DETERMINANTS OF CONTRACEPTIVE USE AND FERTILITY PREFERENCE AMONG WOMEN OF REPRODUCTIVE AGE IN KAKAMEGA COUNTY, KENYA

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD OF THE DEGREE OF MASTERS OF ARTS IN GEOGRAPHY IN SCHOOL OF HUMANITIES AND SOCIAL SCIENCES OF KENYATTA UNIVERSITY.

DECEMBER, 2018.
DECLARATION

This thesis is my original work and has not been presented for award of degree in any other University.

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DEDICATION
This work is dedicated to my beloved husband Nebert Otieno for his financial, moral and material support, my children Don, Vidal and Rachael for their endurance during my long absence as I was pursuing my studies.
ACKNOWLEDGEMENT

I give thanks and glory to the Almighty God for having given me good health, patience and determination to accomplish this course even when I was faced by challenges during my study. I do appreciate my supervisors Dr. Francis O. Onsongo and Dr. Mark Kiptui for the important role they played in this work. They taught, guided, corrected and encouraged me throughout the entire course. The input was of great help. I will forever feel indebted to Prof. Kennedy Nyabuti Ondimu together with my supervisors for their commitment in ensuring that I understood the concepts in demography and particularly Fertility Rates the area I carried my research in. I appreciate Dr. Ben Mwasi for his commitment in ensuring that I understood the concepts in research methodology. I thank my classmate Dorcas and Mr. Mokaya for their effort in ensuring I understood the statistical analysis concepts. I appreciate all the respondents for sacrificing their time to fill in the questionnaires without which this work would be incomplete. I thank the Kakamega County government hospitals officials, nurses and doctors for their commitments in ensuring I got the data I required from the hospitals. May the Almighty God bless you all.
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ABSTRACT

This cross-sectional study was conducted to find out the determinants of contraceptive use and fertility preference among women of reproductive age in Kakamega County, Kenya. The study utilized a descriptive survey design comprising quantitative and qualitative approaches. The target population was 444,350 women in the childbearing age in Kakamega County. To obtain the sample population size, the formula for finite population was used. The sample size consisted of 384 women in the reproductive age. A structured questionnaire, a focus group discussion guide and an interview schedule were used as research tools. The data was analyzed using descriptive and inferential statistics. Descriptive statistics included frequency distribution tables, means and percentages while inferential statistics comprised correlations, Chi-square and the ANOVA test. The KDHS (2014) report shows that the fertility in Kakamega County was high at 5 per woman in spite of a decline at the national level from 4.6 to 3.9 from 2008 to 2014 respectively. Kenya has experienced relatively high incidences of mistimed (26%) and unwanted (17%) pregnancies among all women of childbearing age, with young women (15-24 years) recording higher mistimed (32% versus 30%) and unwanted (15% versus 10%) pregnancies compared to women in other age groups. Annually, about 13,000 Kenyan girls drop out of school due to accidental pregnancies and 103 out of every 1000 births in Kenya are delivered to girls aged (15-19) (NCPD & UNFPA, 2013). This study, therefore, sought to find out the determinants of contraceptives and fertility preference in Kakamega County that contribute to high fertility. Low utilization of contraceptives has been generally associated with unwanted and mistimed pregnancies resulting to high parity. This has impacted negatively on the socioeconomic development of the county. The study’s general objective was to identify the determinants of contraceptive use and desired family size amongst women of reproductive age in Kakamega County, Kenya. The specific objectives were threefold: to identify levels and determinants of contraceptive use among women of reproductive age in Kakamega County, to determine the role of socio-cultural factors on fertility preference among women of childbearing age in Kakamega County; and to identify the role of demographic factors in determining fertility preference among women of childbearing age in Kakamega County. The results showed that increase in family planning use corresponds with the desire to have fewer children while the desire to have an increased number of children is influenced by low use of family planning. The advancement in education level and increase in age at first marriage showed a reduction in the desire to have many of children. Women residing in urban areas were found to have fewer children than their counterparts in rural areas. Further, women with low income were found to have more children compared to those who had high income. The study also found out that the perceived mean number of children translates to long fertility duration as adolescence start giving birth at an early age hence; age factor and sexual behavior were established to be predictors of fertility preferences. The study recommends that the government develops good plans and policies to encourage maximum utilization and access to health care services for effective implementation of family planning use to all women particularly those in rural areas, in an equitable, indiscriminate and socially sensitive way. The government also needs to adequately train and facilitate community health workers to enable them take reproductive information and supplies directly to peoples’ homes. Further, efforts to increase girls’ education must address the problem of pregnancies among young girls aged 18 years and below so that they do not become mothers before adulthood. To lower school drop-outs among girls, the Ministry of Education Science and Technology ought to work closely with stakeholders in ensuring that the back-to-school policy is being fully implemented to end early marriages.
**ABBREVIATIONS AND ACRONYMS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tr>
<td>FP</td>
<td>Family Planning</td>
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<td>HBM</td>
<td>Health behavioral model</td>
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<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>MDGS</td>
<td>Millennium Development Goals</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<td>NCPD</td>
<td>National Council for Population and Development</td>
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<td>PBT</td>
<td>Problem behavior theory</td>
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<td>SSA</td>
<td>Sub-Saharan Africa</td>
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<td>STI's</td>
<td>Sexual transmitted infections</td>
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<td>TFR</td>
<td>Total fertility rate</td>
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<td>TRA</td>
<td>Theory of reason action</td>
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<td>UNFPA</td>
<td>United Nations Fund for Population Activities</td>
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<td>WHO</td>
<td>World Health Organization</td>
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OPERATIONAL DEFINITION OF TERMS

**Contraception:** It refers to the device or mechanism used for reducing the likelihood of the fertilization of an ovum by spermatozoa. It prevents pregnancy by interfering with normal causes of ovulation, fertilization and implantation.

**Contraceptive behavior:** It refers to activities involved in the process of identifying and using contraceptive method to prevent pregnancy and it involves activities such as contraceptive initiation, continuation or discontinuation, misuse or mistiming, use or non-use, compliance and adherence.

**Demographic factors:** These are population characteristics assigned to age, sex, education, employment, birth rate, family size and marriage age.

**Family Planning:** This is the practice of controlling the number of children in a family and deciding on intervals between their births, particularly by means of artificial contraception or voluntary sterilization.

**Socio-cultural factors:** These are factors that are inherent in the individual’s environments and contribute to determinants of contraceptives use and fertility preferences. They include actors such as marital status, husband dominance, urban or rural residence, age at first marriage, culture, religion, beliefs, education and social-cognition features such as parents and peer influence, fertility preferences, economic level of households and individual sex behaviors.

**Reproductive health:** It implies that people in the reproductive age are able to have safe sex life and are capable to reproduce having the freedom to decide if, when and how often to do so.

**Self-efficacy:** It’s an individual belief in his/her capacity to execute behaviors necessary to achieve a set goal. It reflects confidence in ability to exert over one’s own motivation, behavior and social environment.
CHAPTER ONE

INTRODUCTION

This chapter deals with background to the study on determinants of contraceptive use and fertility preference among women of the reproductive age in the world, Africa, Kenya and Kakamega County in Kenya. It also presents the statement of the study’s problem, its objectives, questions, justification, scope and limitations.

1.1 Background

Differences in contraceptive levels and fertility preferences have caused varying fertility rates observed worldwide in different regions (Creanga et al., 2011). The social factors inherent in the individual’s environments that contribute to social cultural determinants of contraceptives use and fertility preferences include actors such as marital status, husband dominance, urban or rural residence, age at first marriage, culture, beliefs, education and social cognition features such as parents and peer influence, fertility preferences, economic level of households and individual sex behaviors (Creanga et al., 2011).

Worldwide there are differences in contraceptive use caused by low reproductive health knowledge, attitude and behavior among women of reproductive age (WHO, 2012 &UNFPA, 2012). Demographic factors which comprise population of women in the reproductive age, family size, birth rate, marriage age, family income, age, sex, employment, and educational level of respective women in the reproductive age are responsible for the varying total fertility rates globally. The
fertility levels in Africa are currently at 4.5 children per woman in the reproductive age, a figure that is far above the global average of 2.5 children per woman (You et al., 2012).

Earth is finite; meaning, resources and environment are threatened by pressure exerted on it by ballooning population experienced across diversified geographic regions and amongst different population groups (Danhzen et al., 2015). Further, according to the report, Africa has no potential of reducing its population size until 2080 as result of substantial increase in number of women in the reproductive age contraceptive use and other demographic and socio-cultural factors that play a big role in determining fertility rates across ages of women in the reproductive age (WHO, 2012, Danhzel, 2015 & Creanga et al., 2011).

Research carried out by the Guttmacher institute estimated that developing countries have more than 200 million women who would like their next pregnancy delayed or to stop bearing children altogether but only 64 million of these women relying on less effective methods while approximately 130 million use no method of contraceptives because they believe that they are not at risk of getting pregnant, are not fecund, are breastfeeding or are not having sex frequently or face other barriers to using contraceptive. This, in the long run, results into unintended and mistimed pregnancies thus the high parity which translates to high fertility that depletes resources even as young women miss to achieve universal education, and of course, low economic development (Creanga et al., 2011). As a result, the
women’s life has been impacted negatively since there are disparities in the ability to properly plan pregnancies as desired and this contributes to a cycle of disadvantages experienced by vulnerable populations.

Kenya is experiencing many incidents of mistimed (26%) and unwanted (17%) pregnancies among all women of childbearing age, figures which are relatively high, with young women (15-24 years) experiencing even higher mistimed (32% versus 30%) and unwanted (15% versus 10%) pregnancies compared to women in other age groups (Remare et al., 2012). Each year, about 13,000 Kenyan girls drop out of school due to accidental pregnancies (Izigubara et al., 2012) and 103 out of every 1000 births in Kenya are delivered to girls aged (15-19) as evident in NCPD and UNFPA 2013 reports.

The total fertility rate (TFR) in Kenya is 3.9 births per woman with higher averages recorded in rural (4.5) than urban (3.1) areas respectively (Kenya Demographic Heath Survey KDHS, 2014). Also, in the report, women within 20-24 year’s age cohort have 248 births per a thousand compared to 164 in other ages. Rural urban fertility differences were found to be narrowing despite the differences in place of residence compared with previous surveys. Kakamega County has a TFR of 5.1 meaning it is still high though, at national level, there was a decline from 4.6 in the 2008-2009 to 3.9 in 2014 (KDHS, 2014).Further, the survey shows that on average, a Kenyan woman who is at the beginning of her childbearing years will give birth to about four children by the end of her reproductive period if fertility levels remain the same at the level observed in the three years preceding the survey.

There is a variation in fertility levels and trends in Kenya across different groups of women in the child bearing age. A study carried out by Tilahun et al. (2013) shows that fertility rate is higher in rural areas than in urban areas, higher among
uneducated than educated women, and higher in households with low income than those with high income.

Women from households in the lowest wealth quartile have a TFR that is more than twice that of women from the highest quartile as those with no education have a TFR more than twice that of women with secondary or higher levels of education (KDHS, 2014). Fertility levels by counties shows that counties with the lowest TFR are Kirinyaga with 2.3 followed by Nyeri, Kiambu and Nairobi, all with a TFR of 2.7. Counties with the highest TFR are Wajir with 7.8, West Pokot having 7.2, Turkana with 6.9 and Samburu having 6.3. Counties with higher TFRs tend to come from arid and semi-arid parts of northern Kenya.

Fertility preferences are closely related to the number of living children a woman has. In Kenya, it has been noted that as the number of living children increases, the desire to have another child decreases and vice versa (KDHS 2014). The survey shows that majority of currently married women with no child (73%) would like to have a child soon while those with one child (65%) would prefer to have a second child after some delay. As the number of children increases the interest in controlling the number of births grows rapidly. Furthermore, than half of married women when the KDHS survey was being carried who had three children wanted no more children or were sterilized; only 3 percent of women who had no children wanted no child. These numbers were consistent with the decrease seen in total fertility rate.

The success of family planning can be measured using the current level use of contraception. This can better be explained using contraceptive prevalence rate CPR which is the percentage of currently married women using a method of contraception according to KDHS 2014. We have got modern methods that include female and male sterilization, IUD, implants, injectable, pills, male and female condoms and lactation amenorrhea method LAM . Traditional method of
contraception include the rhythm that use periodic abstinence, withdrawal, and other folk methods. This survey shows that more than half of the currently married women (58%) are using some method of contraception; even as a slightly high number (65%) of sexually active unmarried women currently use some contraception. The survey also shows that contraception method commonly used among the married women is the modern form of contraception at 53 percent which is higher than the traditional methods at 5 percent. The most widely used methods are injectables at (26%), followed by implants (10%) and the pill (8%). Lastly, the rhythm method is the most popular tradition method that is used by 3 percent.

The contraceptive prevalence was found to peak among married in the 30-34 age groups while it was lowest for women aged 15-19. Of those residing in urban areas, 62 percent use some contraception compared with their rural counterparts of whom 56 percent used contraception. The KDHS (2014) report further explains that contraceptive prevalence increases with the level of education as 18 percent of women with no education and are married use contraception. Central region of Kenya has the highest prevalence rate for contraception use among married women at 73 percent, followed by Eastern region with 70 percent. North eastern region has the lowest prevalence rate of 3 percent.

In Kenya, the proportion of women who want to stop childbearing or who would like to space their next birth has been used as a crude measure of the extent of need for family planning, considering that not all of these women are exposed to the risk of pregnancy as some of them are already using contraception as shown by the 2014 KDHS survey.

The survey shows that those women who wanted to postpone their next birth for two or more years or who wanted to stop childbearing altogether but were not using a contraception altogether are considered to have unmet need for family
planning. Consequently, a woman who is having unwanted or mistimed pregnancy is considered to have unmet need for family planning. Similarly, amenorrhea who are not using family planning and whose last birth was mistimed or unwanted are considered to have unmet need. Those women currently using family planning services are said to have a met need for family planning.

The KDHS 2014 survey reported that 76 percent of married women were using family planning. This represents a slight increase from 71 percent in 2008-09. It found that 77 percent of the total demand for family planning methods is satisfied, mostly by a modern contraceptive method representing 71 percent. Background characteristics account for the varying levels of unmet need. The report showed that levels of unmet need were slightly higher in rural areas (20%) than urban areas (13). Married women with no education have the highest unmet need for family planning (28%) compared with women with secondary or higher education (12%). As wealth increases, the unmet need seems to decline from 29 percent in the lowest wealth quintile to 11 percent in the highest quintile.

The total demand for family planning also varies by background characteristics as indicated by KDHS 2014. It increases with age, peaking at 35-39 years thereafter it declines. Women with no education and those from the lowest wealth quintile have lowest demand for family planning. Three regions in Kenya have the highest total demand for family planning: Eastern region (83%), Central region (82%) and Western region (80%). The survey found that the percentage of demand of those satisfied with modern methods peaks at age 25-29 at 77 percent, and it increases with education and wealth. Generally, the North Eastern region has the lowest total demand (33%); however, it also has the lowest percentage of demand satisfied. Further, sexually active unmarried women reported a higher demand for family planning and higher unmet need than currently married women. This category of women has 92 percent total demand and 27 percent unmet need.
High fertility rates can be reduced by provision of high efficacious family planning (FP) services that in long run translates to reduction in high parity (MOH, 2013). Despite its benefits, the FP use in Kenya is still low in rural areas though it has risen at the national level due to several factors including knowledge on contraceptive use that entails its benefits to the user, awareness of contraceptives methods and social-cultural factors that are associated with non-use of contraceptives, barriers to access to different contraceptive method, user characteristics and technology (Anguzu et al., 2014).

A newsletter on Kenya population news published in 2010 had revealed that family planning services provided in 1980s and early 90s in clinics and community based family planning programmes were helping to improve the health of Kenyan mothers and children. It went further to explain that community health workers were adequately trained and provided with valuable family planning facilities thus they often took information and supplies directly to people’s home. This initiative enabled most people regardless of their social and economical status to be aware of the benefits of planning their families. As reported in this newsletter, most service providers have neither the resources nor support to enable them provide services to their clients in the community.

The adolescents are not well exposed to FP programmes due to the fear that, by doing so, they are exposed to early sex that might affect their health and their educational pursuits. This notion does not go down well as it has been observed that majority of them have been forced to drop out school due to unwanted pregnancies. A good number of these women, being the adolescents, do not actually go back to school after giving birth and end up languishing in villages only to find that they are pregnant again due to idleness and lack of proper counseling and guidance provided at the health centers by health practitioners and at home by parents/guardians.
1.2 Statement of the problem

The report by KDHS (2014) shows that fertility in Kakamega County was high at 5 per woman in spite of the decline at the national level from 4.6 in 2008 to 3.9 in 2014. The unchecked fertility rate has a number of negative ramifications on the socioeconomic development of the county.

Kenya is experiencing relatively high proportions of mistimed (26%) and unwanted (17%) pregnancies among all women of childbearing age with young women (15-24 years) experiencing even higher mistimed (32% versus 30%) and unwanted (15% versus 10%) pregnancies compared to women in other age groups (Remare et al., 2012). Each year about 13,000 Kenyan girls drop out of school due to accidental pregnancies (Izigubara et al., 2012) and 103 out of every 1000 births in Kenya are delivered to girls aged (15-19) as revealed by NCPD and UNFPA 2013 reports.

Low utilization of contraceptive use has been generally associated with unwanted and mistimed pregnancies resulting to high parity thus affecting fertility preferences in Kakamega County as reported by KDHS 2014. The women involved and their respective children suffer the immediate adverse consequences of these pregnancies. This study, therefore, sought to find out the determinants of contraceptives and fertility preference in Kakamega County that are contributing to high fertility.

1.3 Objectives of the study

1.3.1 General Objective

The main purpose of the study was to identify the determinants of contraceptive use and the desired family size amongst women of reproductive age in Kakamega County, Kenya.
1.3.2 Specific objectives
The study was guided by the following specific objectives:

i. To identify the levels and determinants of contraceptive use among women of reproductive age in Kakamega County.

ii. To determine the role of socio-cultural factors on fertility preferences among women of child bearing age in Kakamega County.

iii. To evaluate the role played by demographic factors in influencing fertility preferences among women of childbearing age in Kakamega County.

1.4 Research questions

i. What are the levels and determinants of contraceptive use among women of reproductive age in Kakamega County?

ii. How do socio-cultural factors affect the fertility preferences among women in Kakamega County?

iii. What role do demographic factors play in influencing fertility preferences among women of childbearing age in Kakamega County?

1.5 Justification of the study

High parity has seen Kakamega County ranked second after Nairobi in the 2009 population census; it has a total fertility of 5.4 as shown by KDHS (2014). School dropout rate is high due to mistimed and unwanted pregnancies. Children born lack basic needs, mothers have low educational attainment that cannot guarantee them good jobs. A section of this vulnerable group of women in reproductive age decides to resort to exploit Kakamega forest to get charcoal, firewood, vegetables and wild berries thus degrading the forest. High density in the region is exerting pressure on available land rendering subsistence farming unproductive. Women have multiple sex partners whom they believe can help them meet their financial needs. High fertility rates resulting from the high parity can be attributed to low use of contraceptives due to socio-cultural barriers, attitude and sex behavior in the
region. The current study seeks to look for determinants of contraceptive use and fertility preferences in Kakamega County to meet the environmental sustainability so as to achieve the Global Sustainable Development goals and the Kenya Vision 2030 targets on population control to have the number that can be supported by the available resources.

1.6 Significance of the study

As a country we focus on Sustainable Development Goals which is a global requirement that we sustain our resources including land and forests. To achieve the Vision 2030 as a country, we need to check our population growth by embracing effective family planning use among women in child bearing age.

1.7 Scope and limitations of the study

There was a problem in transport as most of the roads were impassable due to heavy rainfall in the region at the time of study. This problem was solved by using motorbikes and homesteads near roads were used for the study. Adolescent were not open enough to share their views publicly to deal with this problem, these respondents were interviewed separately from the rest and incentives were given. Due to limited funds and time, the study only dealt with women in the reproductive age leaving out men who play a vital role in contraceptive use and fertility preference. The study also did not look at HIV infection resulting from unprotected sexual behavior as it only looked at the mistimed and unplanned pregnancies resulting from it.
CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

Literature reviewed in this chapter is based on the study’s objectives. The literature covers the barriers of contraceptive use, demographic factors and social-cultural values inherent in women of reproductive age that are responsible for the varying levels of contraceptive use and fertility preferences generally across the world and particularly in Kakamega County. The study filled the knowledge gap on influence of social cognition features (parents and peers), demographic factors and environmental system on shaping the women’s contraceptive knowledge, attitude and behavior leading to variations in fertility rates. Age, residence, education, feared side effects, access to different contraceptive methods and wealth quartiles have been found to be significant in vast literature (KDHS 2014; Akoth, 2013; Creanga et al., 2011).

2.1 Determinants of contraceptive use among women of childbearing age

2.1.1 Reproductive Health Knowledge and contraceptive use

Globally, there is an increasing unmet need for safe and effective family planning services (Korra, 2012). Most women in Africa, just like in many parts around the world, desire to control both the number and timing of births but lack an effective contraceptive method due to lack of reproductive health knowledge, negative attitude towards the use of contraceptives and sexual behavior among women of reproductive age (Korra, 2012; Nagendo, 2012).

Inadequate knowledge about contraceptive methods and their benefits, family economic level, fertility preference and feared side effects of FP and disapproval by couples are major barriers to contraceptives uptake (Namuunda et al., 2014, Korra 2012; Nagendo 2012). Knowledge on benefits and use of contraceptives is important as it determines the levels and trends of contraceptive use. Literature
sourced globally literature reports that in both Africa and Asia numbers of young women using contraceptive are much lower than the number of those who are pregnant. Further, 179 million pregnancies are classified as unplanned and unwanted – a figure equivalent to the annual global population growth (Eniojukan, 2015). Study carried out by Alkeim, et al. (2013) has revealed that African continent is experiencing an increase in population that has been linked to high fertility rates caused by unmet needs of contraception, demographic shift and social-cultural factors determining it.

Consequently, contraceptive prevalence globally has risen up in recent years according to global analysis. Unmet need for family planning has been declining from 15% to 12% worldwide but remaining above 25% in three sub regions (Eastern, Middle and Western Africa) with 42 countries most of which are in Africa. Worldwide 146 million married women of reproductive age had an unmet need for family planning in 2010 and 221 million had unmet need for modern family planning methods (Alkema et. al., 2013)

Women with knowledge about contraceptives and the benefits of FP are more likely to use contraceptive (Masoda&Govenda2013). This means that those with no knowledge of benefits of contraceptive use are at risk of having mistimed and unplanned pregnancies. Knowledge on contraceptive types, benefits, where to get them and how they are administered solely depends on media exposure and community sensitization by health practitioners.

A study carried out by Namuunda et al. (2014) on knowledge level of contraception revealed that in Kenya, knowledge on family planning is almost universal at 95% for women of reproductive age with the male condoms, injectable contraceptives and pills being the most commonly known methods. Further the report shows that in the last two decades, FP use has increased from 18 % (1987) to 39% in (2008/2009).
Despite the effort put in by the government to educate the public on importance of FP through media and health facilities, the unmet need for FP has stalled to around 25% and it is considered high in sub-Saharan Africa. In Kakamega County, the total fertility rate is 5.2 children per woman (Namuunda et al. 2014). This study looks into other factors other than education that determines fertility like access to health centers where contraceptives are provided to women in the childbearing age. Lower utilization of contraceptives has been attributed to limited capacity to health care system and structure within which family services are offered (KDHS, 2014).

A 2010 newsletter on Kenya population news reveals that family planning services provided in 1980s and early 90s in clinics and community based family planning programmes were helping to improve the health of Kenyan mothers and children. It goes further to explain that community health workers who were adequately trained and provided valuable family planning facilities often brought information and supplies directly to people’s homes. This action enabled most people regardless of their social and economical status was aware of benefits of planning their families. As reported in this newsletter, service providers have neither the resources nor support to enable to provide services to their clients in the community.

The adolescents are not well exposed to FP programmes due to the fear that, by doing so, they are exposed to early sex that might affect their health and their educational pursuits. This notion does not go down well as it has been observed that majority of them have been forced to drop out school due to unwanted pregnancies. A good number of these women, being the adolescents, do not actually go back to school after giving birth and end up languishing in villages only to find that they are pregnant again due to idleness and lack of proper counseling and guidance provided at the health centers by health practitioners and at home by parents/ guardians.
2.1.2 Feared side effects associated with contraceptive use

Majority of women not using contraceptive worldwide cites negative effects of their use. Contraceptive use, since its introduction, has caused severe side effects associated with it such as heavy bleeding during menstruation period, excessive gain of weight, lack of sexual desire, headache and blood pressure (Creanga et al., 2011). These effects act as a major barrier to contraceptive use by many women in reproductive age according to the same report. Heavy bleeding during menstruation period drives fear of becoming anemic among women in the reproductive age; as result, they opt not to use contraceptives. Being anemic may force one to have blood transfusion and with the fear of contracting AIDS having received blood from an infected person, one prefers not to use contraceptives. In addition, most women fear losing their shape as they associate the use of contraceptive with excessive weight gain. Excessive weight is believed to cause high blood pressure and heart attack. This drives fear amongst women in the reproductive age. Lack sexual desires among women who are married or those in relationships, sets in likelihood of women not using contraceptives.

The report by National Council for Population Development (NCPD, 2014) observes that, in Kenya, 106 births occur annually for every 1000 adolescent girls ages 15 to 19 annually representing a high rate of adolescent pregnancy. These adolescent pregnancies actually diminish the girls’ life prospects due to the fact that they are forced to drop out of school leaving them with little education and empowerment which in turn accelerate poverty.

2.1.2 Family planning use and economic development

The report by United Nations Population Fund (UNFPA, 2013) that shows that in Kenya, 106 births occur annually for every 1000 adolescent girls ages 15 to 19 annually represents a high rate of a pregnancy. These adolescent pregnancies actually diminish the girls’ life prospects due to the fact that they are forced to drop out of school leaving them with little education and empowerment which in turn accelerate poverty. The report goes further to explain that community health
workers who were adequately trained and provided valuable family planning facilities often brought information and supplies directly to people’s homes. This action enabled most people regardless of their social and economic status to be aware of benefits of planning to their families. As reported in this newsletter, service providers have neither the resources nor support to enable them provide services to their clients in the community.

2.2 The role of socio-cultural factors on fertility preference among women of childbearing age

A research carried out by Hogan et al. 2010 indicates that high rates of unwanted pregnancies and high parity among Sub-Saharan women have been linked to low use of contraceptives. Family planning enables women to focus on education; meaning, they postpone marriage. Basically this enables them to concentrate on education pursuing their careers thus securing good job opportunities that empowers them economically.

Further, the study reveals that late marriages have been found to reduce numbers of children compared to early marriages. Women’s health and their ability to function well in the society solely depend on the fertility reduction. It has clear effects on the health of women, children and families especially in developing countries. Unwanted and mistimed pregnancies adversely affect women’s advancement.

Socio-cultural and economic factors that include parents and peer group influence, urban or rural settlements, marital status, fertility preference, birth order, level of education and employment have played a great role in determining fertility rates in the world (Doswell et al., 2012; KDHS 2014; Akoth et al., 2013). Africa has a fertility rate of 4.5 children per woman in the reproductive age, a rate that is significantly higher than the global fertility rate of 2.5 children per woman. Though this level is seen to decline in Africa, the pace is very low particularly in
sub-Saharan Africa where TFR is much higher than elsewhere in the world (Danzhen et al., 2015).

Low uses of contraceptives, demographic shift and social cultural factors have been found to play a big role in raising the fertility rates in Africa (Korra, 2012; Danzhen et al., 2015). In Kenya, the total fertility rates in rural areas has declined to 3.9 down from 4.6 in 2008 (KDHS, 2014) but in Kakamega County the fertility rate is at 5 children per woman according to the same report. Further, the report by National Council for Population and Development (NCPD, 2014) indicates that, in Kenya, 106 births occur annually for every 1000 adolescent girls aged 15 to 19 representing a high rate of adolescent pregnancy. These adolescent pregnancies actually diminish girls’ life prospects due to the fact that they are forced to drop out of school, leaving them with little education and empowerment which in turn accelerates poverty.

2.2.1 The role of peers and parents in determining fertility preference

A research carried out by Eniojukan, 2016 reports that in both Africa and Asia the number of young women using contraceptives is much lower than the number that are pregnant due to social cultural factors that deter contraceptive use. As a result, 179 million pregnancies are classified as unplanned and unwanted a figure equivalent to the annual global population growth. Alkema et al. (2013) in their study revealed that the African continent is experiencing an increase in population that has been linked to high fertility rates caused by unmet needs of contraception, demographic shift and socio-cultural factors determining contraceptive use. Peers and parents have influence in shaping individuals’ sexual behavior and attitudes (Wong, 2012). Early sexual intentions are associated with lack of good parental communication and negatively associated with deviant peer affiliation (Midcourt et al., 2010).
2.2.2 The influence of household economy level and desired family size

Worldwide, women from the poorest wealth quintile have more children compared to those from high wealth quintile (Danzhen et al., 2015). Fertility levels differ considerably across the African continent ranging from 1.5 children per woman in Mauritius to 7.5 children per woman in Niger (Hoggan et al., 2010). This report reveals that children are viewed to be a source of income. In rural areas children are used for casual labor earning the family daily meals. Those living close to natural resources such as forests resort to exploiting them through firewood collection, charcoal burning and timber extraction. These activities adversely affect the climate of adjacent areas.

Alkema et al. (2013) have shown in their study that low use of contraceptives results in unwanted and mistimed pregnancy forcing women to discontinue their education making them not secure good jobs subsequently leading to vicious cycle of poverty. Children born of these women are at times neglected and suffer behavioral problems as lack good parental guidance, poverty and lower educational achievement. Countries with high birthrates have the potential of reducing poverty and hunger. Consequently fertility rates have been reduced from 6 to 3.

2.2.3 The role of economy on fertility preferences

The number of living children a woman has is closely related to fertility preference whereby as the number of children increases, the desire to have another child decreases and vice versa (KDHS, 2014). This means that a woman with more children is likely to use contraception than one with few children thus reducing the FR of an individual woman and vice versa. This goes hand in hand with the perception of an individual woman on the ideal number of children she desires to have and how she can comfortably provide for their basic needs.

Generally, this idea varies significantly across ages and different economic levels of women. Women with low income tend to have more children as they are
believed to help in generating family income by engaging in casual labor. This phenomenon is observed in rural areas where children are engaged in various economic activities such as collection of firewood and charcoal burning particularly in areas adjacent to forested areas with the main aim of selling these products to obtain money.

2.3 The role played by demographic factors in influencing fertility preference

2.3.1 Preferred Children sex and fertility preference
Demographic shift in rise of numbers of women in the reproductive age from 50 million in 1950 to 280 million in 2015 has played a major role in high fertility rates recorded in Africa (Danzhan, et al., 2015). Preferred number of children also is determined by the sex of children one has. African traditions value the boy child, and a woman with a girl child will try her luck to have a boy child who is believed to inherit his father’s wealth when he passes on (KDHS 2014). This practice will force a woman to have more children than the preferred number she initially intended thus raising her fertility rate. Basically, it is hard to decide the sex of a child one wants and, in any case that it happens that a woman gets only girls and not boys, then the number of children will generally be high.

2.3.2 Influence of age at first marriage on family size
Premarital exposure to pregnancy risks has inversed with a widening gap between sexual activity prior to marriage placing young women at increased risk of getting pregnant when they are most socially and economically vulnerable (Haggan, 2012). Early marriages expose women to early sexual intercourse thus they become pregnant early thus lengthening their lifetime fertility. This inversely translates to long life time fertility as adolescence start giving birth at an early age (Danzhen et al., 2015).
Consequently, children of adolescent mothers experience higher rates of neglect, behavioral problems, poverty and lower educational attainments (Creanga et al. 2012). Undesired or mistimed pregnancies therefore significantly impact on the course a woman’s life and disparities in the abilities to plan pregnancies as desired can contribute to a cycle of disadvantage experienced by vulnerable population.

2.4 Theoretical framework

A survey of literature extensively shows that there are three models commonly used in theoretical framework for understanding Reproductive Health Knowledge, attitude and behavior patterns among women of reproductive age.

2.4.1 The Health Behavioral Models (HBM)

In this particular model a specific related action will be taken by individuals in order to avert the negative health condition that have a positive expectation of avoiding it (Wong, 2012). It focuses mainly on three perceptions the first being the perceived susceptibility, that is, a belief that there are chances an individual could acquire a condition (Hall, 2012).

The second is the perceived severity which is a belief that a condition could be serious. It has perceived barriers and beliefs in the tangible and psychological costs that prevents one from engaging in the action (Wong, 2012). The perceived side effects of hormonal contraceptives may include heavy bleeding during menstruation period which drives the fear of becoming anemic among women in the reproductive age. Subsequently, they opt not to use the contraceptives. It is also believed that being anemic may force to have blood transfusion and with fear of contracting AIDS having received blood from an infected person, thus one prefers not to use contraceptives. Furthermore, most women fear losing their shape as they associate the use of contraceptive with excessive gain of weight. Excessive weight is in turn believed to cause high blood pressure and heart attack. This drives fear amongst women in the reproductive age. Lack of sexual desires and
mood swings among women who are married or those in relationships also prevent an individual from using contraceptives. There are also physiological risks of hormonal contraceptives like blood clots that can cause heart problems especially if the main arteries are affected. Lastly, barriers like inconvenience in using contraceptives like having to remember to take the daily pill or apply condom during intercourse and limited access to the methods as well as the procedures involved in obtaining a prescription for oral contraceptives or requiring a medical procedure for intrauterine device insertion act as barriers to contraceptive use.

The third are perceived benefits which entail beliefs in the efficacy of the preventing behaviors that may have negative conditions to the individual. This tenet includes the perceived effectiveness, feasibility and other advantages of using contraceptives methods to prevent pregnancy compared to the perceived barriers. Most of the women who use IUD chose this method because of its high contraceptive efficacy, long-term convenience and low hormonal risks. This also includes non-contraceptive benefits of a method that is one using it to prevent against ovarian and uterine cancer, anemia and improvement of menstrual symptoms and acne.

In addition to the HBM, we have got the concept of self efficacy which is the perceived ability to successfully perform an action. Thus the HBM generally focuses on knowledge and individual social-demographic and cultural factors such as the influences of family, peers and institution of education and religion (Wong, 2012). Having knowledge on health condition that one is likely to suffer from as result of not using contraceptive will motivate individual to use it. Mistimed and planned pregnancy can end up in risky abortion whereby the lives of the mother and the child can be at risk.

The HBM has been extensively used to understand contraceptive use and the resulting fertility among women in their reproductive age. It has shown that women who perceived themselves to be at a greater susceptibility to pregnancy
were more likely to have used effective methods of contraceptives as shown in the study carried out by Wong(2012).

2.4.2 Theory of Reasoned Action (TRA)

In this theory, individual intention in performing a specific behavior basically depends on two factors: the attitude towards the behaviors and social environment influence on the behavior.

Across the world, sexual behaviors and the desire to have children have been predicted by the use of TRA. In the theory, peers and parents do play a role in shaping sexual behavior and attitudes as reported in the study carried out by Wong (2012). Social institutions including schools and colleges influence behaviors greatly as individuals in most cases copy from their colleagues certain behaviors. In these institutions, people come from different backgrounds such as different economic backgrounds, different child upbringing and different lifestyle. Those who are raised in families with good parental guidance are influenced by what they see their friends do and they end up engaging in sexual behaviors to get money so as to enjoy higher living standards as they term it. The use of internet also exposes women to pornography that in the long run leads to unbecoming sex behaviors. At times, unprotected sex ends up in unplanned and mistimed pregnancy whereby the affected woman is forced out of school which affects her life negatively. In addition, sexually transmitted infections may arise from this.

2.4.3 Problem Behavior Theory (PBT)

There are three independent theories that have related components of psychosocial systems. One, the perceived environment systems which include proximal and distal social influences factors that comprise family and peer orientation, and expectation regarding problem behaviors(Wong, 2012). Two, the personality system which include social cognitions, individuals values, expectations, beliefs and attitudes (Wong,2012).This includes susceptibility and seriousness of unwanted pregnancy and its sequel including birth, abortion and parenthood that
both provides the incentive to use contraception. This construct puts into consideration personal feelings of seriousness of becoming pregnant based upon subjective assessment of medical and social consequences of pregnancy and child-bearing. It may include factors like body changes during pregnancy, complications like morning sickness and having dislikes of food and people. Furthermore, an individual may have fears of dropping out of school, losing a job due to increased child-rearing responsibilities and rejection by either parents or the father of the child. Three, the society system also determines fertility preference and contraceptive use. Some societies value many children especially boys whom they believe carry on their linage. When this happens, a woman is forced to bear many children to be accepted in the community and therefore avoids using contraceptives as way of spacing births or stop giving birth altogether. These factors can impact on the likelihood of contraceptive use.

Social cognition features includes parents, school and peers. Literature has shown that adolescent sexual initiation models have been associated negatively with deviant peer affiliations that drive one to early sexual intentions (Madkour et al., 2010). The PBT has been useful in predicting sexual behavior and intention (Alkema, et al., 2011). The three theoretical models will be used as they are intertwined.
2.5 Conceptual framework

INDEPENDENT VARIABLES

• Individual level variables:
  Education level, Knowledge on contraceptive, Attitudes towards use of contraceptives and Wealth levels
• Household variables:
  Income, Occupation and Education
• Community variables:
  Culture on fertility preference, Religion, Parents and Peer influence

INTERVENING VARIABLES

• Distal variables or proximal
• Demographics and socio-cultural factors (family size, peers, institutions, education and age)
• Attitudes towards contraceptive use (stereotypes, stigma)
• Personality and emotions
• Other individual variables (perceived risk, sensation and pleasure seeking)

DEPENDENT VARIABLES

1. Contraceptive use
2. Fertility preferences

Source: Adopted and modified from Wong (2012)

Figure 1.1: Conceptual Framework

Contraceptive use and fertility preferences are determined by individual, household and community variables. Individual variables include education as those who have attained higher education level have few numbers of children compared to their colleagues who dropped out school. This is because they take long time schooling and enter marriage late. They have good knowledge of contraceptives and are well informed on benefits or importance of contraceptives and they make good use of them.
Consequently, an individual who is economically empowered is in a position to get contraceptives compared to the poor who diverts most of their time to take care and provide basic needs for their families. Community variables include culture that encourages more children per couple as they are viewed to be a source of wealth especially girls in terms of bride price for parents. Children also carry on the parents’ name long after their death. Other community factors include religion that plays a vital role in determining contraceptive use and fertility preferences among women in the reproductive age. Muslim and Catholic religions prohibit their followers from using contraceptives while Protestants use it and have been found to have few children.

Intervening variables are setbacks as they hinder effective contraceptive use and encourage high numbers of desired children. They include distal factors like influence of family (parents / guardian) peers and institutions (education and region) factors

Women who consider themselves susceptible to pregnancy are likely to use effective contraceptives. Proximal factors include personality system which entails social cognitions, individual values, expectations, beliefs and attitudes as earlier on used by Wong (2012) that demonstrated that they affect individual behavior which later on determines contraceptive use and fertility preference. Low use or non use of contraceptives, together with demographic and social-cultural factors slow or accelerate contraceptive use that eventually determines fertility preference.

Demographic factors (age at first marriage, rural-urban residence, number of children, infidelity and women empowerment); Psychosocial factors (desired family size, sex preferences, peer influence and parental guidance); Demographic factors (age, sex and birth order; Socio-economic factors (house hold income, occupation, education and place of residence) and Behavioral/ biological factors
(fecundity, women’s sexuality, contraceptive use, post-partum and infecundity) all interact to determine contraceptive use and desired children.
CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction
This chapter presents the research plans and describes the location of study area. It thus defines the basic methodological details to be used in research study and it contains research design, variables, target population, sampling techniques, sample size, research instruments, validity and reliability, data analysis procedures as well as data management and ethical considerations.

3.1 Research design
A community based cross sectional study design method was employed. This design looks at a variable at a time and it focuses on finding relations of variables at a point. According to Coggan (1977), the design is useful in gathering information of population in a single point at a time. It is carried out in a short time frame like weeks or a few months. The variables included in the study at one particular time may reveal variables that are represented in a cross-section of the population. It is an ideal research design preferred by many researchers because it utilizes different groups of people in variables of interest, but shares other characteristics. The present study had different groups of women who were in child bearing age and were divided into different age stratum. This design was used because large data collection from different groups could easily be done as all the data required was collected at the same time from a large population. The design is meant to enable a person to gain understanding of a phenomenon. The short time taken to conduct the research minimized the rate of dropout of participants. All women in the reproductive age in Kakamega County were eligible to participate in the study. The study used 384 women in the reproductive age to participate for quantitative survey.
3.2 Study variables

The contraceptive use and fertility preferences were the dependent variable for the study. The independent variables were Determinants of contraceptive use (knowledge of service use, access to health facility and impacts of HIV/AIDS); Socio-cultural factors (marriage, rural-urban residence, number of children, infidelity and women empowerment); Psychosocial factors (desired family size, sex preferences, peer influence and parental guidance); Demographic factors(age, sex and birth order) ; Socioeconomic factors (house hold income, occupation, education and place of residence) and Behavioral/ biological factors (fecundity, women’s sexuality, contraceptive use, post-partum and infecundity).

The variables were determined by use of structured questionnaires and focus group discussion guides and the results analyzed using multilevel approach. This approach allowed simultaneous examination of community level and individual level characteristics. Individual level characteristics included knowledge and attitudes towards use of contraceptives, education level attained by an individual, wealth index and fertility preference. Community level characteristics were child sex preferences, early marriages for material gain by the woman’s family and religion.

3.3 Location of the study

Kakamega County is a county in the Western region of Kenya. It has a total population of 2,166,065 and 398,709 households; it covers an area of 3,244 square kilometers. It has got a population density of 515 people per square kilometers. Its main economic activities are maize farming, sugarcane farming and gold mining in Kakamega south sub-county mainly in Ikolomani ward.
3.4 Target population

The size of the target population was 444,350 women in the reproductive age. The key resource people were women leaders in various sub-counties i.e. women representative in various wards, community health officer, church leaders and village elders. Since the study is basically dealing with contraceptive use and a fertility preference, only women in the reproductive age with a live birth or pregnant at the period of study were legible for the study. The target population comprised of all women in reproductive age (15-49) years. Using age stratum, participants were required to give their specific age for easy analysis of information they will give. At the selected households only those eligible for study were selected and the outcome responses recorded under age specification of the responded.

3.5 Sample size

To construct the sample size, a sample size formula for finite population by Krejcie and Morgan (1974) and supported by Mugenda and Mugenda (2003)) was used with 95% confident level and margin error of 0.05.

\[ S = \frac{N \times p \times (1-p)}{d^2 (N-1) + N \times p (1-p)} \]

Where S= required sample size

\[ x = z \text{ value (eg.1.96 for 95\% confidence level)} \]
\[ N = \text{Population size (444,350)} \]
\[ p = \text{Population proportion (expressed as decimal) assumed at 0.5(50\%)} \]
\[ d = \text{Degree of accuracy 5\%; expressed as proportion (0.05); It is its margin error.} \]

For this study the sample size was 384 women in reproductive age.
3.6 Sampling procedure

The primary sampling units were households within Kakamega County. Since the county is very expansive, the households were selected based on twelve sub-counties found in the county. Since households were used, the first household to be studied was determined by the presence of women in the reproductive age. The sample size being calculated to be 384, it was divided among 12 sub-counties resulting to 32 respondents per sub-county. Thereafter to get vast data, the 32 respondents were divided amongst the wards in various sub-counties. Using total number of wards per sub-county the 32 respondents were divided to get an equal number per ward. The first household was picked upon randomly; subsequent every 10th household was selected. The information obtained from them included fertility preferences, number of living children per household, religion, education level attained by the respondents and social-cultural factors affecting fertility. This was done repeatedly until the intended number of respondents was arrived at and two respondents were selected from each household. The actual number of respondents was thus arrived at by systematic sampling method at the household level using age stratum of women in the reproductive age. The households in the urban component were selected basing on area of residence; that is, those who reside in the CBD, slums and estates. For quantitative study, purposive sampling technique was used to select participants for focus group discussion basing on who was able to give the correct response on fertility levels.

Eight sub-county health facilities within the county were used and they were selected by writing all the names of each government health facility on pieces of paper, folding them and placing them in plastic containers. Selection of cases was done by picking one piece of paper at a time and the name of the health facility recorded until a total of 8 was reached. Private health facilities were used for pre-testing and were selected randomly to get 4 from neighboring counties of Vihiga, Bungoma, Uasin Gishuand Nandi. This was done to test the effectiveness of
research instruments. In these private hospitals, women attending pre-natal and anti-natal clinics were interviewed to determine their mode of FP if ever used – that is contraceptive use, and also to determine other factors affecting birth rates. For the actual study, sub-county public hospitals registers for women practicing modern family planning were used.

Respondents were stratified for sampling procedures as follows: women in reproductive age who had their names in the health centre’s family planning registers were categorized into the following age groups: 15-19 years, 20-29 years, 30-39 years and 40-49 years. The fact that the study was determining fertility rates, only women who were either pregnant or had a live birth at the time of study were eligible for the study. Those who are in the (15-19 years) age bracket but not in the family planning registers were interviewed separately either at home or at school after getting the consent of either their parents or guardian.

Age stratum was used to find out the impact of age on contraceptive use and the resultant fertility level in each age group. Similarly, demographic, economic and socio-cultural factors determining fertility that include age at first conception, fertility preference, fecundity, wealth quintile and education level attained were determined at various age strata to assess’ fertility differentials.

Having obtained stratified age stratum from family planning registers, simple random sampling was used to select pre-determined number of participants for FGDs. Thereafter, many women as possible who were practicing modern FP from sub-county hospital registers were recruited for this exercise with the help of community health officers. Both at the household and health centers, structured questionnaires and interview schedules were used.

3.7 Research instruments

For this study, the researcher used structured questionnaires, focus group discussion guides and interview schedules as the research instruments. The
questionnaire was divided into two sections; women in the family planning registers and women in reproductive age at selected households.

3.8 Validity and Reliability

A validated questionnaire was used to develop survey instrument and they were considered valid and reliable through favorable components of experts for obtaining information on women aged 15-49 years about reproductive health knowledge, attitude and behavior. The validity of the study was tested by use of the evidence related content that was checked and confirmed by the supervisors. Reliability of data was tested by the use of test retest method using the validated questionnaire that was given and data collected from different groups within the reproductive age.

3.9 Data Collection

Data was obtained from Kenya Demographic Health Surveys of 2014 and 2015 that provided information on fertility preference, contraceptive use and contraceptive rates in Kenya and particularly Kakamega County which was the area of study. Further, more data was collected by using structured questionnaires, focus group discussions and face to face interview using interviewer administered guides.

Training of data collectors was done on how to conduct sampling procedures and on interview techniques that were used. At the community level, data collectors visited sampled households where they conducted interviews and used structured questionnaires to collect data. There were three data sets that included knowledge of contraceptive, demographic factors affecting contraceptive use, socioeconomic factors affecting contraceptive use and fertility preference among women in the reproductive age.
Twelve group discussions were conducted in 12 sub-counties found within Kakamega County. While conducting focus group discussions, explanation was done and ideas generated from the respondents recorded. One on one session discussion was employed bearing in mind the sensitivity of the topic on determinants of fertility on sex behaviors. For clear information on determinants of fertility, participants were selected purposefully.

A focus group typically can be defined as a group of people who possess certain characteristics and they provide information which is qualitative in nature. The researcher used focus group with twelve participants who were special in terms of purpose, size, composition and procedure. Participants were selected because they had certain characteristics in common that were relating to the topic at hand and they included women in child bearing age that is between 15 and 49 years. These women were unfamiliar to each other. A total of six discussion groups were conducted in chief’s camps, churches and health facilities. These areas were chosen because of their convenience in terms of accessibility.

The participants were drawn from various wards within the sub-counties with each ward having 2 participants. Each sub-county had a representative from each age stratum. They were called from houses and health facilities. Various forms of compensation were used in form of cash payments, snacks, lunch, and beverages. These made the participants more open and willing to discuss the topic at hand.

A discussion guide was used to conduct the focus group discussions. Experienced persons including church elders, women group leaders, health officers and village elders were used. First they were trained and made familiar with the discussion guide. They were used as moderators to conduct the session. The data quality was maintained by training data collectors and supervisors. The moderators kept the conversation flowing by controlling the discussion session. If any participant got off track, it was the role of the moderator to pull the group back together. They
kept the discussion as formal as possible and encouraged all the participants to say what was in their minds. The length of discussion was 90 minutes for each session. During the study period at the field, regular follow up activities were conducted.

Further, any incompleteness and or inconsistency of data during collection was thoroughly looked into, edited and later on cleaned. Community health officer and field data collectors had to explain to the women the purpose of the study, its significance and what was expected from them at the same time answering the women’s questions. Confidentiality of the study data was assured to all participants.

I chose to use outside person to moderate the discussion because they were neutral. During discussion, whenever participants disagreed, the moderators had to give equal time to all viewpoints. The moderators were not supposed to provide any information; at the same time, it was not the moderators place to offer or convince participants of any particular point of view. For quantitative data, information from the Kenya Demographic Health Survey of 2014 was used.

3.10 Statistical analysis

To determine the frequency of dependent and independent variables descriptive statistics was used. Consequently to determine the presence or the absence of any statistical relationship of the outcome variable and the explanatory variables, Binary combined with logistic regressions were used. To declare statistical association, the adjusted odd ratio was used at P.L.O 5. Table 3.1 summarizes the statistical analysis with regard to each study objective.
Table 3.1: Statistical analysis

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>METHOD OF ANALYSIS AND ITS ADVANTAGES</th>
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| 1. To identify the levels and determinants of contraceptive use among    | Frequency distribution tables were used.  
  women in the reproductive age.                                             |  
  • Since the research used descriptive statistics, tables helped in showing the skews and kurtosis.  
  • Whereas kurtosis is the vertical departure from normal distribution, it gives a clear picture of relations between variables.  
|                                                                            |                                                                                                                                                                                                                                    |
| 2. To determine the role of socio-cultural factors on fertility preferences| Correlation coefficient r was used  
  among women in child bearing age.                                             |  
  • It is used to analyze the degree of relationship between two variables.  
  • It yields a statistic that ranges from -1 to 1.  
  • It helps the researcher to know the magnitude of relationship between variables. The bigger the coefficient the stronger the relationship between variables.  
|                                                                            |                                                                                                                                                                                                                                    |
| 3. To evaluate the role played by demographic factors in influencing       | Coefficient was used  
  fertility preferences among women reproductive age in Kakamega County.         |  
  • It helps to show the in the relationship between variables.  
  • If the coefficient is positive it means there is a positive relationship between the two variables  
  • A positive relationship means that as variable x1 increases, variable x2 increases as well and vice versa.  
  • A negative relationship means that as a variable x1 decreases variable x2 increases and vice versa  
|                                                                            |                                                                                                                                                                                                                                    |
3.11 Data Management

3.11.1 Logistical considerations
The authority to carry out the research was sought from the Kenyatta University whereby the letter was issued to obtain a permit from NACOSTI. Thereafter, written consent to carry out the study was obtained from the Kakamega County Commissioner who introduced me to the Ministry of Education and Health facilities in the region. Having obtained introductory letter from relevant authorities, I proceeded to the field to collect data.

3.11.2 Ethical considerations
I obtained research authorization from NACOSTI and Kakamega County Commissioner and CDE/CEB secretary. Due care was taken to ensure that all those agreed to participate in the study did so voluntarily. Group discussion was conducted upon obtaining written consent from either the parents or guardians for the participants below the age of 18 years.

The moderator explained the objectives to the participants who were assured that the information collected will be kept confidential. No participant was required to give any identifying information. Good relationship was cultivated with all the participants and the researcher – a move that was geared towards encouraging the participants to converse openly without fear due to sensitivity of the topic.

3.12 Data analysis
Knowledge on contraceptive use was measured by the number of different types of contraceptive mentioned by the participants. If the participant gave one or more types of contraceptives, then she was regarded as being knowledgeable on contraceptive.

Attitude of the participants about contraceptives was measured using a 3-point likert scale consisting of questions to determine attitude towards use of
contraceptive with three responses ranging from Agree, Indecision and Disagree. An answer given as indecision was collapsed to mean Disagree. Thereafter, attitude was measured to be positive or negative in respect to the answers that were given.

Behavior towards use of contraceptive was determined basing on responses to questions asked on behavior towards use of contraceptives as either positive or negative either from prompt questions in the interview schedules and discussion groups or structured questionnaires.

Demographic factors affecting contraceptive use and fertility preference were determined using age stratum basing on the average number of children in every age group, total number of women in the reproductive age, birth rate, marital status and fertility preference (Beck et al., 2017).

Economic level was determined by calculating the wealth quintile per household and education level attained by respective respondents.

The qualitative data obtained from the focus group discussions was thematically identified by replaying the tape record. The ideas were transcribed verbatim from the discussants. A third of participant’s response that illustrated key concepts was used directly during transcription. Finally data was presented and triangulated with quantitative findings.
CHAPTER FOUR

DATA ANALYSIS AND RESULTS INTERPRETATION

4.0 Introduction
This chapter presents data analysis, findings and discussions for data that was collected from 371 women in the reproductive age and officials from health centers health in Kakamega County Kenya. It should however be noted that the intended sample size for the study was 384, the total number of responded were 371 as some of those invited for interviews and focus group discussions failed to turn up. Also, not all the questionnaires were filled and some were not returned.

Data was analyzed using descriptive and statistical methods. The information obtained was processed and tabulated. The objectives provided the subheadings that aided in data analysis, interpretation and discussion of research findings. The objectives are restated as follows:

i. To identify the levels and determinants of contraceptive use among women of reproductive age in Kakamega County.

ii. To determine the role of socio-cultural factors on fertility preferences among women of child bearing age in Kakamega County.

iii. To evaluate the role played by demographic factors in influencing fertility preferences among women of childbearing age in Kakamega County.

The chapter begins with the analysis of socio-demographic attributes of respondents and variables concerned with the research objectives. Data analysis was done using frequency distribution tables, descriptive statistics, graphical presentations, correlations and Chi-square tests.

4.1 Demographic data
The respondents’ age, educational levels, desired number of children, wealth index and place of residence were the socio-demographic characteristics that were deemed fit to describe the socio-economic background of the population under the
study. The analysis was done using frequency distribution tables, bar graphs and pie charts.

4.1.1 Age groups frequency distribution

Table 4.1: Age groups frequency distributions

<table>
<thead>
<tr>
<th>Age group</th>
<th>Label</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>1</td>
<td>10</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>20-24</td>
<td>2</td>
<td>40</td>
<td>10.8</td>
<td>13.5</td>
</tr>
<tr>
<td>25-29</td>
<td>3</td>
<td>60</td>
<td>16.2</td>
<td>29.6</td>
</tr>
<tr>
<td>30-34</td>
<td>4</td>
<td>80</td>
<td>21.6</td>
<td>51.2</td>
</tr>
<tr>
<td>35-39</td>
<td>5</td>
<td>100</td>
<td>27.0</td>
<td>78.2</td>
</tr>
<tr>
<td>40-44</td>
<td>6</td>
<td>54</td>
<td>14.6</td>
<td>92.7</td>
</tr>
<tr>
<td>45-49</td>
<td>7</td>
<td>27</td>
<td>7.3</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>--</td>
<td><strong>371</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.1 shows the distribution of different age groups. Majority of the respondents (27.0%) were 35–39 years, this is the modal class of the age distribution. This was followed 30–34 years (21.6%), 25–29 years (16.2%), 40–44 years (14.6%) and 20-24 years (10.8%). The 15-19 years and 45-49 years were minority age groups in the reproductive group with percentage distributions 2.7% and 7.3% respectively.
4.4.2 Mean number of children born to women aged 15-49 years and age at first marriage across the demographic and social characteristics

<table>
<thead>
<tr>
<th>Background Characteristics</th>
<th>Mean number of live birth including pregnancy</th>
<th>Mean age at first marriage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-24</td>
<td>1.15</td>
<td></td>
</tr>
<tr>
<td>25-39</td>
<td>3.22</td>
<td></td>
</tr>
<tr>
<td>40-49</td>
<td>4.94</td>
<td></td>
</tr>
<tr>
<td>Literacy status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>3.6</td>
<td>24 years</td>
</tr>
<tr>
<td>Literate</td>
<td>1.8</td>
<td>16 years</td>
</tr>
<tr>
<td>Age at First marriage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 16 years</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>16 years or more</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not working</td>
<td>2.3</td>
<td>16.5 years</td>
</tr>
<tr>
<td>Agricultural</td>
<td>3.4</td>
<td>17 years</td>
</tr>
<tr>
<td>Non agriculture</td>
<td>2.6</td>
<td>16.52 years</td>
</tr>
<tr>
<td>Wealth index</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>3.6</td>
<td>15 years</td>
</tr>
<tr>
<td>Middle</td>
<td>3.1</td>
<td>18.2 years</td>
</tr>
<tr>
<td>Rich</td>
<td>2.56</td>
<td>24 years</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protestants</td>
<td>2.96</td>
<td>20 years</td>
</tr>
<tr>
<td>Muslims</td>
<td>3.54</td>
<td>19.75 years</td>
</tr>
<tr>
<td>Catholics</td>
<td>3.04</td>
<td>20 years</td>
</tr>
<tr>
<td>Perceived ideal number of children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 2</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>3 or more</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>Media exposure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No exposure</td>
<td>3.9</td>
<td>18 years</td>
</tr>
<tr>
<td>One media</td>
<td>3.5</td>
<td>22.5 years</td>
</tr>
<tr>
<td>More than two</td>
<td>2.7</td>
<td>24 years</td>
</tr>
<tr>
<td>Place of residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>2.4</td>
<td>20 years</td>
</tr>
<tr>
<td>Rural</td>
<td>3.0</td>
<td>19.5 years</td>
</tr>
<tr>
<td>Knowledge about FP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lower</td>
<td>3.3</td>
<td>17.5 years</td>
</tr>
<tr>
<td>Higher</td>
<td>2.7</td>
<td>23 years</td>
</tr>
</tbody>
</table>

Source: Data from the field
4.1.2 Desired number of children frequency distribution

Table 4.2: Desired number of children frequency distribution

<table>
<thead>
<tr>
<th>Number</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>30</td>
<td>8.1</td>
<td>8.1</td>
</tr>
<tr>
<td>1</td>
<td>53</td>
<td>14.3</td>
<td>22.4</td>
</tr>
<tr>
<td>2</td>
<td>97</td>
<td>26.1</td>
<td>48.5</td>
</tr>
<tr>
<td>3</td>
<td>76</td>
<td>20.5</td>
<td>69.0</td>
</tr>
<tr>
<td>4</td>
<td>35</td>
<td>9.4</td>
<td>78.4</td>
</tr>
<tr>
<td>5</td>
<td>44</td>
<td>11.9</td>
<td>90.3</td>
</tr>
<tr>
<td>6</td>
<td>36</td>
<td>9.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>371</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: data from the field

According to Table 4.2, the modal desired number of children is two with a distribution of 26.1%. The other desired number of children are three (20.5%), one (14.3%), five (11.9%), six (9.7%), four (9.4%) and zero (8.1%). The desired number of children does not necessarily mean the actual number of births. However, the desired number of children can be used to project the actual number of births. The majority of the respondents (77.6%) desired more than two children.

The following table shows desired number children and age at first marriage across different socio-economic levels. Advanced age, low literacy level, rural residents, and high income indicate that women in these categories desire more children and marry off early than their colleagues in other socio-economic categories. Religion also plays a key role in determining desired number of children as protestant have less numbers of children than the Catholics and Muslims.
4.1.3 Education frequency distribution

Table 4.3: Education frequency distribution

<table>
<thead>
<tr>
<th>Level</th>
<th>Label</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No education</td>
<td>1</td>
<td>40</td>
<td>10.8</td>
<td>10.8</td>
</tr>
<tr>
<td>Primary</td>
<td>2</td>
<td>71</td>
<td>19.1</td>
<td>29.9</td>
</tr>
<tr>
<td>Primary incomplete</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary complete</td>
<td>3</td>
<td>150</td>
<td>40.4</td>
<td>70.4</td>
</tr>
<tr>
<td>Secondary &amp; above</td>
<td>4</td>
<td>110</td>
<td>29.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>371</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The distribution of various levels of education of the respondents is shown in Table 4.3 and Figure 3. Primary complete education level with frequency of 40.4% of the respondents was the major level of education achieved by the population under study. 29.6% of the respondents had secondary and above levels of education while 19.1% had primary incomplete education level. No education was the minority with 10.8%.

4.1.4 Place of residence frequency distribution

The table below shows frequency and percentages by place of residence by respondents.

Table 4.4: Place of residence frequency distribution

<table>
<thead>
<tr>
<th>Place</th>
<th>Label</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>1</td>
<td>151</td>
<td>40.7</td>
<td>40.7</td>
</tr>
<tr>
<td>Rural</td>
<td>2</td>
<td>220</td>
<td>59.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>371</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.4 shows that majority of the respondents reside in rural settings while the minority live in urban areas. The rural dwellers are 59.3% while the urban dwellers are 40.7%.

4.1.5 Wealth index frequency distributions
Wealth index was calculated and respondents were grouped into four classes as shown in the table below.

<table>
<thead>
<tr>
<th>Class</th>
<th>Label</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
<td>1</td>
<td>110</td>
<td>29.6</td>
<td>29.6</td>
</tr>
<tr>
<td>Second</td>
<td>2</td>
<td>139</td>
<td>37.5</td>
<td>67.1</td>
</tr>
<tr>
<td>Middle</td>
<td>3</td>
<td>63</td>
<td>17.0</td>
<td>84.1</td>
</tr>
<tr>
<td>Fourth</td>
<td>4</td>
<td>45</td>
<td>12.1</td>
<td>96.2</td>
</tr>
<tr>
<td>Highest</td>
<td>5</td>
<td>14</td>
<td>3.8</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>--</td>
<td><strong>371</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 4.5, majority of the respondents are classified at second level wealth index with 37.5% followed by lowest wealth index with 29.6%. The other wealth index classes are middle (17.0%), fourth (12.1%) and highest (3.8%). Therefore, it implies that most of the population in Kakamega is living under poor socioeconomic status.
4.1.6 Age at first marriage

Table 4.6: Age at first marriage

<table>
<thead>
<tr>
<th>Category</th>
<th>Label</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;16 years</td>
<td>1</td>
<td>267</td>
<td>72.0</td>
<td>72.0</td>
</tr>
<tr>
<td>16+ years</td>
<td>2</td>
<td>104</td>
<td>28.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>--</td>
<td>371</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Results in table 4.6 show that majority of the respondents in this study started their first marriage at age below 16 years. 72% of the respondents were categorized as those who entered into their first marriage at <16 years while 28% entered into their first marriage at 16+ years. These results imply that majority of the respondents enter into marriage at a young age (below 18 years).

4.2 Determinants of contraceptive use

This section discusses findings on the determinants of contraceptive use among women of reproductive age. The prevalence usage rates of contraceptives, knowledge of family planning and methods of contraceptives. Though the sample size was 384, some questionnaires were returned answered thus reducing the number to 371 respondents.

4.2.1 Contraceptive use frequency distribution

Table 4.7: Contraceptive use frequency distribution

<table>
<thead>
<tr>
<th>Usage</th>
<th>Label</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1</td>
<td>64</td>
<td>17.3</td>
<td>17.3</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>307</td>
<td>82.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>371</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
The results in Table 4.7 show that majority of the respondents use contraceptives in controlling birth rates. 82.7% of the respondents use contraceptives while 17.3% do not use contraceptives in controlling birth rates. It should however be noted that usage of contraceptives is not necessarily influential on controlling birth rates, it is therefore imperative to analyze other associated aspects on fertility rates like knowledge of family planning, extent/frequency of contraceptive usage and methods of contraception.

4.2.2 Knowledge of family planning frequency distribution

Table 4.8: Knowledge of family planning frequency distribution

<table>
<thead>
<tr>
<th>Category</th>
<th>Label</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1</td>
<td>115</td>
<td>31.0</td>
<td>31.0</td>
</tr>
<tr>
<td>High</td>
<td>2</td>
<td>256</td>
<td>69.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>--</td>
<td>371</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

According to Table 4.8, results show that majority of the respondents have knowledge on family planning including use of contraceptives with a proportion of 69.0% respondents while 31.0% do not have knowledge on family planning in controlling birth rates.
### 4.2.3 Contraception methods and their rates of use frequency distributions

**Table 4.9: Contraception methods and their rates of use frequency distributions**

<table>
<thead>
<tr>
<th>Contraceptive Method</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pills progestin only</td>
<td>2728</td>
<td>1.71</td>
</tr>
<tr>
<td>Pills Combined oral contraceptive</td>
<td>13768</td>
<td>8.64</td>
</tr>
<tr>
<td>Emergency contraceptive pill</td>
<td>3537</td>
<td>2.22</td>
</tr>
<tr>
<td>FP Injections</td>
<td>91779</td>
<td>57.59</td>
</tr>
<tr>
<td>IUCD insertion</td>
<td>3601</td>
<td>2.26</td>
</tr>
<tr>
<td>Implants insertion</td>
<td>28436</td>
<td>17.84</td>
</tr>
<tr>
<td>Sterilization BTL</td>
<td>316</td>
<td>0.20</td>
</tr>
<tr>
<td>Sterilization Vasectomy</td>
<td>6</td>
<td>0.01</td>
</tr>
<tr>
<td>Client receiving Male condoms</td>
<td>12820</td>
<td>8.05</td>
</tr>
<tr>
<td>Adolescent Family planning uptake 10-14 yrs</td>
<td>2</td>
<td>0.00</td>
</tr>
<tr>
<td>Adolescent Family planning uptake 15-19 yrs</td>
<td>528</td>
<td>0.33</td>
</tr>
<tr>
<td>Youth Family planning uptake 20-24 yrs</td>
<td>1832</td>
<td>1.15</td>
</tr>
</tbody>
</table>

**Source: Kakamega County Referral Hospital family planning registers 2018**

Results in Table 4.9 were obtained from Kakamega County Referral Hospital family planning register. They show that majority of respondents use FP injections and implant insertions in controlling birth rates in Kakamega County. The relative frequencies of distribution of major contraceptive methods are FP injections (57.59%), implant insertions (17.8%), pills combined oral contraceptives (8.64%) and females receiving male condoms (8.05%). The relative frequencies of minor contraceptive methods are; IUCD insertion (2.26%) emergency contraceptive pill (2.22%) pills progestin only (1.71%), youth family planning uptake 20-24 yrs (1.15%), adolescent family planning uptake 15-19 yrs (0.33%), sterilization BTL.
(0.20%) and sterilization vasectomy (0.01%). It is also worth noting that adolescent family planning uptake 10-14 yrs does not have any relative frequency. Therefore, majority of the respondents (92.12%) show that the common birth rate controlling contraceptives in Kakamega County include FP injections, implant insertions, pills combined oral contraceptives and females receiving male condoms.

4.3.1 Correlation of Socio-cultural factors with FP use and the resultant perceived children

| Table 4.10: Correlation of Socio-cultural factors with FP use and the resultant perceived children |
|--------------------------------------------------|-----------------------------------|
| FP Knowledge                                    | Contraceptive use                  |
| R                            | 1                                  |
| FP Knowledge                      | P                                  |
| P                            | 0.000                              |
| P                            | 0.000                              |
| Contraceptive use               | R                                  |
| R                            | 0.721*                             |
| P                            | 0.000                              |
| R                            | 0.721*                             |
| P                            | 0.000                              |
| Desire Number of children       | R                                  |
| R                            | -0.506                             |
| P                            | 0.000                              |
| R                            | -0.506                             |
| P                            | 0.000                              |
| Level of education             | R                                  |
| R                            | 0.308                              |
| P                            | 0.000                              |
| R                            | 0.308                              |
| P                            | 0.000                              |
| Place of residence             | R                                  |
| R                            | 0.202                              |
| P                            | 0.005                              |
| R                            | 0.202                              |
| P                            | 0.005                              |
| Wealth index                  | R                                  |
| R                            | -0.009                             |
| P                            | 0.268                              |
| R                            | -0.518                             |
| P                            | 0.000                              |
| Perceived children            | R                                  |
| R                            | -0.518                             |
| P                            | 0.000                              |
| Correlation=r, Significance/p-value=p |

Source: Data from the field
According to Table 4.10 results show that, all the socio-cultural factors except wealth index are significantly correlated with FP use. For instance, FP use is strongly and positively correlated with contraceptives (r=0.721, p-value=0.000) while FP use is moderately and negatively correlated with desired number of children (r=-0.506, p-value=0.000).

On the other hand, FP use is fairly and positively correlated with level of education (r=0.308, p-value=0.000), FP use is weakly correlated with place of residence (r=0.202, p-value=0.005) and lastly, FP use is moderately and negatively correlated with Perceived number of children (r=-0.518, p-value=0.000).

Similarly, contraceptive usage is significantly and negatively correlated with desired number of children and perceived mean number of children. The correlation between contraceptive usage and desired number of children is -0.628 (p-value=0.000) and the correlation between contraceptive usage and perceived mean number of children is -0.621 (p-value=0.000).

Therefore, FP use is positively influenced by contraceptive use, education advancement and place of residence while desired number of children and perceived mean number of children are negatively influenced by FP knowledge and contraceptive usage.

The above correlation relations can be further investigated and analyzed using the cross tabulations and Chi-square tests of associations.
### 4.3.2 Association of socio-cultural factors with FP use and the resultant fertility preferences

Table 4.11: Association of socio-cultural factors with FP use and the resultant fertility preferences

<table>
<thead>
<tr>
<th>Factor</th>
<th>FP Knowledge</th>
<th></th>
<th>Chi-Square</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
<td>Total</td>
<td>x²</td>
</tr>
<tr>
<td>Contraceptive use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>52</td>
<td>64</td>
<td>5.424</td>
</tr>
<tr>
<td>Yes</td>
<td>103</td>
<td>204</td>
<td>307</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>115</td>
<td>256</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Perceived number of children</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;3</td>
<td>22</td>
<td>117</td>
<td>139</td>
<td>23.916</td>
</tr>
<tr>
<td>3+</td>
<td>93</td>
<td>139</td>
<td>232</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>115</td>
<td>256</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>12</td>
<td>28</td>
<td>40</td>
<td>7.142</td>
</tr>
<tr>
<td>Primary incomplete</td>
<td>23</td>
<td>48</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>Primary complete</td>
<td>47</td>
<td>103</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Secondary &amp; above</td>
<td>33</td>
<td>77</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>115</td>
<td>256</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Place of residence</td>
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<td></td>
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<tr>
<td>Urban</td>
<td>47</td>
<td>104</td>
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<tr>
<td>Rural</td>
<td>68</td>
<td>152</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>115</td>
<td>256</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Wealth index</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lowest</td>
<td>34</td>
<td>76</td>
<td>110</td>
<td>.167</td>
</tr>
<tr>
<td>Second</td>
<td>43</td>
<td>96</td>
<td>139</td>
<td></td>
</tr>
<tr>
<td>Middle</td>
<td>19</td>
<td>44</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Fourth</td>
<td>14</td>
<td>31</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Highest</td>
<td>5</td>
<td>9</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>115</td>
<td>256</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protestant</td>
<td>45</td>
<td>131</td>
<td>176</td>
<td>5.828</td>
</tr>
<tr>
<td>Muslim</td>
<td>22</td>
<td>46</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>48</td>
<td>79</td>
<td>127</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>115</td>
<td>256</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Media exposure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No exposure</td>
<td>81</td>
<td>35</td>
<td>116</td>
<td>126.991</td>
</tr>
<tr>
<td>One media</td>
<td>34</td>
<td>151</td>
<td>185</td>
<td></td>
</tr>
<tr>
<td>Two or more</td>
<td>0</td>
<td>70</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>115</td>
<td>256</td>
<td>371</td>
<td></td>
</tr>
</tbody>
</table>
According to Table 4.11, results show that 12 respondents were not using contraceptives and had low FP knowledge while 52 respondents were not using contraceptives but had high FP knowledge. On the other hand, 103 respondents were using contraceptives but had low FP knowledge while 204 respondents were using contraceptives and had high FP knowledge.

On perceived number of children, results show that 22 respondents were perceived to have a mean number of children less than 3 but had low FP knowledge while 117 respondents were perceived to have a mean number of children equal or greater than 3 and had high FP knowledge. Also, 93 respondents were perceived to have a mean number of children less than 3 and had low FP knowledge while 139 respondents were perceived to have a mean number of children equal or greater than 3 but had high FP knowledge. The results also show that perceived mean number of children and FP knowledge are significantly associated ($X^2 = 5.424$ and p-value = 0.020).

The results in Table 4.10 also show that 12 respondents had no education and had low FP knowledge while 28 respondents had no education but had high FP knowledge. Similarly, 23 respondents had primary incomplete education but had low FP knowledge while 48 respondents had primary incomplete education and had low FP knowledge. On the other hand, 47 respondents had primary complete education but low FP knowledge while 103 respondents had primary complete education and high FP knowledge. Similarly, 33 respondents had secondary & above education but low FP knowledge while 77 respondents had secondary & above education and had high FP knowledge. The results also show that education levels and FP knowledge are significantly associated ($X^2 = 7.142$ and p-value = 0.016). The adolescents are not well exposed to FP programmes due to the fear of by doing so they are exposed to early sex that might affect their health and of cause the educational attainment level. This notion does not go down well for it has been observed that majority of them have been forced to drop out school due
to unwanted pregnancies. A good number of this women being the adolescent don’t actually go back to school after giving birth and end up languishing in villages only to find that they are pregnant again due to idleness and lack of proper counseling and guidance provided at the health centers by health practitioners and parents/ guardians back at home.

One of the respondents said and I quote:

‘Mmh, I never stepped in any class as I was busy at home helping my mother with daily chores, later, I ran away and got married. I have seven children. They are blessings from God and I don’t use any family planning method, children are good’

The argument given here by this respondent clearly shows that she is not ready to use any contraceptive. According to her, one can have as many children as she wishes regardless of troubles in provision of basic needs and the resultant negative impacts they cause to the environment. Illiteracy can be blamed on this.

On the association between religion and FP knowledge, results show that 45 respondents were Protestants with low FP knowledge while 131 respondents were Protestants with high FP knowledge. On the other hand 22 respondents were Muslims with low FP knowledge while 46 respondents were Muslims with high FP knowledge. Lastly, 48 respondents were Catholics with low FP knowledge while 46 respondents were Catholics with high FP knowledge. The Chi-square results show that religion and FP knowledge are significantly associated ($X^2 = 5.828$ and p-value = 0.013). Catholics were found to have low use of contraceptives as their faith does not advocate its use. Similarly Muslims were found to have high fertility preferences as majority used traditional methods of birth control like safe days and some thought they were not fecund only to get pregnant when they least expected it. A respondent said;

‘I don’t use contraceptives; we are blessed by Allah to give birth to children and practicing FP is sin’.
Lastly, results show that 81 respondents had no exposure and had low FP knowledge while 35 respondents had no exposure but had high FP knowledge. On the other hand 34 respondents had one media exposure but had low FP knowledge while 151 respondents had one media exposure and high FP knowledge. Similarly, no respondent had two media exposures (phone, radio, or TV) where she gets informed on contraceptives and low FP knowledge while 70 respondents had two media exposure and high FP knowledge. The Chi-square results show ($X^2=126.991$ and p-value =0.00 0). Since the p-value is less than 0.05 then it was concluded that media exposure is significantly associated with FP knowledge.

Family planning use was strongly and positively correlated with contraceptives implying that most of those who did family planning were in agreement with usage of contraceptives as a method of controlling birth rates. These findings were also echoed by (UNFPA, 2012) which found that low worldwide contraceptive use were caused by low reproductive health knowledge, attitude and behavior among women of reproductive age.

Also important was the finding that FP use was moderately but inversely related with desired number of children. These results indicate that increase in family planning use through various methods goes hand in hand with desire to have less children while decrease in use of family planning methods is associated with a desire of more children. These results are in agreement with (WHO, 2012) which reported that usage of family planning methods like contraceptives was geared by anticipation of women to have fewer children.

Similarly, contraceptive usage was found to be significantly but negatively correlated with perceived mean number of children. The correlation between contraceptive usage and perceived mean number of children is -0.621. These results indicate that increase in use of contraceptives through family planning would influence decline in fertility rates. Denzel and David (2015) realized that
fertility levels in Africa currently at 4.5 children per woman were influenced by use of contraceptives among other family planning methods.

The level of education was also found to be fairly and positively correlated with FP use. The study realized that those with higher education had higher use of family planning while those with lower education were found to have less use of family planning methods. These results were also in agreement with Danhzel et al. (2015) and also concur with the findings of KDHS (2014) and Tilahun et al. (2013) who revealed that fertility rates are higher in uneducated women than educated women and high in households with low FP knowledge than with those with high FP knowledge.

Majority of the respondents dropped out of schools citing early pregnancies never to go back after delivery. This is supported in the report by National Council for Population Development (NCPD, 2014) that found, that in Kenya, 106 births occur annually for every 1000 adolescent girls aged 15 to 19 representing a high rate of adolescent pregnancy. These adolescent pregnancies actually diminish girls’ life prospects due to the fact that they are forced to drop out of school, leaving them with little education and empowerment which in turn accelerate poverty. A respondent said,

“I got pregnant when was in form two. I was sent back home from school. My parents were annoyed with me and I was chased from home. The man who got me pregnant was a bodaboda rider who never took me in. I ended up renting a small room at the market and to get rent. I ended up as a commercial sex worker. Here I am with my three children and I am finding it rough in life. I wish I was given another chance to go back to school; I wouldn’t be like this.”

This is only but one of the many girls in Kakamega County who have compromised their education due to early pregnancies. This is particularly so because most of these adolescent girls are not informed on importance of contraceptive use. A newsletter on Kenya population news published in 2010 had
revealed that family planning services provided in 1980s and early 90s in clinics and community based family planning programmes were helping to improve the health of Kenyan mothers and children. It went further to explain that community health workers were adequately trained and provided with valuable family planning facilities thus they often took information and supplies directly to people’s home. This initiative enabled most people regardless of their social and economical status to be aware of the benefits of planning their families. As reported in this newsletter, most service providers have neither the resources nor support to enable them provide services to their clients in the community. One of service providers had this to say during the interview:

“On reproductive health services, nowadays the Ministry of Health is not putting it into consideration as it used to be before as we do not get support and resources to enable us provide these services in people’s homes as it used to be when the programme was initiated in Kenya.”

This observation clearly shows that FP is not provided as intended by the government and so the population will continue to be high both at the national and county levels if measures to curb this problem is not sort immediately. The FP programme should be provided in a social and equitable manner to all in the society. Door to door campaigns by health workers help to raise FP usage levels in the county to curb high desired number of children.

Family planning use was found to be weakly correlated with place of residence. The women who reside in urban set-ups of Kakamega County were discovered to have a slightly higher usage of family planning than those who live in rural settings. These findings are also noted by (Akoth et al., 2013) who found that fertility rates are higher in rural areas with women with low contraceptive use than in urban areas with women who have high use of contraceptives.
The study also found that majority of respondents who were Protestants had a high FP knowledge with a relative frequency of 74.43% against Protestants who had low FP knowledge. While majority of Muslims had high FP knowledge had a relative frequency of 67.65% against Muslims who had low FP knowledge. Lastly on religion, the study found that, majority of respondents who were Catholics had a higher FP knowledge with a relative frequency of 62.21% against Catholics with low FP knowledge. These results show that across the three religion categories, there is variation in FP knowledge; the FP knowledge decreases from protestants to Muslims and then to Catholics.

The relationship between religion and FP knowledge is also in agreement with the Chi-square results that show that religion and FP knowledge are significantly associated. These findings are in agreement with Creanga et al. (2011) that cited that religions like catholic were not keen on some of the family planning methods like use of condoms. The study also found that media exposure was significantly associated with FP knowledge. Mokaya et al. (2014) also attested that, religion was a deterministic factor in contraceptive use and FP knowledge.

In summary, the study concludes that FP use goes hand in hand with contraceptive use and is positively influenced by education advancement as well as dwelling place. The level of education determines the knowledge on contraceptive and family planning usage thus affecting fertility rates. The place of residence was also found to influence usage of contraceptive and family planning. Dwellers of urban settings were found to have a higher usage of contraceptive and family planning while rural dwellers had relatively less usage of contraceptive and family planning. On the converse, the desired number of children and perceived mean number of children were found to be negatively influenced by FP knowledge and contraceptive usage. It was found that the women who desired fewer children had a higher potential of using contraceptive and family planning while those who desired more children had a low potential of using contraceptive and family planning.
planning. Similar results were obtained with perceived mean number of children negatively influencing contraceptive and family planning usage. One of the respondents from Shinyalu village of Kakamega East sub-County had this to say: ‘I am blessed with three children, two boys and one girl. I used contraceptives to space them; now, I think I need no more children and so I am on Norplant that will push me for next 10 years. After that, I will go for another implant’

From the analysis of demographic factors of the respondents, it was found that majority of the respondents (27.0%) were aged 35–39 years. This implied that the modal age group in the women within the reproductive bracket was the age between 35-39 years. These findings were similar to Stella’s (2015) who found that in most demographic studies in Africa, the majority of women giving birth were between 35 and 40 years. On the other hand, the research found that the modal desired number of children is two with a distribution of 26.1% followed by three at a relative frequency of 20.5%. Those who desired none, one, four, five and six or more were each found to be less than 15% and majority of the respondents (77.6%) desired more than two children.

However, from actual estimations of fertility in the year 2013-14, Kakamega County was found to have a TFR of 4.8 (KDHS, 2014). Therefore, the desired number of children does not necessarily mean the actual number of births but, the desired number of children can be used to project the actual number of births as cited by (Danzhenet al., 2015).

The other demographic factor of concern in study of fertility rates was the education level. The research realized that majority of women in the reproductive age in Kakamega had completed primary school at a frequency of 40.4% and cumulatively, 70% of respondents had at least primary level of education (primary, secondary and tertiary education) that can guarantee one literacy threshold. It was also found that majority of the respondents resided in rural settings while the
minority leave in urban areas. The rural dwellers were 59.3% while the urban dwellers are 40.7%. These findings concurred with those of Akoth et al. (2013), who noted that a higher proportion of Kenyans resided in the rural set-up where they would afford basic necessities like food and shelter.

On classification of socioeconomic status, majority of the respondents were found to be in second level wealth index at 37.5% followed by lowest wealth index at 29.6%. The other wealth index classes were middle, fourth and highest which were found to be less than 33% cumulatively. Therefore, almost two thirds of the respondents (67.1%) were within the first two wealth index classes out of five possible classes. One respondent observed:

‘No man will take care of children who are not his. My four children are from different fathers who are very cunning. Each convinced me to bear them a child only to run away later and yet I don’t have a stable job to support them’.

This response shows that women who are not economically empowered end up with high numbers of children. This revealed why women residing around Shikusa Prison in Kakamega East Sub-county have many children born to different men who later seek transfers to other stations leaving behind their children.

On age at first marriage, majority of the respondents in the study (72%) were found to have started their first marriage at age below 16 years while 28% entered into their first marriage at age 16 years and above. These results imply that majority of the respondents enter into marriage at a young age (age below 18 years). These findings were found to be in agreement with (Haggan, 2012 &Mokaya, 2014) who found that majority of girls in Kenya had their first sexual relations with the opposite sex at age below 15 years.

The family planning use was strongly and positively correlated with contraceptives implying that most of those who did family planning were in agreement with usage of contraceptives as a method of controlling birth rates. These findings were
also echoed by UNFPA(2012) which found that low worldwide contraceptive use were caused by low reproductive health knowledge, attitude and behavior among women of reproductive age.

FP use was found to be moderately but inversely related with desired number of children. These results indicate that increase in family planning use through various methods goes hand in hand with desire to have less children while decrease in use of family planning methods is associated with a desire of more children. These results are in agreement with WHO(2012) which reported that usage of family planning methods like contraceptives was geared by anticipation of women to have fewer children.

Similarly, contraceptive usage was found to be significantly but negatively correlated with perceived mean number of children. The correlation between contraceptive usage and perceived mean number of children is -0.621. These results indicate that increase in use of contraceptives through family planning would influence decline in fertility rates. Denzhel and David (2015) realized that fertility levels in Africa currently at 4.5 children per woman were influenced by use of contraceptives among other family planning methods. Similar results were also realized by tests of hypothesis that perceived mean number of children was positively associated with FP knowledge.

The level of education was also found to be fairly and positively correlated with FP use. The study realized that those with higher education had higher use of family planning while those with lower education were found to have less use of family planning methods. These results were also in agreement with Danhzel et al. (2015) and also concur with the findings of KDHS (2014) and Tilahun et al.(2013) that revealed that fertility rates are higher in uneducated women than educated women and high in households with low FP knowledge than with those with high FP knowledge.
Family planning use was found to be weakly correlated with place of residence. The women who reside in urban set-ups of Kakamega County were discovered to have a slightly higher usage of family planning than those who live in rural settings. These findings are also noted by Akoth et al. (2013) who found that fertility rates are higher in rural areas with women with low contraceptive use than in urban areas with women who have high use of contraceptives.

The study also found that majority of respondents who were Protestants had a high FP knowledge with a relative frequency of 74.43% against Protestants who had low FP knowledge. While majority of Muslims had high FP knowledge had a relative frequency of 67.65% against Muslims who had low FP knowledge. Lastly on religion, the study found that, majority of respondents who were Catholics had a higher FP knowledge with a relative frequency of 62.21% against Catholics with low FP knowledge. These results show that across the three religion categories, there is variation in FP knowledge: the FP knowledge decreases from protestants to Muslims and then to Catholics.

The relationship between religion and FP knowledge is also in agreement with the Chi-square results that show that religion and FP knowledge are significantly associated. These findings are in agreement with Creanga et al. (2011) that found that religions like catholic were not keen with some of the family planning methods like use of condoms. The study also found that media exposure was significantly associated with FP knowledge. Mokaya (2014) in his study also attested that religion was a determining factor in contraceptive use and FP knowledge.

A large portion (72%) of women in the reproductive age were found to have started their first marriage at age below 16 years while 28% entered into their first marriage at age 16 years and above. These results imply that majority of the
respondents enter into marriage at a young age (age below 18 years). These findings were found to be in agreement with (Haggan, 2012 & Mokaya 2014).

4.7 Sexual behavior among women of reproductive age

This section involves analysis that will identify the sexual behavior among women in the reproductive age. The analysis mainly includes testing whether there are significant varying sexual behavior patterns across the ages of women in the reproductive age.

4.3.3 Sexual behavior verses age at first marriage and age groups

Table 4.12: Sexual behavior verses age at first marriage and age groups

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Sexual behavior</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low</td>
<td>116</td>
<td>4.53</td>
<td>1.479</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>185</td>
<td>4.02</td>
<td>1.518</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>70</td>
<td>3.33</td>
<td>1.499</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>371</td>
<td>4.05</td>
<td>1.498</td>
</tr>
<tr>
<td>Age at first marriage</td>
<td>Low</td>
<td>116</td>
<td>1.12</td>
<td>.407</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>185</td>
<td>1.31</td>
<td>.465</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>70</td>
<td>1.31</td>
<td>.468</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>371</td>
<td>1.28</td>
<td>.450</td>
</tr>
</tbody>
</table>

Dependent variable= Sexual behavior

The results in Table 4.12 indicate that most of the mean age measures decreases as the sexual behavior categories increases from low to high. The persons with low sexual behavior have mean age group 4.53 while those with moderate sexual behavior have a mean age group of 4.02 and those with high sexual behavior have a mean age group of 3.33. These mean ages with respect to different levels of sexual behavior have standard deviations: 1.479, 1.518 and 1.499 respectively.
These results imply that sexual behavior is high when one is younger in reproductive age and decreases as the reproductive age increases.

Similarly, the mean age category at first marriage decreases as the sexual behavior categories increases from low to high. The persons with low sexual behavior have mean age at first marriage category being 1.12 while those with moderate sexual behavior have a mean age at first marriage category of 1.31 and those with high sexual behavior have a mean age group of 1.31. These mean ages with respect to different levels of sexual behavior have standard deviations: 0.407, 0.465 and 0.468 respectively. These results imply that sexual behavior is low when one enters marriage at an early age and increases as the age at first marriage increases. The results indicated that women with low sexual behavior have a rated mean age of 4.53 while those with moderate sexual behavior have a rated mean age of 4.02 and those with high sexual behavior have a rated mean age of 3.33. These rated mean ages with respect to different levels of sexual behavior imply that sexual behavior is higher when one is younger in reproductive age and decreases as the reproductive age increases. Similar observations were echoed by Reid and Alkens (2011) and Mokaya(2014) who found that sexual activity decreased with increase in reproductive age.

The mean age category at first marriage decreases as the sexual behavior categories increases from low to high. The persons with low sexual behavior have rated mean age at first marriage being 1.12 while those with moderate sexual behavior have a rated mean age at first marriage of 1.31 and those with high sexual behavior have a rated mean age group of 1.31. These rated mean ages at first marriage with respect to different levels of sexual behavior have standard deviations imply that sexual behavior is low when one enters marriage at an early age and increases as the age at first marriage increases but remains same constant at 1.31. Haggan (2012) shares similar observations about the relationship between premarital exposure and sexual activity which results to pregnancy risks, but
inverses with a widening gap between sexual activities prior to marriage. Therefore, it was noted that, there is no significance in levels of sexual behavior across the different levels of age at first marriage ($F = 2.265$ and $p \text{-value} = 0.105$). Therefore, sexual behavior does not significantly vary across the levels of age at first marriage.

4.4 Role played by demographic factors in influencing fertility preferences

This section is seeking to find out the role of demographic factors in influence of fertility preferences of women in reproductive age. It is mainly done using correlations and Chi-square tests.

4.4.1 Correlations between desired number of children and demographic factors

Table 4.13: Correlations between desired number of children and demographic factors

<table>
<thead>
<tr>
<th>Desire Number of children</th>
<th>Correlation</th>
<th>Level of education</th>
<th>Place of residence</th>
<th>Wealth index</th>
<th>Age at first marriage</th>
<th>Age groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>0.142</td>
<td>0.052</td>
<td>-0.408</td>
<td>0.649</td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td>0.008</td>
<td>0.163</td>
<td>0.316</td>
<td>0.004</td>
<td>0.000</td>
</tr>
<tr>
<td>Level of education</td>
<td>Correlation</td>
<td>-0.558</td>
<td>1</td>
<td>0.378</td>
<td>0.499</td>
<td>0.685</td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td>0.008</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Place of residence</td>
<td>Correlation</td>
<td>0.142</td>
<td>0.378</td>
<td>1</td>
<td>-0.002</td>
<td>0.028</td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td>0.008</td>
<td>0.000</td>
<td>0.969</td>
<td>0.585</td>
<td>0.594</td>
</tr>
<tr>
<td>Wealth index</td>
<td>Correlation</td>
<td>0.052</td>
<td>0.499</td>
<td>-0.002</td>
<td>1</td>
<td>-0.010</td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td>0.316</td>
<td>0.000</td>
<td>0.969</td>
<td>0.850</td>
<td>0.000</td>
</tr>
<tr>
<td>Age at first marriage</td>
<td>Correlation</td>
<td>-0.408</td>
<td>0.685</td>
<td>0.028</td>
<td>-0.010</td>
<td>1</td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td>0.004</td>
<td>0.000</td>
<td>0.585</td>
<td>0.850</td>
<td>0.624</td>
</tr>
<tr>
<td>Age groups</td>
<td>Correlation</td>
<td>0.649</td>
<td>0.474</td>
<td>-0.028</td>
<td>0.385</td>
<td>-0.025</td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.594</td>
<td>0.000</td>
<td>0.624</td>
</tr>
</tbody>
</table>
Results in Table 4.13 show that desired number of children is significantly and negatively correlated with level of education and age at first marriage. The correlation between desired number of children and level of education is \(-0.558\) (\(p\)-value=0.008) and the correlation between perceived mean number of children and age at first marriage is \(-0.408\) (\(p\)-value=0.004). These results imply that advancement in education level inversely affects desired number of children and similarly, increase in age at first marriage leads to reduction in desired number of children.

Inversely, desired number of children is significantly and positively correlated with age group factor (\(r=0.649\) and \(p\)-value=0.000). Therefore, these results show that increase in age positively influences a higher desired number of children.

The above correlation results can further be investigated and analyzed using the cross tabulations and Chi-square tests of associations 4.4.2.
4.4.2 Association between desired number of children and demographic factors

Table 4.14: Association between desired number of children and demographic factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Perceived number of children</th>
<th>Chi-Square</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;3</td>
<td>3+</td>
<td>Total</td>
<td>Statistic</td>
</tr>
<tr>
<td>Age groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td>3</td>
<td>7</td>
<td>10</td>
<td>9.834</td>
</tr>
<tr>
<td>20-24</td>
<td>16</td>
<td>24</td>
<td>40</td>
<td></td>
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<tr>
<td>25-29</td>
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<td>39</td>
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<td>30-34</td>
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<td></td>
</tr>
<tr>
<td>35-39</td>
<td>40</td>
<td>60</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td>20</td>
<td>34</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td>10</td>
<td>17</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>232</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>15</td>
<td>25</td>
<td>40</td>
<td>12.042</td>
</tr>
<tr>
<td>Primary incomplete</td>
<td>26</td>
<td>45</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>Primary complete</td>
<td>57</td>
<td>93</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Secondary &amp; above</td>
<td>41</td>
<td>69</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>232</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Wealth index</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Lowest</td>
<td>40</td>
<td>70</td>
<td>110</td>
<td>1.462</td>
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<tr>
<td>Second</td>
<td>54</td>
<td>85</td>
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<tr>
<td>Middle</td>
<td>23</td>
<td>40</td>
<td>63</td>
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<tr>
<td>Fourth</td>
<td>15</td>
<td>30</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Highest</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>232</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Age at first marriage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;16 years</td>
<td>104</td>
<td>163</td>
<td>267</td>
<td>6.897</td>
</tr>
<tr>
<td>16+ years</td>
<td>35</td>
<td>69</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>232</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Media exposure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No exposure</td>
<td>24</td>
<td>92</td>
<td>116</td>
<td>25.089</td>
</tr>
<tr>
<td>One media</td>
<td>91</td>
<td>94</td>
<td>185</td>
<td></td>
</tr>
<tr>
<td>Two or more</td>
<td>24</td>
<td>46</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>232</td>
<td>371</td>
<td></td>
</tr>
<tr>
<td>Place of residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>55</td>
<td>96</td>
<td>151</td>
<td>.118</td>
</tr>
<tr>
<td>Rural</td>
<td>84</td>
<td>136</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>232</td>
<td>371</td>
<td></td>
</tr>
</tbody>
</table>
According to Table 4.14, results show that 3 respondents were aged 15-19 years and desired less than 3 children while 7 respondents were aged 15-19 years and desired 3 or more children. Similarly, 16 respondents were aged 20-24 years and desired less than 3 children while 24 respondents were aged 20-24 years and desired at least 3 children. 21 respondents were aged 25-29 years and desired less than 3 children while 39 respondents were aged 25-29 years and desired 3 or more children. For those aged 30-34 years, 29 respondents desired less than 3 children while 51 desired 3 or more children while for age group 40-44 years 20 respondents desired less than 3 children while 34 respondents desired 3 or more children. Lastly, 10 respondents who were aged 45-49 years desired less than 3 children while 17 respondents of similar age group desired 3 or more children. The Chi-square results show that the desired number of children is significantly associated with the age group ($X^2 = 9.834$ and p-value $= 0.001$).

On level of education, results show that 15 respondents had no education but desired less than 3 children while 25 respondents had no education and desired more than 3 children. 26 respondents had primary incomplete education but desired less than 3 children while 45 respondents had primary incomplete education and desired more than 3 children. For those who had primary complete, 57 respondents desired less than 3 children while 93 desired at least 3 children and lastly, for those with secondary and above education levels 41 respondents desired less than 3 children while 69 respondents desired 3 or more children. The results show that perceived mean number of children and education level are significantly associated ($X^2 = 12.042$ and p-value $= 0.000$).

With age at first marriage, results show that 104 respondents were less than 16 years at their first marriage but desired less than 3 children while 163 respondents were 16 years at their first marriage and desired more than 3 children. On the other hand, 35 respondents were 16 years or more at their first marriage and desired less than 3 children while 45 respondents were 16 years and more at their first marriage
but desired more than 3 children. The results show that perceived mean number of children and age at their first marriage are significantly associated ($X^2 = 12.042$ and p-value = 0.000).

Lastly, results show that 24 respondents had exposure to media but desired less than 3 children while 92 respondents had no exposure but desired more than 3 children. On the other hand 91 respondents had one media exposure but desired less than 3 children while 94 respondents had one media exposure and desired more than 3 children. Similarly, 24 respondents had two media exposure and desired less than 3 children while 70 respondents had two media exposure and desired more than 3 children. The Chi-square results show ($X^2=25.089$ and p-value =0.000). Since the p-value is less than 0.05 then it was concluded that significantly media exposure is significantly associated with desired number of children. The correlation between desired number of children and level of education is -0.558 (p-value=0.008). These results indicate that advancement in education level inversely affects desired number of children. The results show that perceived mean number of children and education level are significantly associated ($X^2= 12.042$ & p-value = 0.000). Concurrently, Ministry Of Health report (2013) quoted that, educators, peers and parents have influence in shaping individuals’ sexual behavior and attitudes by offering them adequate sex education. A 15 year old girl in class seven who had to discontinue her studies had this to say

‘My classmate cheated me to accompany her for ‘disco matanga’ here she introduced me to her cousin and we walked to their small house he forced me to have sex with him and I got pregnant.’

When she was asked if she had been advised on risks of pre-marital sex, this is what she said; ‘My mother never told me anything but my friend could occasionally tell me how she was given money by her boy friend to buy good things like mandazi and chips. This clearly shows that both parents and peers shape one’s behavior which late determines the end results of fertility rates.
The correlation between perceived mean number of children and age at first marriage is -0.408. This implies that, increase in age at first marriage leads to reduction in desired number of children. These findings are in agreement with (Mokaya et al. 2014) who realized that age at first marriage was a determinant in estimating the TFR. Results also show that majority of respondents entered into their first marriage at age less than 16 and desired more than 3 children as compared to those who desired less than 3 children. Conversely, majority of respondents who entered into their first marriage at age 16 or more desired less than 3 children as compared to those who desired more than 3 children. These results show that perceived mean number of children and age at their first marriage are significantly associated and supported by the Chi-square tests ($\chi^2= 12.042$ & $p$-value = 0.000).

Similarly, the desired number of children is significantly and positively correlated with age group factor ($r=0.649$). Therefore, these results show that increase in age positively influences a higher desired number of children. This association came out clearly from one of the respondent from Isukha North Sub-county who said;

‘I had stopped giving birth but when my three children went to boarding schools, I felt lonely then I looked for one’

As age advances the desire to have more children increases compared to early ages when one is not settled and most of objectives in life not yet achieved. Danzhan et al. (2015) also indicate that perceived mean number of children translates to long life time fertility as adolescence start giving birth at an early age hence, age factor is a predictor of fertility rates.

Lastly, results on media exposure show that majority of respondents who had no media exposure desired more than 3 children than those with media exposure who desired less than 3 children. On the other hand, the respondents who had one media exposure and desired less than 3 children was almost same to the respondents who had one media exposure but desired more than 3 children.
Similarly, majority of respondents who had two media exposures desired less than 3 children as compared to who desired more than 3 children. These findings are shared by Midcourt et al. (2010) who said that early sexual education through media exposure is positively associated with good parental communication and negatively associated with deviant peer affiliation. The Chi-square results show that media exposure is significantly associated with desired number of children supported by (X²=25.089 & p-value =0.000). A respondent from Kakamega central sub-County said:

‘Here in town health facilities and chemists are near so I am able to get my family planning pills any time, I remember one day I had forgotten to get some from General Hospital. At around 9pm, I ran to Jose’s Chemist where I bought them, Mzee was travelling home from where he works’’

In the rural areas it was found out that women in the reproductive age have low use of contraceptive due to the fact health facilities are far and also the economic activity they engaged in does not give them ample time to get them. Likuyani sub-County said:

‘‘I have a lot to do, most of the time I am in ‘vibaruas’ (casual labor then I come late and at home my own chores are waiting for me. The hospital is far so I am unable at times to go for my injections as you see I am pregnant and this boy is only 1 year old; in fact, people are wondering what is wrong with me.’’
CHAPTER FIVE

RESEARCH FINDINGS AND CONCLUSIONS AND
RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary for research findings, discussion, conclusions and recommendations of the study. The findings of this research clearly indicate that contraceptive use determines the FP use by women across all ages in reproductive age which in turn determines the fertility preference that translates to high FR in the county. Other factors determining contraceptive use and fertility preference in Kakamega County include socio-cultural and demographic factors. High fertility rates in the region impacts negatively to the environment as land is finite and resources do get depleted by high density.

5.1 Determinants of contraceptive use

In summary, the study found out that FP use goes hand in hand with contraceptive use and is positively influenced by education advancement as well as the dwelling place. The level of education determines the knowledge on contraceptive and family planning usage. The place of residence was also found to influence usage of contraceptive and family planning. Dwellers of urban settings were found to have a higher usage of contraceptive and family planning while rural dwellers had relatively less usage of contraceptive and family planning.

Conversely, the desired number of children and perceived mean number of children were found to be negatively influenced by FP knowledge and contraceptive usage. It was found that the women who desired fewer children had a higher potential of using contraceptive and family planning while those who
desired more children had a low potential of using contraceptive and family planning. Similar results obtained showed that perceived mean number of children negatively influenced contraceptive and family planning usage. Awareness on importance and use of contraceptives alone was not enough to check on FR but other factors like age at first marriage, sex preference, education level attainment, place of residents, peer influence, parental guidance, religion, wealth status and sexual behavior were at play. Other factors influencing fertility preference in Kakamega County include socio-cultural and demographic factors, and sexual behavior among women in the reproductive age. High fertility rates in the region impacts negatively to the environment as land is finite and resources do get depleted by high density.

The research found that, majority of the respondents (82.7%) use contraceptives in controlling birth rates. It was also worth noting that, even though 82.7% of the respondents use contraceptives, not all of them have knowledge on family planning. It was also found that most of the respondents had knowledge on family planning including use of contraceptives at a proportion of 69.0% respondents while fewer (31.0%) did not have knowledge on family planning in controlling birth rates.

Among the common methods of family planning used in Kakamega County were found to be FP injections and implant insertions. The study found FP injections at 57.59%, implant insertions at 17.8% while pills combined oral contraceptives were at 8.64% and females receiving male condoms at 8.05%. Other minor contraceptive methods were IUCD insertion, emergency contraceptive pill, pills progestin, sterilization BTL and sterilization vasectomy.

5.3 Socio-cultural effects on contraceptive use and fertility preferences

In the study, almost all the socio-cultural factors stated in this research except wealth index were found to be significantly correlated with family planning use.
Family planning use was strongly and positively correlated with contraceptives implying that most of those who did family planning were in agreement with usage of contraceptives as a method of controlling birth rates.

It was also found out that an increase in family planning use through various methods goes hand in hand with desire to have fewer children while decrease in knowledge of family planning methods is associated with a desire of more children. The study realized that those with higher education had higher use of family planning while those with lower education were found to have less use of family planning methods.

The study found out that women who reside in urban set-ups of Kakamega County had a slightly higher usage of family planning than those who live in rural settings. In addition, across the three religion categories, there was variation in FP knowledge with FP knowledge decreasing from protestants to Muslims and then to Catholics.

5.4 Sexual behavior among women of reproductive age
The results indicated that women with low sexual behavior had rated mean age of 4.53, those with moderate sexual behavior had a rated mean age of 4.02 and those with high sexual behavior have a rated mean age of 3.33. These rated mean ages with respect to different levels of sexual behavior imply that sexual behavior is higher when one is younger in reproductive age and decreases as the reproductive age increases.
On the other hand, the mean age category at first marriage was found to decrease as the sexual behavior categories increases from low to high. The persons with low sexual behavior had rated mean age at first marriage being 1.12, those with moderate sexual behavior had a rated mean age at first marriage of 1.31 and those with high sexual behavior had a rated mean age group of 1.31. These rated mean ages at first marriage with respect to different levels of sexual behavior had standard deviations that imply that sexual behavior is low when one enters marriage at an early age and increases as the age at first marriage increases but remains same constant at 1.31. Therefore, sexual behavior did not significantly vary across the levels of age at first marriage.

5.5 The role played by demographic factors in influencing fertility preference

From the analysis of demographic factors of the respondents, it was found that, Majority of the respondents (27.0%) were aged 35–39 years, this implied that the modal age group in the women within the reproductive bracket was between 35-39 years.

The other demographic factor of concern in study of fertility preference was education level. The research realized that majority of women in the reproductive age in Kakamega had completed primary school at a frequency of 40.4% and cumulatively, 70% of respondents had at least primary level of education (primary, secondary and tertiary education) that can guarantee one literacy threshold. It was also found that majority of the respondents resided in rural settings while the
minority leave in urban areas. The rural dwellers were 59.3% while the urban dwellers are 40.7%.

On classification of socio-economic status, majority of the respondents were found to be in second level wealth index at 37.5% followed by lowest wealth index at 29.6%. The other wealth index classes were middle, fourth and highest which were found to be less than 33% cumulatively. Therefore, two thirds of the respondents (67.1%) were within the first two wealth index classes out of five possible classes.

On age at first marriage, majority of the respondents in the study (72%) were found to have started their first marriage at age below 16 years while 28% entered into their first marriage at age 16 years and above. These results imply that majority of the respondents enter into marriage at a young age (below 18 years). In this regard, it was found that increase in age positively influences a higher desired number of children. This is because early marriages prolong the period of child bearing as the women in this category were found to have more children by the end of reproductive age than their colleagues who enter marriage at an early age.

Lastly, results on media exposure show that majority of respondents who had no media exposure desired more than 3 children as compared to those exposed who desired less than 3 children. Further, the respondents who had one media exposure; meaning, having only television or radio desired less than 3 children, the same number as that of the respondents who had one media exposure but desired more than 3 children. Similarly, majority of respondents who had two media exposures
that is having both TV and radio, desired less than 3 children as compared to who desired more than 3 children.

5.6 Conclusion

The research has shown that contraceptive levels were slightly high as 58% of married women were using some mode of contraception. Socio-cultural, economic, and demographic factors determine contraceptive usage. It was found out that an increase in family planning use goes hand in hand with the desire to have fewer children while the desire to have an increased number of children is determined by low use of family planning. The advancement in education level inversely affects desired number of children; similarly, as the age at first marriage increases there is reduction in the desire to have many of children. Women residing in urban areas were found to have fewer children than their counterparts in rural areas. Further, economic levels of women in the reproductive age was found to play a vital role in determining the number the children as those with low income were found to have more children compared to those who had high income. The study found out that the perceived mean number of children translates to a long fertility time as adolescence start giving birth at an early age; hence, age factor and sexual behavior were found to be a predictor of fertility preference. Majority of the women were found to have entered into marriage at an age below 18 years. This means that they dropped out of school due to unintended pregnancy.
5.4 Recommendations

The study made a number of recommendations based on its findings:

- The government initiative in creating awareness on importance of FP use should be incorporated with other factors for the millennium development goals to be realized.
- Community health workers to be trained adequately and be provided with valuable family planning services to often bring information and supplies directly to people’s homes.
- Contraceptives are supposed to be provided to all women in the reproductive age in a more equitable and social manner.
- The ministry of health, parents, and non-governmental organizations together with learning institutions should work together to come up with a concrete working base so as to reduce the fertility levels further at the country level and Kakamega County.
- Further, efforts to increase girls’ education must address the problem of pregnancies among young girls aged 18 years and below so that they do not become mothers before adulthood.
- To lower school drop-outs among girls, the Ministry of Education Science and Technology ought to work closely with stakeholders to ensure that back to school policy is fully being implemented and work towards ending early marriages.
- Further studies should be carried on HIV infections among women aged between 15-24 years as they were found to engage in unprotected sex.
REFERENCES


Korra, A., (2012). *Attitudes towards family planning use, reasons for no use, among women with unmet need for family planning in Ethiopia*. Calverton, Maryland USA: ORC macro.


National Council for Population and Development,(2014). To enhance girls’
education so as to increase the use of reproductive health services. Policy
brief. No. 43, 3-5.


APPENDICES

PART A: Types of Contraceptives

Please tick in the box against the contraceptive method you use.

1. Short term hormonal methods
   - Injectable ☐
   - Pills ☐

2. Long term hormonal methods
   - I.U.C.D ☐
   - Implants/Norplant ☐

3. Barrier methods
   - Condom ☐
   - Diaphragm/Foam/Jelly ☐

4. Permanent method
   - Female sterilizations ☐
   - Male sterilization ☐

5. Other methods of birth control
   - Standard day’s method ☐
   - Lactation amenorrhea methods ☐
   - Rhythm method ☐
   - Withdrawal method ☐

6. Emergency contraception ☐
PART B: Determinants of Contraceptives Methods

1. Family planning is good for the mothers.
   Agree  □  Indecision  □  Disagree  □

2. Decision to use FP should be made by husbands.
   Agree  □  Indecision  □  Disagree  □

3. Culture is against the use of FP.
   Agree  □  Indecision  □  Disagree  □

4. Religion is against the use of family planning.
   Agree  □  Indecision  □  Disagree  □

5. There are many side effects of family methods that are harmful.
   Agree  □  Indecision  □  Disagree  □

6. Family planning methods are not effective.
   Agree  □  Indecision  □  Disagree  □

7. Family planning encourages infertility and promiscuity.
   Agree  □  Indecision  □  Disagree  □

8. Condoms decreases sexual pleasure.
   Agree  □  Indecision  □  Disagree  □

9. Family planning can reduce the rate of reproductive morbidity and mortality in women.
   Agree  □  Indecision  □  Disagree  □
PARTC: Contraceptive Behavior

1. Contraceptive use helps a woman achieve desired goal.
   A) TRUE □ □ B) FALSE □ □

2. Contraceptive use controls fertility preferences
   A) TRUE □ □ B) FALSE □ □

3. Negative or positive effects of contraceptives determines there use
   A. TRUE □ □ B. FALSE □ □

4. A woman who uses contraceptive is not faithful in her relationship.
   A) TRUE □ □ B) FALSE □ □
PART D: Socio-cultural factors determining fertility preferences

Tick against the appropriate answer

1. Are you married?
   A YES  □        B  NO  □

2. What was your age when you first got pregnant?
   A Below 18 years □   B Between 18-24 years □   C. Above 25 □

3. How many children do you desire to have by the end of reproductive age?
   A 1 □   B 2 □   C 3 □   D More than 3 □

4. In your culture who determines the number of children one should bear?
   A Self □   B Husband □   C The community □

5. Which child is valued most in your community?
   A Boy □   B Girl □

6. Kindly provide the reason given for your choice in number 5.

7. Were you given chance to pursue your education by your family?
   A YES □   B NO □
PART E: Demographic factors affecting fertility preference

1. In which age bracket were you at your first delivery?
   A 15-19 years  
   B 20-24 years  
   C 25-29 years  
   D) 30-34  
   E 35-39 years  

2. How many children do you have?
   A. 1  
   B. 2  
   C. 3  
   D. More than 4  

3. Are you married?
   A. Yes  
   B. No  

4. In your community, which child is valued most?
   A. Boy  
   B. Girl  

5. What is your religion?
   A. Protestant 
   B. Catholic 
   C. Muslim 
   D. Others (specify)  

6. How many children would you wish to get?
   A. 1  
   B. 2  
   C. More than three  

7. What is your highest level of education?
   A. Primary level 
   B. Secondary 
   C. College  

8. What is your employment status?
   A. Permanently employed 
   B. Self employed 
   C. Casual laborer
Appendix II: Focus Group Discussion Guide and Interview Schedules

Topics and Guiding questions

Probing Questions asked to determine contraceptive use, demographic, social-cultural and economic factors determining fertility.

a) Types of contraceptives
b) Effects of contraceptives
c) Benefits of FP
d) Barriers to contraceptives use
e) How does information about FP relayed?
f) What is the appropriate age one should start using FP
g) How many of you are in relationship? How many boyfriends does each of you have if in relationship?
h) The number of living children
i) Age at first pregnancy
j) Economic activity engaged in by women.
k) Level of educational attainment
l) What are the determinants of next birth?
Appendix III: Consent form for the underage participants

I………………………………………………………………..parent/guardian
to……………………………………………………… give my consent for her to be
included in study on “Determinants of contraceptive use and Fertility Preferences
among women in the Reproductive age in Kakamega County, Kenya”.

Name……………………………………………………………………
Sub-County…………………………………………………………
Phone number………………………………………………………
Sign…………………………………………..Date………………………
Appendix IV: Research Permit from NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Date: 6th December, 2016

NACOSTI/P/16/86802/14665

Sayo Grace Asagi
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Determinants of fertility rate among women of reproductive age in Kakamega County, Kenya,” I am pleased to inform you that you have been authorized to undertake research in Kakamega County for the period ending 6th December, 2017.

You are advised to report to the County Commissioner and the County Director of Education, Kakamega County before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

Boniface Wanyama
FOR: DIRECTOR-GENERAL/CEO

Copy to:
The County Commissioner
Kakamega County.

The County Director of Education
Kakamega County.
Appendix V: Research Authorization from Kenyatta University

KENYATTA UNIVERSITY
GRADUATE SCHOOL

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

Our Ref: C50/CE/KER/26519/2013
DATE: 21st October, 2016

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

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR SAYO GRACE ASAGI - REG. NO. C50/CE/KER/26519/2013

I write to introduce Ms. Sayo Grace Asagi who is a Postgraduate Student of this University. She is registered for M.A degree programme in the Department of Geography.

Ms. Asagi intends to conduct research for an M.A. Proposal entitled, “Determinants of Fertility Rate among Women of Reproductive Age in Kakamega County, Kenya”.

Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL.
Appendix VI: Research Authorization from the Ministry of Interior

REPUBLIC OF KENYA

THE PRESIDENCY
MINISTRY OF INTERIOR & CO-ORDINATION OF
NATIONAL GOVERNMENT

Office Mobile No: 0707 085260
Email: cckakamega12@yahoo.com

When replying please quote

Ref No: ED/12/1/VOL.II/228

COUNTY COMMISSIONER
KAKAMEGA COUNTY
P O BOX 43-50100
KAKAMEGA.

Date: 18th January, 2017

SAYO GRACE ASAGI
KENYATTA UNIVERSITY
P.O BOX 43844-00100
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your authorization vide letter Ref: NACOSTI/P/16/86802/14665 dated 6th December, 2016 by NACOSTI to undertake research on “Determinants of fertility rate among women of reproductive age in Kakamega County, Kenya.

I am pleased to inform you that you have been authorized to carry out the research on the same.

E. RIGHA
FOR: COUNTY COMMISSIONER
KAKAMEGA COUNTY
Appendix VII: Research Authorization from the Ministry of Education

MINISTRY OF EDUCATION SCIENCE & TECHNOLOGY

Telephone: 056 - 30411
FAX: 056 - 31307
E-mail: wesarepsde@yahoo.com
When replying please quote.

STATE DEPARTMENT OF EDUCATION

REF: WP/GA/29/17/VOL.III/ 18th January, 2017

Sayo Grace Asagi
Kenyatta University
P. O. Box 43844 – 00100
NAIROBI

RE: RESEARCH AUTHORIZATION

The above has been granted permission by National Commission for Science, Technology and Innovation vide their letter REF: NACOSTI/P/16/86802/14665 dated 6th December, 2016 to carry out research on "Determinants of fertility rate among women of reproductive age in Kakamega County, Kenya", for a period ending 6th December, 2017.

Please accord her any necessary assistance she may require.

FREDRICK M. KIIRU
CDE/CEB – SECRETARY
KAKAMEGA COUNTY