido	2	1.1	37	7.3	0.2 (0.1 - 0.6)	<b>0.003</b>
Knows other women who have had BTL	157	78.9	282	55.2	3.1 (1.9 - 4.8)	<b>&lt;0.001</b>
Spouse knows which contraceptive respondent has used	150	75.4	417	81.6	0.7 (0.6 - 1.1)	0.084
Spouse aware that respondent takes up BTL	116	58.3	27	5.3	24.9 (14.5 - 42.8)	<b>&lt;0.001</b>
Received advice on BTL	171	85.7	386	75.6	1.9 (1.2 - 3.2)	<b>0.006</b>

**E) Impact of relationships and marriage outcome on uptake of BTL**

**Table 7: Impact of relationships and marriage outcome by Uptake of BTL**

Impact of relationships and marriage outcome	Uptake of BTL				p value
	Yes(n=199)		No(n=511)		
	Freq	%	Freq	%	
Marriage stable	156	78.3	428	83.8	0.104
Fear of termination of current relationship.	6	2.9	32	6.4	0.077
Desire for more children in the event current relationship ends.	7	3.4	43	8.4	0.028
Fear of termination of current relationship if respondent takes up BTL	6	2.9	68	13.3	<0.001

Table 7 shows that 78.3% of respondents who took up BTL felt that they were in a stable marriage compared to 83.8% of those who declined. The respondents' opinion on marriage stability was not statistically significant ( $p=0.104$ ).

Fear of termination of current relationship was significant ( $p=0.077$ ). More respondents who feared that their relationship would end declined to take up BTL than those who took up BTL (2.9% and 6.4% respectively).

Of the respondents who took up BTL, 2.9% were afraid of their partners leaving them due to their choice of contraceptive compared to 13.3% of those that declined. These differences were statistically significant ( $p<0.001$ ).



**Table 8: Multiple Logistic Regression**

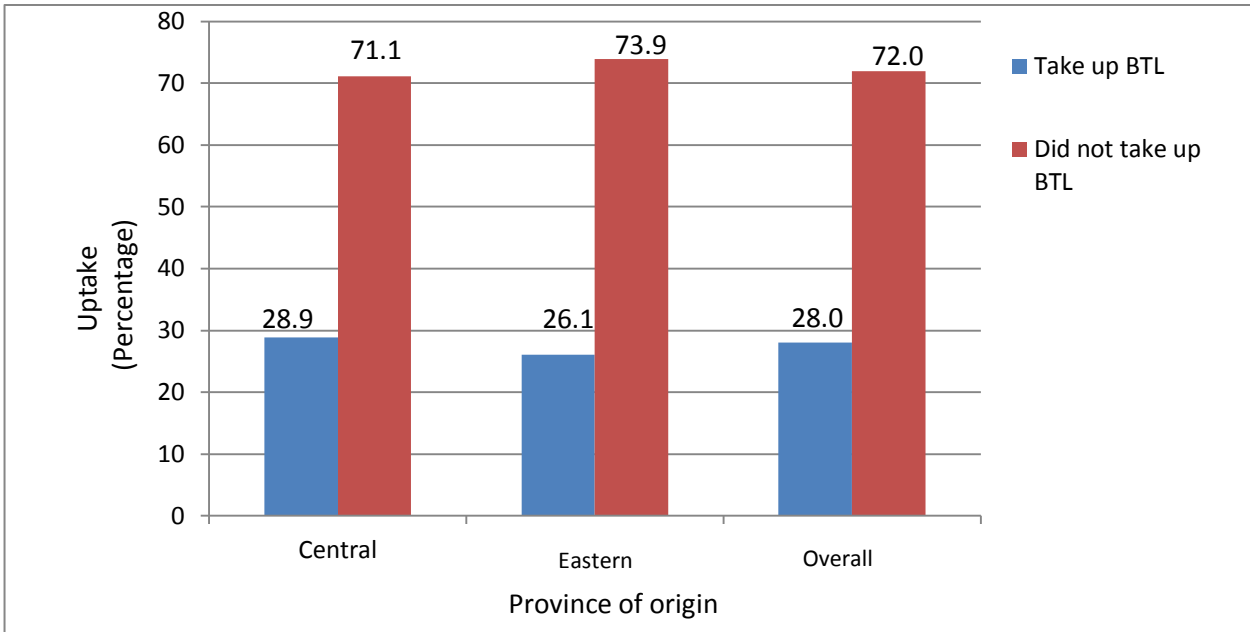
<b>Uptake</b>	<b>Coef.</b>	<b>se (coef.)</b>	<b>z - value</b>	<b>p value</b>	<b>(95% Confidence</b>	<b>Interval)</b>
Respondents' Age	0.0	0.0	-0.23	0.819	-0.1	0.1
Marital status	0.2	0.4	0.46	0.647	-0.6	0.9
Education level	0.0	0.2	-0.07	0.941	-0.5	0.5
Occupation	0.5	0.1	3.67	<u><b>&lt;0.001</b></u>	0.2	0.7
Spouses' Age	-0.1	0.0	-1.69	<u><b>0.021</b></u>	-0.1	0.0
Religion	0.3	0.4	0.77	0.441	-0.5	1.0
Principal source of income	0.1	0.1	0.76	0.447	-0.2	0.4
Average income	-0.2	0.2	-0.88	0.379	-0.6	0.2
Dependents	0.2	0.3	0.65	0.514	-0.4	0.9
Principal provider for FP	-0.5	0.3	-1.74	<u><b>0.012</b></u>	-1.0	0.1
Desired family size	0.2	0.3	0.75	0.454	-0.4	0.8
No. of children husband wants	-0.3	0.3	-0.95	0.343	-0.9	0.3
Agree on No. of children	0.1	0.3	0.17	0.867	-0.6	0.7
No. of pregnancies	-0.3	0.3	-0.99	0.323	-0.8	0.3
Children alive	0.3	0.3	0.95	0.341	-0.3	0.9
_cons	2.9	1.6	1.86	0.063	-0.2	6.0

On running the logistic multiple regression ONLY the women education level, age of the spouse and the provider of the FP money were significant in explaining the UPTAKE of BTL (p value <0.05.)

**OUTCOME**

Figure 1 shows that overall, 28% of respondents took up BTL. More respondents took up BTL in Central province (28.9%) than in Eastern province (26.1%). In both provinces, 72% of respondents declined to take up BTL despite expressing attainment of desired family size.

**Figure 1: Uptake of BTL by province**



## DISCUSSION

This study shows that on the whole, socio-economic factors like average monthly income, principal source of income, dependents and source of money for family planning did not appear to have a causal relationship on the decision to take up BTL. While socio-economic factors were not found to influence decision to take up BTL in this study, women earning less than Ksh. 10,000 were more likely to take up BTL than those earning more (54.3% and 45.7% respectively,  $p=0.586$ ). This finding is similar to those of the Kenya Demographic and Health Survey 2008-2009<sup>2</sup>. However, this study also found that women in gainful employment were more likely to take up BTL than those not employed (66.9% and 33.1% respectively  $p=0.019$ ). It can thus be inferred that gainful employment contributed positively in the decision to take up BTL.

Age was an important factor when it came to deciding on BTL, with 84% of women aged over 30 years taking up BTL ( $p=0.003$ ). Women over 30 years were more likely to have achieved desired family size, and as such are more likely to take up a permanent method of contraception. Although other sociodemographic factors such as duration of marriage, education level, marital status and religion were not statistically significant, the findings in this study corresponded with other studies which show that these factors impact positively on decision to take up BTL<sup>2, 19, 22</sup>.

Most respondents agreed on desired family size with their spouses, with 80% of those that had agreed taking up BTL. More respondents agreed that more than 4 children were enough to achieve DFS, with 66.4% of them taking up BTL. Of statistical significance was that 64% of respondents took up BTL having considered 4 children to be enough ( $p=0.07$ ). This finding is in keeping with other studies that show that increasing number of children is associated with more uptake of BTL<sup>22, 23</sup>.

Knowledge on BTL was found to be high in this study with most women aware that the fallopian tubes were tied, although some thought that the ovaries or uterus were removed (97.3%, 1.4% and 1.3% respectively  $p=0.441$ ). Perceived side effects played a more significant role on decision to take up BTL. Many respondents who did not take up BTL had perceived side effects such as loss of libido, Dyspareunia, reduced male and female pleasure and long term pain (14.9%, 16.9%, 22.8%, 23.7% and 27.1% respectively). Addressing fears and misconceptions are a target

in Kenya National Guidelines aimed at improving uptake of BTL<sup>27</sup>. Perceived side effects of BTL thus play an important role in the uptake of BTL. This is in keeping with a study done in North Wales that showed that uptake of BTL is adversely impacted by perceived side effects<sup>19</sup>. This study also found that women who were already on long term contraception were more likely to take up BTL. Amongst women on IUD, 12% took up BTL while 14.9% of women on implants took up BTL (p values <0.001 and 0.609 respectively). However, the number of women on these long term contraceptives were few compared to the study population. It can thus be inferred that these women had already achieved their desired family size but for some reason had deferred taking up permanent contraception.

Spousal support was a very important factor amongst women who took up BTL in this study with 70.3% of women with support from their husband taking up BTL. Women whose husbands knew which contraceptives they had used or that they would take up BTL were highly likely to take up BTL (75.4 and 58.3% respectively p value 0.084 and <0.001 respectively). This is an important finding in this study, as it shows that involvement of the husband will positively impact on uptake of BTL. This is in keeping with several other studies which show that involvement of the husband is associated with uptake of BTL<sup>16,17,20</sup>. This is also in keeping with National guidelines and strategies that aim to promote involvement of men in FP<sup>26</sup>. At the same time, more women who knew others who had had BTL took it up than those who declined (78.9% and 55.2% respectively p<0.001). It can be inferred from this that peer education plays a vital role in uptake of BTL.

Stability of marriage did not play a significant role in this study, but fear of termination of the marriage did, with 6.4% of women declining BTL due to this fear. However, only a few women interviewed expressed fear of termination of current relationship. Of significance was that 8.4% of respondents who expressed desire for more children in the event of termination of their relationship did not take up BTL. Also 13.3% of women who feared child mortality did not take up BTL (p=0.001). This is in keeping with other studies that show that fear of child mortality and subsequent desire for another child, reduce the uptake of BTL<sup>8,21</sup>.

Overall, only 199(28%) women took up BTL despite having attained desired family size. An interplay of the factors impacted on the decision to take up BTL. This uptake was higher than the

national average of 4% because all the respondents interviewed had already expressed attainment of desired family size and had presented at the health centers for family planning.

## **CONCLUSIONS**

1. Socioeconomic factors did not influence the uptake of BTL. However, gainful employment is positively associated with uptake of BTL.
2. Women aged over 30 years and with parity beyond 4 are more likely to accept BTL if they are counseled.
3. Good husband-wife communication is essential, and women are more likely to take up BTL if they have good communication with the husband.
4. Women who have used long acting contraceptives are more likely to take up BTL than those on short term contraception once counseled.
5. Knowledge of other women who have undergone BTL is associated with higher uptake of BTL.

## **RECOMMENDATIONS**

1. Because of low uptake, there is need to enhance counseling on BTL in women who have achieved desired family size, with involvement of the husband. Husbands should be encouraged to attend FP clinics with their wives. This can be done through targeted media campaigns that will inform couples on the availability of permanent contraception.
2. Targeted counseling of women already on long term contraceptives, who have achieved desired family size, should be encouraged.
3. Peer counseling, which also helps in removing stigma on BTL, should also be encouraged, whereby women who have already undergone BTL are given a role in counseling those that have achieved desire family size.
4. There is need for educational and socioeconomic empowerment of women in decision making in order for them to take control of their FP needs.

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## **APPENDIX 2: RESPONDENT INFORMATION AND CONSENT FORM**

This study is on Factors affecting uptake of bilateral tubal ligation among women who desire no more children in central and eastern provinces.

**Principal Investigator:** Dr. Kinuthia Kelvin Mbugua, MBChB, MMed student at the University of Nairobi, Department of Obstetrics and Gynecology. Telephone number: 0722797975

### **Introduction**

The purpose of this consent is to give you information on this study whose purpose is to determine factors influencing uptake of BTL. You may ask questions on the purpose of this research, confidentiality, risks and benefits, your rights as a volunteer and any other issues you may have. You may then decide on whether to take part in the study or not. Please read the consent form carefully, or ask for it to be read to you. This is called informed consent.

### **Purpose of the study**

The purpose of the study is to elucidate the factors that will determine uptake of BTL once desired family size has been achieved. An understanding of these factors is necessary for new policy to be created that will encourage more women to take up permanent contraception. This will in turn help in achievement of the millennium development goals.

### **Benefits and risks**

This study will benefit you as it will help in better family planning provision in future and also better service provision. At the same time, it will encourage a more individualized approach when it comes to family planning provision.

Possible side effects of contraceptive chosen will be explained to you. Those who opt for BTL may experience pain at the incision site, minimal bleeding, failure of BTL procedure and wound infection. Proper analgesics and antibiotics will be given to prevent pain and infection. Where the BTL procedure may fail, adequate alternative contraception will be provided.

**Confidentiality**

No information by which your identity can be revealed will be released. All information collected during this study will be kept in strict confidence.

**Participant’s consent**

I voluntarily agree to participate in the study on factors determining uptake of BTL in women who have attained desired family size in Central and Eastern Provinces. I understand that participation in the study does not entail financial benefit. I have been informed that the information obtained will be treated with utmost confidentiality and my current treatment (if any) or any future treatment will not be compromised if I decline participation or withdraw from study.

I have had a chance to ask questions, if I have questions later about the research I can ask the researcher.

Signature of participant..... Date.....

Signature of Witness..... Date.....

I certify that the nature and purpose of, potential benefits, possible risks associated with participating in this study have been explained to the above participant.

.....

Signature of Investigator/ research assistant Date

### APPENDIX 3: QUESTIONNAIRE

Serial number.....

Date.....

#### A) SOCIODEMOGRAPHIC DATA

1. Age in years

2. Marital status

a) Married       b) Single       c) Co-habiting   
d) Divorced/separated       e) Widow       f) Polygamous marriage

3. Duration of marriage to current partner

a) > 1 year                      b) 1-5 years                      c) 6-10 years  
d) 11-15 years                      e) 16-20 years                      f) > 21years

4. Education level

a) Primary       b) Secondary       c) Tertiary   
d) No formal education

5. Occupation

- a) Employed                      b) Unemployed                      c) Self employed  
d) Farming

6. Religion

- a) Christian                                            b) Muslim                                            c) Traditional                        
d) Other

SPOUSE DETAILS

7. Age                     

8. Marital status

- a) Monogamous marriage                                            b) Polygamous marriage                        
c) Cohabiting with respondent

9. Level of education

- a) Primary                                            b) Secondary                                            c) Tertiary                        
d) No formal education

10. Occupation

- a) Employed                                            b) Unemployed                                            c) Self employed                        
d) Farming

11. Religion

- a) Christian       b) Muslim       c) Traditional   
d) Other

## B) SOCIOECONOMIC FACTORS

12. Who provides monetary income for the family?

- a) Husband       b) Self       c) Both   
d) Children

13. What is the average monthly income in Kenya shillings?

- a) LESS THAN 2,500       b) 2,500-5,000       c) 5,000-10,000   
d) 10,000-50,000       e) 50,000-100,000       f) MORE than 100,000

14. Dependants

- a) Nuclear family       b) Extended family       c) Polygamous family   
d) Distant relatives

15. Who provides money for family planning?

- a) Self       b) Spouse       c) Relatives       d) Others

16. Who controls the budget at home?

- a) Self       b) Spouse       c) Both       d) In-laws

## C) SOCIOCULTURAL FACTORS

17. How many children did you want?

18. How many children did your husband want?

19.i) Have you and your spouse agreed on number of children to get?

a) Yes

b) No

ii) If you have agreed, what is the number?

20. How many children are enough for you to consider BTL?

21. Who makes decision on Family Planning method you use?

a) Spouse

b) Self

c) Both spouse and respondent

d) Relatives

22. Do you need permission from spouse to get BTL?

a) Yes

b) No

23. Do you need permission to attend FP clinic?

a) Yes

b) No

24. Where do you get advice on Family Planning options available?

a) Spouse

b) Friends

c) Relatives

d) Mass media

e) Health facility

**D) IMPACT OF PREVIOUS REPRODUCTIVE OUTCOMES**

25. How many times have you been pregnant?

26. How many children are currently alive?

27. When was your last delivery?

28. How many miscarriages have you had?

29. How many children have died?

a) At birth

b) Within 28 days of birth

c) 1 month to 1 year

d) 1-5 years

e) Over 5 years

**E) KNOWLEDGE, ATTITUDE AND PERCEPTIONS**

30. Which methods have you used before?

a) Oral contraceptives

b) Implants

c) Injectables

d) Intrauterine devices

e) Condoms

f) Natural family planning

g) Traditional

h) None

j) Others (state) \_\_\_\_\_

31. For how long have you used other FP methods?

a) < 1 year

b) More than one year

32. How many times have you changed from one FP method to another?

33. Why did you stop using previous FP method?(State) \_\_\_\_\_

34. Indicate which side effects may come as a result of BTL?

Perceived side effect	Yes	No
Long term pain		
Loss of libido		
Dyspareunia		
Reduced male pleasure		
Reduced female pleasure		
Abnormal vaginal discharge		
Menstrual abnormalities		

35. What is done during BTL?

- a) Don't know                      b) Fallopian tubes tied                      c) Ovaries removed
- d) Uterus removed                      e) Cervix removed                      f) Other (State) \_\_\_\_\_

36.i) Have you been afraid to take up BTL?

- a) Yes                                      b) No

ii) If yes, why?



- a) Side effects (State)\_\_\_\_\_
- b) Major operation requiring admission
- c) Pain during procedure
- d) Will require general anesthesia
- e) Religion does not allow
- f) Others (State)\_\_\_\_\_

**E) SPOUSAL FACTORS AND LEVEL OF COMMUNICATION**

37.i) Does your husband support decision to take up BTL

- a) Yes
- b) No

ii) If No, state reasons

- a) Fear of child mortality
- b) Fear of loss of libido
- c) Fear of debilitation
- d) Others (State)

38. How long has it taken for husband to approve decision to take up BTL? (State) \_\_\_\_\_

39. i) Do you know other women who have had BTL?

- a) Yes
- b) No

ii) If yes, do they have any complaints on BTL?

40. Does your spouse know which contraceptives you've used before?

- a) Yes
- b) No

41. Is your partner aware that you have decided to take up BTL?

a) Yes

b) No

42. Who else is aware that you've decided to take up a family planning method?

a) Partner only

b) Friend

c) Mother in-law

d) Other in-law

e) Sibling

f) Other (State) \_\_\_\_\_

43. i) Have you received advice on BTL from anyone?

a) Yes

b) No

ii) If yes, state who?

## **F) IMPACT OF RELATIONSHIPS AND MARRIAGE OUTCOMES**

44. In your opinion, is your marriage stable?

a) Yes

b) No

45. i) Are you afraid that your relationship could end one day?

a) Yes

b) No

ii) If yes, state reason why.

iii) If No, state reason why.

46. In the event of separation or divorce from your partner, would you want other children?

a) Yes

b) No

47. Would your spouse/partner get another partner if you take up BTL?

a) Yes

b) No

48. If one was to have BTL, after how many years of marriage would it be suitable?

a) 1-5 years

b) 6-10 years

c) 11-15 years

d) 16-20 years

e) 21-25 years

f) > 26 years

g) Other

### **G) OUTCOME**

49. TAKE UP BTL

a) Yes

b) No

### **APPENDIX 4: BUDGET**

<b>Item</b>	<b>Ksh</b>
Ethics Committee	1,000

Research assistants	60,000
Stationery	20,000
Vehicle fuel and hire	40,000
Data Analysis	30,000
Contingencies	30,000
<b>Total</b>	<b>181,000</b>

## **APPENDIX 5: LIST OF HEALTH CENTRES**

### CENTRAL PROVINCE

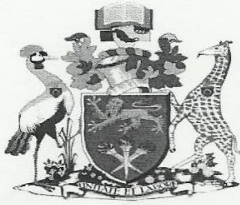
1. Gichiche Health Centre
2. Naromoru Health Centre

3. Ngorano Health Centre
4. Kigumo Health Centre
5. Baricho Health Centre
6. Nyakianga Health Centre
7. Makuyu Health Centre
8. Nyeritown Health Centre
9. Wamagana Health Centre
10. Kiandutu Health Centre
11. Kagumo Health Centre
12. Kinunga Health Centre
13. Ng`enda Health Centre
14. Sabasasa Health Centre
15. Kiganjo Health Centre
16. Warazo Health Centre
17. Kandara Health Centre
18. Endarasha Health Centre
19. Kirogo Health Centre
20. Sagana Health Centre
21. Kirwara Health Centre
22. Ithanga Health Centre
23. Karatu Health Centre
24. Kyeleni Health Centre
25. Ngoliba Health Centre
26. Kithimani Health Centre
27. Ndaragua Health Centre
28. Kahembe Health Centre
29. Shamata Health Centre
30. Baara Health Centre

### EASTERN PROVINCE

1. Mbooni District hospital
2. Simba Health Centre
3. Masii Health Centre
4. Isinya Health Centre
5. Kibwezi District Hospital
6. Ikutha Health Centre
7. Kathiani District Hospital
8. Kitengela Health Centre
9. Nunguni Health Centre
10. Yatta Health Centre
11. Voo Health Centre
12. Kyambeke Health Centre
13. Mtituni Health Centre
14. Masongeleni Health Centre
15. Ngwata Health Centre
16. Kanzokea Health Centre
17. Kikumini Health Centre
18. Bissel Health Centre
19. Katangi Health Centre

20. Ikanga Health Centre
21. Matuu Health Centre
22. Nziu health Centre
23. Ivaani Health Centre



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Ref: KNH-ERC/A/83

19<sup>th</sup> April 2012

Dr. Kinuthia Kelvin Mbugua  
Dept. of Obs/Gynae,  
School of Medicine  
University of Nairobi

Dear Dr. Mbugua

**RESEARCH PROPOSAL: "FACTORS INFLUENCING UPTAKE OF BILATERAL TUBAL LIGATION AMONG WOMEN WHO DESIRE NO MORE CHILDREN IN CENTRAL AND EASTERN PROVINCES"  
(P15/01/2012)**

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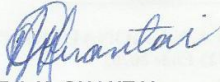
This is to inform you that the KNH/UoN-Ethics & Research Committee (ERC) has reviewed and **approved** your above revised research proposal. The approval periods are 17<sup>th</sup> April 2012 to 16<sup>th</sup> April 2013.

This approval is subject to compliance with the following requirements:

- a) Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
- b) All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH/UoN ERC before implementation.
- c) Death and life threatening problems and severe adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH/UoN ERC within 72 hours of notification.
- d) Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH/UoN ERC within 72 hours.
- e) 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*).
- f) Clearance for export of biological specimens must be obtained from KNH/UoN-Ethics & Research Committee for each batch of shipment.
- g) Submission of an *executive summary* report within 90 days upon completion of the study  
This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/or plagiarism.

For more details consult the KNH/UoN -ERC website [www.uonbi.ac.ke/activities/KNHUoN](http://www.uonbi.ac.ke/activities/KNHUoN)

Yours sincerely



**PROF A.N. GUANTAI**  
**SECRETARY, KNH/UON-ERC**

- c.c. The Deputy Director CS, KNH
- The Principal, College of Health Sciences, UON
- The Dean, School of Medicine, UON
- The Chairman, Dept. of Obs/Gynae, UON
- The HOD, Records, KNH
- Supervisors: Prof. Koigi Kamau, Dept.of Obs/Gynae, UON
- Dr. Eunice Chesesem, Dept.of Obs/Gynae, UON



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<sup>1</sup>

<sup>2</sup> Kenya Demographic and Health Survey 2008-2009

<sup>3</sup> [http://www.who.int/topics/millennium\\_development\\_goals/en/](http://www.who.int/topics/millennium_development_goals/en/)

<sup>4</sup> United Nations(2009). Resolution 2009/1: The contribution of the programme of action of the International Conference on Population and Development to the internationally agreed development goals, including the millennium development goals.

<sup>5</sup>Speizer I S. Using strength of fertility motivations to identify family planning strategies. International Family Planning Perspectives 2006 Dec; 32(4): 185-91