FACTORS INFLUENCING THE DIFFERENCES IN ACTUAL AND DESIRED FAMILY SIZES IN KENYA

BY

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DECLARATION

This project is my authentic work which to my understanding has not been submitted, either entirely or in part, to this or any other University for the conferment of a degree.

Signature   Date

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This project has been presented for evaluation with my consent as the University Supervisor:

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DEDICATION

I dedicate this work to my family, whose persistence on the importance of education from a tender age has pushed me thus far.

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DEFINITION OF TERMS

Fertility - Number of children a woman begets / gives birth to in her reproductive career.

Total Fertility Rate (TFR) - The average number of children a woman would have through her lifetime assuming that the current age-specific birth rates remain the same over her childbearing years.

Contraceptive Prevalence Rate (CPR) - The rate at which women put to use any form of birth control mechanism.

Actual fertility - The total physical count of children a woman has by the end of their reproductive career.

Desired fertility - The number of children a woman wishes to have by the end of her reproductive career.

Unmet need - Needs that an individual is yet to / did not manage to satisfy

ABSTRACT

The International Conference on Population and Development (ICPD) held in 1994 gave couples a chance to make informed choices on how many children they wanted; making reproductive health a right and allowing them to exercise this without coercion or force. This basic right allows couples forge informed decisions on spacing, timing, and number of children; factors that have been supported by governments across the world through deliberate actions such as availing of family planning and contraceptive aids . To what extent are couples actually able to implement such fertility desires in Sub-Saharan Africa, creates a need for which this study sought to fill.

The study utilized the 2014 Kenya Demographic and Health Survey (KDHS) data from where a selection of 5992 women 15-49 years old who have theoretically completed reproduction (who do not want any more children, who are sterilized and declared infecund and also gave a numeric reply to what their desired number of children was). Conceptually, the variant of Easterlin's supply-demand framework provides a simplified framework to determine the socioeconomic together with demographic factors that bring about differences in actual and desired family sizes across the country.

The results show a variation in the significance of each variable on fertility desire. It is observed that region, wealth index, highest education level, the age of the respondent and marital status are significant predictors for women ending up with fewer children than they desire. Marital status and current use of contraceptive method are significant factors for women getting more children than they desire.

From the findings, this study recognizes the importance of education as a tool that assists couples to make informed choices on fertility desires, underscores the need for family planning as well as providing a linkage between socioeconomic and demographic factors and why family sizes cannot be precisely attained.

The study builds on the existing knowledge that confirm the role played by education, together with the introduction of deliberate family-control programs and contraceptive utilization to reducing the number of newborns a woman expects at completion of her reproductive years. There is a need to do a longitudinal survey following women through their reproductive years to fully comprehend the reasons for the varying differences in the number of actual and desired family across regions in Kenya. For further research, it is recommended that more work is conducted to understand how much impact the eroding cultural values have on overall fertility and where possible, be used in the design and development of fertility programs. In addition, more work is required on the importance of choice in relation to the factors responsible for the number of children one attains at the end their fertility career.

CHAPTER ONE

INTRODUCTION

1.1 Background

Fertility has declined considerably the world over throughout the years albeit at different rates from one country to the other. Sub-Saharan Africa region has had mixed fortunes where some countries have experienced considerable fertility decline while in others, the decline has stalled (Johnson et al., 2011). As stated by Bongaarts (2011), a large desired family size is associated with high fertility levels, and is usually an impediment to fertility decline in Sub-Saharan Africa. For Kenya, total fertility rate went down to 3.9 in 2014 from 8.1 children in 1979 (KNBS and ICF Macro International, 2015).

Kenya continues to experience excess fertility as a result of the differences in the measures of actual and desired family size. Estimates from the Kenya Demographic Health Surveys (KDHS) shows that desired family size in Kenya declined from 4.4 to 2.6 children between 1989 and 2014. Compared to the actual family size of 8.1 in 1979 and 3.9 in 2014, women in Kenya are having more children than desired and yet the national average tends to mask the regional trends. The Government of Kenya recognizes that population management is critical in the realization of sustainable economic and social development in the country. Kenya is among the countries in Africa that have invested in Family Planning (FP) through the development of different population policies, investment in programmes, and strategies to address population management challenges since independence. The quest for a leaner population started in earnest in the 1980's with the introduction of family planning programs (Cleland & Wilson, 1987).

These programs were targeted at stepping up the contraceptive prevalence rate (CPR), and reducing the total fertility rate (TFR) together with unmet need for family planning services. Family control programs bring in an idea of the desired family, where desired families indicate the number of children a couple would wish to have, should all factors they consider ideal for raising a family be achieved.

In Kenya, the Family Planning campaign is responsible for the overall drop in the overall family sizes couples want. However, actual sizes remain marginally higher. Contraceptive Prevalence Rate (CPR); the rate of women that put to use any form of birth control mechanism, is at a mid-mark of 58 percent (KNBS and ICF International 2015). Despite the strategies and policies implemented with a focus on family planning, total fertility rate remains high at 3.9 percent, while CPR together with the unmet need for family planning are averaged at 58 and 18 percent respectively.

The 2014 KDHS indicates a decline in total fertility in the country. There are however, significant contrasts in the rate of fertility in different regions around the country. Some regions are experiencing low fertility while some are still experiencing high fertility. Further, the regions with high fertility have low contraceptive prevalence as can be seen in table 1.1 below. For this reason, there is need to undertake significant research to establish the reasons why there is a difference in fertility rates in different regions around the country.

Table 1.1 Regional fertility levels and contraceptive prevalence. Source: 2014 KDHS Regional and County Fact Sheets

Region	TFR	CPR (Any Method)
Nairobi	2.7	63
Central	2.8	67
Eastern	5.0	64
North Eastern	6.4	3
Nyanza	4.3	54
Rift Valley	4.5	47
Western	4.7	57
Coast	4.3	44

Table 1.2 Mean ideal number of children. Source: 2014 KDHS Regional and County Fact Sheets

Region	Mean
Nairobi	3.0
Central	3.2
Eastern	3.1
North Eastern	9.3
Nyanza	3.4
Rift Valley	3.8
Western	3.7
Coast	4.2

1.2 Problem Statement

A lot of research done on fertility in Africa has focused largely on determinants, levels, fertility desires, trends, preferences and contraceptive behavior (Ibisomi, 2007, Thompson, 1997, Thompson et al., 1990). According to Bongaarts (2001), there is a disconnect between fertility desires and actual fertility. Bongaarts (2001) noted that the desired size of a family noted in the early and the mid transitional societies is usually lower than the actual family sizes, a factor that

accounts for an excess of as high as 2 births per woman. The reverse is true of post-transitional societies. Bongaarts (2001) further noted that factors such as undesired fertility, sex preferences and the substitution of dead children, are significant to achieving actual fertility. Bongaarts (2001) also identified rising age at marriage, involuntary fertility and competing social, economic and reproductive health-related factors as key determinants of reduced actual fertility relative to desired family size.

According to Ibisomi (2007), economic factors, marital disruption, sex preferences, mismatched couples desires, multiple births, polygamy, early or late marriages, child mortality and lack of effective knowledge on contraceptive use are but a few of the reasons making it demanding to reach a coveted family size.

According to ICPD 1994 programme of action, rights associated with sexual and reproductive health are important giving couples the opportunity to choose when and how many children they would have during their reproductive life freely and without coercion. Although a lot of work has been put into understanding factors relating to either fertility desires or actual fertility behavior, there is little effort being put to understand the differences between the two fertility measures. Understanding the gap linking wanted and actual fertility help bring an understanding to the inability of women achieving individual fertility wishes. Whereas some women beget more children, others get fewer than desired indicating that on both ends, there is an unmet fertility desire.

A global decline in fertility notwithstanding, fertility levels in sub-Saharan Africa remain high compared to other regions. In Kenya, the desired family size dropped from 4.4 children in 1989 to 2.6 in 2014. On the other hand, the actual family size has declined from 8.1 children in 1979 to 3.9 children in 2014 (KNBS and ICF International, 2015). The difference in the two current fertility measures has resulted in excess fertility; an indication that women in high fertility regions of Kenya are having more children than is desired. There is need to understand the reasons why even though the fertility rate in Kenya is declining; there are regional differences in the pace at which it declines. This study examines the factors that explain the difference between actual and desired family sizes by regions in Kenya.

1.3 Research Questions

The study will give answers to the following research questions:

- How do actual and desired family sizes differ in Kenya?
- What socioeconomic and demographic factors account for differences in the actual and desired family sizes across the regions?

1.4 Objectives

General Objective

- To examine determinants of unmet fertility desires in Kenya.

Specific Objectives

- To compare the mean number of unmet fertility desires in Kenya.
- To determine the socioeconomic determinants of unmet fertility desires.
- To determine the demographic determinants of unmet fertility desires in Kenya.

1.5 Justification of the Study

The international community, after the ICPD 1994 programme of action, recognized the high rate of increase in population in most African countries, and reached a consensus to focus their energy and resources in cutting down infant, maternal and child mortality, together with providing an all-inclusive access to a full spectrum of reproductive health services comprising of family planning together with provision of universal access to education especially for the girl child. These goals were set to be achieved before 2015 (UNFPA 2014). This conference changed focus from human numbers to boosting the lives of, and reverence for human rights with reproductive rights being considered a basic human right. According to Pritchett 1994 and Hagewen & Morgan 2005, the difference between the desired and actual fertility, when well-studied, has possible positive implications on policy and programme interventions. According to Bongaarts 2001, in countries experiencing low fertility, below replacement levels are likely to be done away with if the fertility desires of its populations are achieved. In retrospect, Pritchett (1994) argues that for countries experiencing high growth rates of their populations and undesired fertility, the gap between the desired and actual fertility creates a window for policy intervention that could be used to help people achieve their desired fertility levels and concurrently slow down population growth.

According to the National Council for Population Development (2012), Kenya's population blueprint focuses on increasing the contraceptive prevalence rate to 70 percent, and demographically to bring down the total fertility rate to 2.6 for each woman and natural population rate of increase to 1.5 percent by 2030. In order to achieve these targets, there is need to perceive the various factors responsible for the differences in regional fertility across the

country. By understanding this link, the government would easily analyze whether the population policies it has been instituting are effective and also know where to focus the interventions.

This study contributes to the understanding of factors that inhibit uniform fertility adjustments, adds to a body of knowledge on fecundity preferences in Kenya and provides a better understanding of the community contexts where differences in desired and actual family sizes occur. This way, it becomes possible to initiate fertility reduction interventions that are context specific for these regions and in tandem with specific socioeconomic and demographic factors.

1.6 Scope and Limitations

This study focuses on the socioeconomic and demographic factors that account for excess fertility in Kenya. The 2014 Kenya Demographic and Health Survey (KDHS) data has been used to derive this. A sample of 5992 women, 15-49 years of age, who have theoretically completed reproduction (who do not want any more children, who are sterilized and declared not fecund and who gave a numeric response to the question on their ideal number of children), interviewed in the survey will form the scope of the study. The socioeconomic and demographic variables selected include level of education, age of respondent employment status, use of contraceptives, wealth index, religion as a way of life, place of residence, and region of residence.

A limitation of this study is that women who have lost their children due to death may find it difficult to talk about such children. By not giving information about these children, data collected would miss out on such statistics that affect data on children ever borne; data critical in establishing the relationship between the desired and actual fertility levels. There is a marked

difficulty in estimating natural fertility among women because of the length of time required to follow a woman through her reproductive ages. The use of proxies such as children ever borne in cross-sectional data does not necessarily provide the most informative results as it does not explain the causal relationships among variables. Longitudinal surveys are the most suitable forms of data to determine such fertility trends

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of the literature on factors influencing regional variations in ideal and actual family size in Kenya. The initial part centers on the theoretical background of the study, with the later focusing on findings from previous studies. The conceptual and operational frameworks that will guide this study are also discussed in this chapter.

2.2 Theoretical Background

There are different schools of thought that focus on family size in countries located in Sub-Saharan Africa. They are traceable from the demographic transition theory which gives an explanation of transition of fertility from high to low. According to Coale (1973), fertility decline should be considered advantageous. From the demographic transition theory, many theories including the economic theories and ideational theories have been developed to explain parents' motivation to having children (Cleland et al., 1987). In addition, Bongaarts Model of fertility is also useful in explaining excess fertility in different regions in Kenya.

The economic perspective holds that different economic factors are responsible for the transition from large to small family sizes. Parents are motivated to have more children when the economic value of children to them (parents) is high. Thus the incentive to have children is as a result of the balance arising from their costs and benefits (Cleland and Wilson, 1987). The economic function of children, especially in terms of labour, in traditional societies is also an important aspect that the demographic transitional theory stresses. Parents are motivated to have more

children depending on the benefits that will accrue. According to Caldwell (2005), in the rural agricultural sector, children provide additional labour at a cheaper cost and cater to their parents when they age. This is the true especially for those women that are in subsistence farming since they require extensive labor; which they get from children (Boserup, 1985).

Modernization is an important aspect that results in reduced demand for children, and this is explained in economic terms. Industrialization and mass education of children are important components of urbanization, thus in this regard; the utility of children goes down. The occupations and lifestyles of urban areas are not compatible with large family sizes. For this reason, most African countries that are modernizing are characterized by smaller desired and actual family sizes in their urban areas compared to the rural areas (Boserup, 1985).

The rational choice theory is a foundation for the microeconomic household point of view which holds that actors with self-interest choose to act in the way that benefits them the greatest. Becker proposed the Demand theory where he emphasized on the rising cost of children when compared to what material gain envisioned by their parents. The emergence of education en masse for children serves to reduce the usefulness of children around the home. Sustaining this education plus their upkeep is a cost that goes against the need to acquire items necessary for the household (Becker, 1981).

The Demand theory by Becker (1981) also holds that another important factor that determines demand for children is the mother's time, with regard to acquiring education, in paid work, and in child rearing. Children may be considered as a source of costs when the mother has to be out

of paid work because of childbearing. In addition, childbearing and rearing are traded the time a woman puts into acquiring education and compensated in paid work. Time is a valuable asset, and women, therefore, allocate theirs between these competing alternatives. According to Becker (1981), there can also be a reduced demand for children when parents are more interested in child quality as opposed to child quantity.

The Diffusion/Ideation theory holds that a reduction in family size is courtesy of the diffusion of contraceptive information and new ways of doing things pertaining to childbearing. There are different channels through which diffusion of simple family standards occurs that different scholars have identified. Education is an important channel of small family norms. The link between education and fertility behavior is less structural than it is cognitive. This is because the changes in reproductive health connected to education occur via changes in ideology, knowledge, perceptions, and attitudes, among others rather than through structured microeconomic realities that include enhanced economic opportunities for the womenfolk. According to Cleland and Wilson (1987), acquiring new norms through literacy is easily associated with changes in fertility compared to changes that emanate from economic factors.

On the other hand, Davis and Blake (1956) categorized the factors that have an impact on fertility into two; background and intermediate or proximate determinants. The background determinants (cultural, economic, health, psychological, environmental, and social factors) work through proximate determinants, in a way which then influences fertility. Socio-cultural and economic factors influencing fertility include religion, education, residence, use of contraceptives, and wealth. For example, women's education level is considered to be a vital

economic indicator for fertility and is associated with a negative impact to fertility (Davis et al., 1956).

According to Easterlin's economic framework for fertility analysis, the causes that lead to a decision on fertility work through the demand for children, potential gains from the children in conjunction with the cost of fertility regulations either singly or through a combination of the factors (Easterlin, 1975). This demand is dependent on how the household balances its taste for goods and children against variations in individual tastes, prices and income determinants. The number of children would, therefore, be expected to change when related to household income. The potential output of children is achieved from the number of surviving children if natural fertility were not limited, hence an increase in the infant survival prospects increase the potential output of the children.

Fertility regulation imposes significant costs on a family through psychic and market costs; the displeasure associated with controlling fertility together with the resources such as time and money important for one to learn to use new fertility control techniques. Typically, a family planning program lowers market costs by increasing service provision and access to information. In a perfect contraceptive society, such costs would be at zero (Bumpass et al., 1970), a factor that would have made access to contraception easy and enable couples achieve a number they aspire to. Since the market costs are still high, there is still a low deliberate effort to control fertility hence a potential for more unwanted children.

2.3 Concepts and Measures

In getting responses on reproductive preferences, women are often asked questions relating to how many children they would like to have in their lives. This question is phrased differently for both women with and without children. In supporting or refuting the reliability of the use of such questions in estimating the desired number of children, the question of post-facto rationalization bias (a tendency to adjust the desired number of children to a number close to the actual), has been raised in several quarters (Ibisomi, 2007).

Ex-post rationalization complicates the whole concept as it becomes hard for the researcher to determine whether the close relationship between the stated and the exact number of children is fortuitous or systematic. In addition to this, Bongaarts (1990) talks of the inability and unwillingness of some women to respond to a request to share their desired family size, as a factor affecting the collection of such crucial fertility preference data. Although widely criticized, the concept of a desired family size still finds relevance in demographic works especially in developing countries where such data is used to measure long-term fertility intentions (Mueni, 2014).

2.4 Empirical Review

This section presents a review of peer-reviewed materials including articles, theses, and books focused on socioeconomic and demographic determinants of fertility.

2.4.1 Education

Education is a crucial factor in directing fertility preferences and behaviour. During the demographic transition and other different social transformations, there is usually the widespread of mass education. According to Derose & Ezeh (2005), the enlightenment of both women and men has a direct influence on an individual's ideology in relation to fertility.

According to Fere (2008), a strong correlation exists between women's education and reduced childbearing in most of the developing countries across the world. The results of a study by Mboup & Saha in 1998 which showed that in a good number of countries in sub-Saharan African, women without a form of modern education, when compared to those that have been educated to a secondary school level or higher, have two to three children more. In areas where mass education is yet to be achieved, they will experience a lag in fertility decline mainly because of the slow changes in fertility behaviour owing to the slower pace of social interaction and diffusion. A different study conducted in Uganda by Bbaale and Mpuga (2011) noted that education given to women happened to show its significance in bringing down fertility compared to that given to their partners, although to a small magnitude.

Evidence from different studies (Bongaarts, 2010, Bankole & Westoff, 1995, Bongaarts, 2011 and Upadhyay & Karasek, 2012) indicate that those women that had acquired secondary or higher education wanted to have small families. Bongaarts (2011) notes that in some cases, women with high education levels find it difficult to get the number of children they want to achieve. Findings by Snyder (1974) show that the woman's education and wages, referred to as the price of a child, was inversely associated with the size of the family, without realizing a child

quality and quantity tradeoff. Contradictorily, the education of the child, representing child quality, increased in correspondence with an increase in the number of children. Overall, many studies, have identified education as the strongest factor that corresponds to a desired family size.

Bankole & Westoff (1995) argue that the greater autonomy that education accords many women in marital relationships is the main reason for the association between women's education and small desired families. A self-selection mechanism, where actually longed for fewer children, is another reason for the small desired families. Such women may exhibit a high level of ambition with regard to their career pursuits, economic independence, wealth accumulation, and autonomy prior to family formation.

A study by Martin (1995) indicates that there was no reversed interconnection between education and fertility where societies do not have formal education. In place of this, an inverted U pattern was cited. The study analyzed DHS data from 26 countries and findings confirm the link between higher education and lower fertility. The study however, showed that there were differences between the lower and upper layers of education, and in the robustness of this relationship.

2.4.2 Place of Residence

Fertility and family size varies with where the members live. In most developing countries, urbanization is associated with lower fertility even though it is not well understood how urban residence and migration alter fertility behaviour (White et al., 2008). Different studies have thus been undertaken to establish the bond between type of place of residence and fertility.

Studies indicate that in as much there seems to be a huge itch for more children among married couples in Sub Saharan Africa, there exists disparities between such populations living in rural and urban settings with the urban dwelling couples preferring smaller families (Olaleye, 1993; Bankole & Westoff, 1995). Evidence also shows that women in rural areas in most regions have higher fertility rates compared to their urban counterparts (Dutta & Sarkar, 2014: Gomes, 2012; Presler–Marshall & Jones, 2012).

2.4.3 Wealth Index

Upadhyay & Karasek (2012) conducted an inquiry in Guinea, Zambia, Mali, and Namibiaon the relationship between affluence and family size. The findings show that in these countries, such opulence was negatively related to desired family size. They found that household income was an important element in determining desired family size, but as the family income increased, so did the family size. One explanation for this phenomenon was that extended family members shared the cost of the children's education in a household (Snyder, 1974).

The quantity-quality trade-off is another important aspect that relates to the socioeconomic status of the household, education and fertility. When the socioeconomic status of the household improves, parents aspire to have a smaller number of children in order to give them a more desirable life. According to Hanushek et al., (1992), this concept provides an explanation for the decline in birth rates with increasing household income even though children are not inferior goods. Using this concept, it explains why parent's higher education levels affect choices in the quality and quantity of children. Correspondingly, as household income increases, parents tend to aspire for better quality of life their children. This, therefore, results in a reduction in the

number of offspring, eventually leading to a negative linkage between the ability to have children and household income.

Different studies have also been conducted among poor and non-poor women to determine the relationship between wealth index and fertility. In their study, Majumder & Ram (2014) investigated the overall contributions of this population in fertility reduction across six Asian countries, and examined the factors, whether direct or indirect, responsible for reproductive behaviour of the two recognizably different subgroups. Overall, the study showed that compared to poor women, the non-poor exhibited a lower level of fertility. In India, Nepal, and Philippines, for instance, fertility level was comparatively higher among the underprivileged women than non-poor. In another study to determine the proximate determinants of fertility among a similar class of women in Kenya, Amin (2014) found that at the subgroups, the former contributed to an increase while the latter contributed to its decline.

2.4.4 Religion

According to Olaleye (1993), religion is an important factor that impacts on desired family size. According to McQuillan (2004), religion is only important when the following conditions are met: that it articulates behavioral norms with a relevance to fertility behavior, is the means through which these values are communicated, and is the central component of the follower's social identity.

Different studies have looked into the relationship linking religion and fertility and family size. Isiugo-Abanihe (1994), found that Muslims possess larger family preferences than Christians.

Another study by Westoff & Potvin (1966) sought to establish if the higher fertility noted among Catholic women who learnt in Catholic institutions of higher learning reflected the experience of Catholicism or of selectivity of women with higher fertility into Catholic colleges. This study inferred that it is more of selectivity factor, rather than learning in such schools, that made for these results. Based on the findings of this study, Westoff & Potvin (1966) postulate a theory on family size desires. According to this theory, girls internalize the normative family size range between their late childhood and beginning of adolescence; dependent on religion among other factors.

Chike (2001) found that in the North of Nigeria, the conservative religion of Islam promoted an increase in fertility as more women entered marriage earlier and subsequently started childbearing earlier compared to their counterparts in other religions. On the other hand, in North America, historical studies have indicated that compared to other religious groups, women belonging to the Catholic religion experience a higher level of fertility (Gupta & Leite, 1999).

2.4.5 Use of Contraceptives

Several studies have investigated the association of contraceptive use with fertility as well as family size. According to Bongaarts (1984), the massive reduction in fertility that occurred in the developing world occurred because of a significant shift in the behavior of people in unions in their child bearing ages. In addition, contraceptive use is seen as a go-to intervention for individuals intended on slowing down the population growth rate. Johnson et al (2011) conducted a comparative study of 13 sub-Saharan countries between the years 1990 to 2010 and found that contraceptive use was increasing in all the countries within this period. However, in

Benin and Ghana, the fertility-reducing effect of contraception reversed between 2000-2004 and 2005-2009. Although there was an increase in contraceptive use in these countries, fertility decline sometimes stalled.

In Kenya, Njenga (2010) established that contraceptive use had the most notable fertility-reducing impact within five years from 2003. In another study, Ekisa & Hinde (2005) inferred that between 1989 and 1993, application of contraceptive use by couples to delay fertility played the greatest role in reducing the level of fertility in Kenya. Majumder & Ram (2015) established that among the poor and non-poor in Asia, fertility decline was due to increased contraceptive use, especially among the poor women. On the other hand, Madhavan (2013) found that across sub-Saharan Africa, contraceptive use made a greater contribution towards fertility decline. Other studies (Tanha et al. (2011); Peng et al. (2012); Hollerbach et al. (1984); Vazquez (1987) also found that contraceptive use had the highest impact on fertility.

2.4.6 Marital Status

The New Economics theory recognizes marriage as an economic activity. Partnership behavior is described through the institution of the 'principle of comparative advantage' (Cigno 1991). This theory advances two suppositions; firstly that men and women distribute their time to market and domestic activity respectively. In instances where individuals are entrenched in the market economy, they work, and earn wages. Those engaged in domestic activity on the other hand, are engaged in the production of household commodities including washing clothes, children and preparing good meals. The consumption of commodities occurs in domestic activity to maximize the household specific utility. Secondly, it assumes that the difference in the level of a woman's

and a man's productivity in the market and domestic activities is used as a trade-off in couple formation.

Marriage is a substitution process between a man and a woman to maximize marital utility. In instances where partners specialize each in their own supposition, they will have a greater comparative advantage compared to single people. This occurs where a partner in a marriage with a comparative advantage in market production narrows down to bringing monetary income to the family whilst the other partner specializes in domestic work in the form of household production. Such utility will be better and encourage more single people to get married rather than remain single. Conversely, without such a gain, single people will not find necessity in getting married.

According to Easterlin, 1987, relative income determines marriage and childbearing patterns. Easterlin's theory makes clear demographic behavior, by making use of the economic statuses of individuals between generations. In instances where the relative economic capacity of young adults grows, such individuals experience a reduced economic constraint, will feel emancipated, marry earlier and consequently have more children. On the flipside, if their economic status worsens, such individuals will bear an increase in economic stress, will cut down on their spending, will marry later and ultimately have fewer children.

2.4.7 Work Status

Women's allotment of time decisions and emphasis on the opportunity costs of time have a direct correlation to the number of children a woman is bound to have over her generative years.

Over the recent past, fertility decision is considered an economic where the cost of having a child is the foregone earning of the person caring for the child in the home. The increase in women's education, employment rates and subsequent relative earnings has increased the opportunity costs of childbearing (Willis, 1973).

The growth of unemployment among women may contribute to delayed childbirth hence reducing fertility. Variations in fertility and access to work are linked to an increased emphasis on women having individual independence and a desire to be attached in a more permanent way to the labor market where they can earn more, sustainably (Lesthaeghe and Willems 1977). According to Willis 1973, child rearing is an intense affair for the mother, therefore, increasing the mother's wages or work could have a negative effect on the demand for children. High and rising consumption forces both members i.e. the husband and wife to remain in full-time employment during most of their child-bearing years which in turn has a negative effect on their fertility.

In the modern society, women's labor supply and fertility seem to the object of a bargaining process between the spouses considering that fertility and the labor market participation are now recognized as the joint results of the maximization of household expected lifetime utility in relation to wealth and time.

2.4.8 Age of the Respondent

The relationship between female fertility and age is sometimes referred to as a woman's 'biological clock'. A woman's age is perhaps the most important factor affecting fertility. From a

woman's biological clock, it takes longer for a woman to conceive as a woman ages and subsequently increases the risk of one not getting pregnant. In addition, it increases the risks of experiencing a miscarriage, and complications in pregnancy and childbirth.

According to Mosammat et al., 2013, the mean age at first marriage is a significant factor in determining overall fertility in a population. The relationship between marriage and fertility is such that women who marry at a younger age more often produce more children than those who marry late. From their study of the 2007 Bangladesh Demogaphic and Demographic Survey, they established that whenever the age at first marriage among the adolescent population increased by one year, the age at first birth is postponed by slightly less than a year, a factor which in turn is expected to reduce the overall total parity per woman by the end of the reproductive period (Mosammat et al., 2013).

According to Ang'awa 1990 study on the impact of age at first birth and age at first marriage on fertility in Kenya, age at first birth and age at first marriage have a significant impact on fertility noting that there was a decline in the fertility levels with an increase in both the age at first marriage and first birth. Age at first marriage is particularly important since marriage in natural fertility societies such as those in Africa, is a pre-requisite to childbearing where childbearing starts immediately after marriage (Caldwell, 1977).

2.5 Summary of Literature Review

Literature review reveals that several studies have contributed significantly to the understanding of socioeconomic, behavioural, demographic and cultural factors that influence fertility and which are also responsible for excess fertility. Overall, all the studies found that education and wealth index contribute to fertility decline. On the other hand, contraceptive use was found to not play a key role in reversing the stagnation of fertility decline in some countries. Furthermore, religion may contribute to fertility increase or decrease, depending on the type of religion as well as the norms and values that the religion promotes, which are known to influence fertility behaviour. Studies on marital status indicate the importance of marriage to fertility and how specialization in market chores or domestic chores in such unions either impact positively or negatively on overall fertility.

The employment status of women in the society is seen in many quarters as a deterrent to high fertility as most women would take up employment during their peak fertility years. Age at first birth and age at first marriage complement each other with the age of marriage in Sub-Saharan Africa acting as a pre-requisite to childbearing. The lower the age of marriage, therefore, the higher the expected fertility. Finally, urban residence has been shown to contribute to fertility reduction as urban lifestyles mostly support a small family size. The rural residence promotes fertility increase, even as rural women are known to have a larger family size. Since studies on factors responsible for unmet fertility desires are scanty in Kenya, this study will attempt to fill this gap.

2.6 Conceptual Framework

The purpose of this study is to investigate the determinants of unmet fertility desires among women of reproductive age in Kenya. For this reason, Bongaarts variation of Easterlin's supply-demand framework will be adopted. This variant of Easterlin's supply-demand framework provides a simplified supply-demand model that makes the empirical implementation of Easterlin's original model simpler. Figure 2.1 below summarizes this model.

This model hinges on a relationship between fertility (dependent variable) and three independent variables; supply of births, demand for births and the degree of preference implementation. Supply of births is measured as a population's total natural fertility which is the rate at which childbearing would occur where there are no deliberate efforts to couples to reduce the sizes of their families. The demand of births refers to the wanted total fertility, which is the rate of childbearing that is achieved by a population in instances where couples were in a good position of eliminating unwanted births. Unwanted births, in this case, occur after a couple has reached a point in their life where they do not want any more children. The degree of preference implementation refers to the result of a decision-making process where couples weigh the cost of fertility regulation against the cost of having unwanted children (Bongaarts, 1993).

```
┌─────────────────────────────────┐
│ Supply of births (Natural        │ ──────┐
│ fertility)                       │       │
└─────────────────────────────────┘       │
                                          ▼
┌─────────────────────────────────┐   ┌──────────┐
│ Demand for births (Wanted        │ ──│ Fertility │
│ fertility)                       │   └──────────┘
└─────────────────────────────────┘       ▲
┌─────────────────────────────┐           │
│ Cost of fertility regulation │ ─┐        │
└─────────────────────────────┘  │        │
                                 ▼         │
                           ┌──────────────────┐
                           │ Degree of         │
                           │ preference        │──┘
                           │ implementation    │
┌─────────────────┐        └──────────────────┘
│ Cost of unwanted │ ─────────▲
│ childbearing     │
└─────────────────┘
```
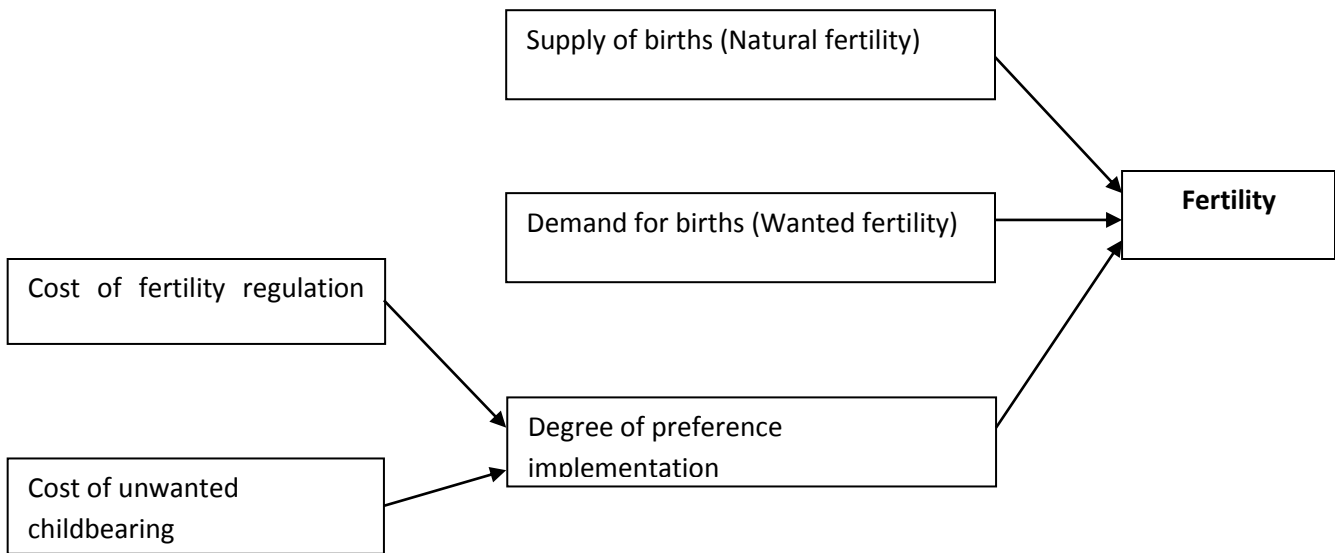
Figure 2.1 Conceptual Framework (Bongaarts' variation of Easterlin's Supply-Demand model, 1993)

2.7 Operational Framework

The background variables (economic and socio-cultural factors) will act through a set of Proximate/direct determinants to influence family size, as shown in figure 2.2 below. The model emphasizes three broad categories through which they influence fertility. These three categories include the supply of children (natural total fertility), the demand for births (wanted total fertility) and the degree of preference implementation (cost of fertility regulation Vis a vis the cost of unwanted childbearing), which measures the roles of the costs of fertility regulation and unwanted childbearing. The dependent variable is measured by the number of children a couple will have had at the end of the reproductive cycle.

According to Becker, this demand for children is not mutually exclusive and is dependent on a number of items. Demand for children depends on household income, the value of the children

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and the parents' predisposition compared to other items that provide them with such satisfaction and utility. According to Easterlin, the potential to get children is dependent on biological factors; natural fertility. In order to achieve a certain number of surviving children, the number of births would have to be determined by the level of child and infant survival. Fertility regulation is determined by the attitudes, perception and the general notion of fertility control issues by the society. It is also determined by the range of techniques, availability, and affordability. Foetal mortality and involuntary fecundity are involuntary causes that play a huge role in determining the number of children born.

Each of these factors has a role to play in determining actual fertility relative to the demand for children and potential output. In instances of excess demand, the number of children corresponds to their potential output which governs variations in the actual fertility. On the other hand, where there is excess supply and the motivation to regulate fertility exceeds the cost, deliberate actions are taken to limit fertility hence the actual number of children falls below potential output. The impact of having priced fertility controls is that some parents will still have unwanted children. When the actual number of children falls below the desired potential, it reflects conscious fertility control. On the other hand, when the actual number of children is more than the desired potential, it indicates an excess that corresponds to unwanted fertility.

The framework is relevant to the study since it indicates how desired fertility is affected by other factors to result in the actual number of children a couple would eventually have. The factors highlighted have a significant role to play in determining actual fertility in developing societies such as Kenya where actual fertility exceeds desired fertility. Although there has been a

significant campaign to address excess fertility in Kenya through the provision of contraception and free maternity services, fertility regulation is not entirely costless hence a number of background factors work to influence the supply and demand for births which in turn affect fertility levels. The figure below shows the categorization of the adopted operational framework applied in the study on the background factors (socioeconomic and demographic factors) and how they relate to fertility.
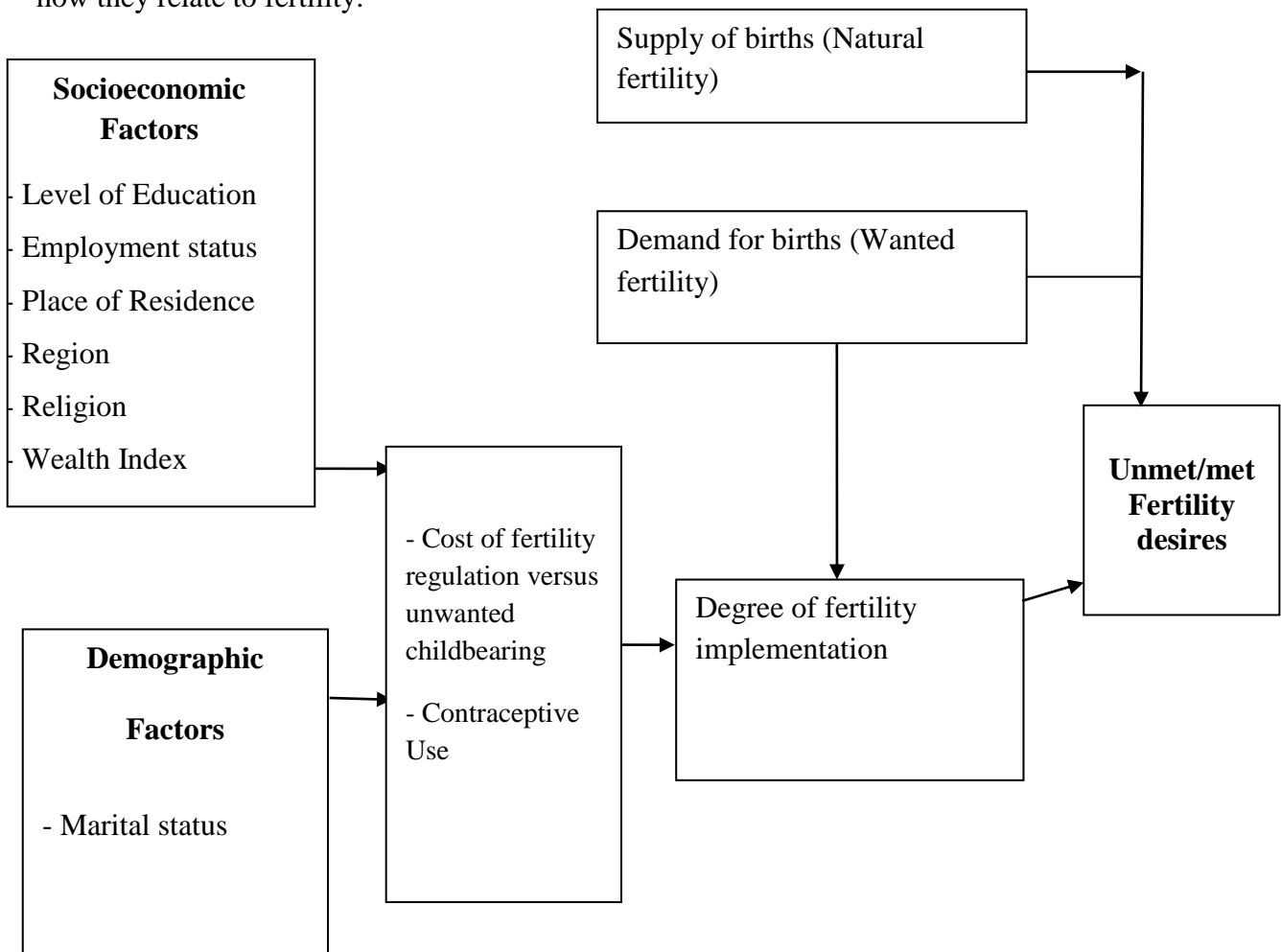

Figure 2.2 Operational Framework – Adopted from Bongaarts' variation of Easterlin's Supply-Demand model, 1993.

2.7.1 Variable Measurements

As reflected in table 2.1 below, in determining the level of education, the respondents were asked to indicate whether they had formal education or not and how far up the formal education ladder they had reached, to determine how level of education affects the actual number of children they had or desired to have. In determining the employment status, respondents were asked to indicate whether they had access to income or not to determine how access to income affects the actual number of children such respondents had or desired to have.

In determining place of residence, the respondents were asked to indicate whether they lived in an urban or rural area, in order to determine how living in an urban or a rural area affected the actual number of children one had or desired to have. In determining region, the respondents were asked where, based on Kenyan former provinces, they resided, in order to determine how living in each of the eight former provinces affected the actual number of children one had or desired to have. In determining religion, the respondents were asked whether they ascribed to any religion outfit or not. Where such a respondent ascribed to one, they were asked to specify. This was done in order to determine how religion impacts on the actual number of children one had or desired to have. In determining the marital status, respondents were asked to state the status of their marriage in order to determine how marriage impacts on the actual numbers of children one had or desired to have. In determining contraceptive use, respondents were asked whether they used any form of contraceptives or not, and where applicable, specify whether modern, traditional or folkloric, to determine whether the use of contraceptives had an impact on the actual number of children one had or the number of children they desired to have.

Table 2.1 Variable measurements

	Variable	Value
Dependent Variable	**Unmet Fertility desire**	Actual number of children > desired number of children = 1 Actual number of children < desired number of children = 2 Actual number of children = desired number of children = 0
Independent Variables	**Region**	Coast 1, North Eastern = 2, Eastern = 3, Central = 4, Rift valley = 5, Western = 6, Nyanza = 7, Nairobi = 0
	Religion	Roman Catholic = 1, Protestant/Other Christian = 2, Muslim = 3, No religion = 4, Other = 0
	Wealth Index	Poorest = 1, Middle Income = 2, Rich = 0
	Level of Education	No education = 1, primary = 2, Secondary = 3, Higher = 0
	Type of place of residence	Urban = 1, Rural = 0
	Respondent currently working	Working = 1, Not working = 0
	Age of the respondent	15-24 = 1, 25-39 = 2, 40-49 = 0
	Marital Status	Currently married = 1, Widowed/Separated = 2, Never married = 0
	Current use by method type	No method = 1, Folkloric method = 2, Traditional method = 3, Modern method = 0

CHAPTER THREE

DATA AND METHODS

3.1 Introduction

This section gives an explanation of where data was obtained from, together with outlining the methods that will be used for data analysis in this study. It also gives a description of the variables used and how they are measured. The study utilizes descriptive statistics; frequency distribution and chi square, together with multinomial logistic regression to synthesize data.

3.2 Data Source

This study was built from an analysis of the nationally representative secondary data obtained out of the 2014 Kenya Demographic and Health Survey (KDHS). The 2014 national KDHS targeted 40,300 households with the motive of providing comprehensive information on health aspects in the country; nationally and county-wide. Information was collected on household characteristics, awareness plus the use of family planning techniques, fertility levels along with preferences, education and employment, domestic violence, marriage and sexual activity, female circumcision, maternal, child health together with ensuring survival, possession and the correct us of mosquito nets, nutritional status, HIV related behavior and knowledge, and fistula. There are 47 divisions in Kenya designated as counties, each serving as a unit of administration, emanating from the new 2010 constitution. For this research, the 47 counties were stratified breaking them down to rural and urban layers. There were 1,612, divided into 995 and 617 rural and urban clusters respectively.

3.3 Study Population and Sample Size

This study is restricted to all women, 15 – 49 years old, in Kenya who do not want any more children, who are sterilized and declared infecund. These women should have given a numeric response to a question asked about what number of offspring they considered ideal. This category of women is chosen because it gives a theoretical representation of women who have completed reproduction. A sample of 5992 women was therefore used in this study. Of this, 91.9% (5509) did not want any more children, 5.5% (330) were sterilized and 2.6% (153) were infecund as seen in the table below.

Table 3.1 Study population and sample size

Population	Number	Percent
No more	5509	91.9
Sterilized (respondent or partner)	330	5.5
Declared infecund	153	2.6
Total	**5992**	**100.0**

3.4 Data Quality

3.4.1 Measurement of variables

a) Dependent variable

A number of indicators are used in the measurement of fertility. From the demographic and health survey dataset, number of living children and children ever born are easily used to measure potency. This study used number of living children as a representative for actual fertility. To measure desired fertility, some of the indicators that may be used include intended

family size, desire for more children, ideal number of children, ideal number of sons and daughters.

For this study, the ideal number of children will be used since it gives a numeric pattern of desired fertility. Pritchett (1994) argues that using ideal number of children to measure desired fertility exposes the study to estimation concerns due to prospective questions and ex-post rationalization. This study, however, utilizes this measure due to the numeric patterns of desired fertility it provides. This variable is also used in place of children ever borne in order to cater to the possibility of child replacement.

This study utilizes the difference in number of living children and what she considers ideal for her family referred to as 'unmet fertility desire'. This difference is an indication of unmet fertility desires; a categorical variable that measures the number of living children in excess of, or less than the desired family size. This variable takes the value 1 where women have more living children than desired, 0 when desired equals actual family size and the value 2 when the actual family size is less than the desired size. This is constructed from the assumption that the group of women with more actual than desired number of children and the group with less actual versus desired have different characteristics and face different challenges. Two sets of this are used for analysis; the first set comprises women with met fertility desires (whose desired number is equal to the actual number they achieved), and those with more than they desire. The other set constitutes women with met potency desires and those with fewer than desired.

Table 3.2 Measures of the dependent variable

Variable	Value
Actual number of children > desired number of children	1
Actual number of children < desired number of children	2
Actual number of children = desired number of children	0

b) Independent variables

The independent variables as per table 2.1 are classified into two: socioeconomic and demographic factors. The socioeconomic factors include; level of education, employment status, place of residence, wealth index, religion, and region. Demographic factors include; age of the respondent, age of the respondent, marital status and use of contraceptives.

3.5 Data Analysis

The study utilizes descriptive statistics and multinomial logistic regression methods of data analysis. The findings are presented in tables and narrative forms.

3.5.1 Descriptive Statistics

Statistics generated will exhibit the distribution of women according to their key primary characteristics. Frequency distribution was used to measure the occurrence in terms of how often certain elements appeared in the data set. Cross-tabulation will show any significant relationships that exist between the various independent variables and the dependent variable. To determine whether these associations are statistically significant, a Chi-square test will be used to measure dependence of the association.

Although chi-square is a good method to measure significance, it has its limitations. Chi-square is sentient of sample size with the calculated chi square being directly proportionate to sample size. Additionally, it is sensitive to small frequencies in any cell in the table. Chi-square gives little information on the strength of the association and only shows the statistical importance in the data.

3.5.2 Multinomial Logistic Regression

A multinomial logistic regression will be fitted to determine the socioeconomic and demographic factors related to unmet fertility desires among women; those with more, and those with fewer children than desired. The basic assumption is that the categories of women at both ends exhibit different behavioral characteristics from one another.

The basic logistic regression equation is:

$$\text{In } [Pi/Pj] = \sum_{k-1}^{K} \quad x \, b_{jk} X_k$$

This model is used to assess the effects of the independent variables on a multicategory dependent variable and has been used in many instances to identify determinants of contraceptive use. Applying this to a dataset, each estimated coefficient is the anticipated change in the log odds of being for a unit positive change in the correlating predictor variable holding the other predictor variables constant at a certain value. Logistic regression is modelled to predict a dependent variable on the premise of continuous and/or categorical independents, and to make determination of the percentage of variance in the outcome variable. This is spelled out by the independents in such a way as to rank the comparative importance of independents, focus on interaction effects, and perceive the influence of covariate control variables. This impact, of predictor variables, is normally expressed in odds ratios (LaValley, 2008).

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CHAPTER FOUR

FINDINGS OF THE FACTORS INFLUENCING THE DIFFERENCES IN ACTUAL AND DESIRED FAMILY SIZES IN KENYA

4.1 Introduction

This portion presents the study findings. It provides results of analysis of a sample of 5992 women, 15–49 years, obtained from the 2014 KDHS data. This analysis commences with findings from an analysis of the background characteristics, followed by the association between the dependent variables with the independent variables and finally, an analysis of odds ratios of factors related to unmet fertility desires.

4.2 Background Characteristics

The table 4.1 below presents the distribution of respondents by selected background characteristics. Rift valley had the highest number of respondents amounting to 29.8%, followed by Eastern at 18.3%, Nyanza at 16%, central region at 12.1%, western with 10.1%, coast 9.9%, Nairobi 2.5% while North Eastern region had the least number at 1.3% of the total number of respondents. In terms of religion, 69.4% of the respondents ascribe to Christianity, 21.6% being Catholics, 6.8% of the sampled population were Muslims with 3% being non-members. Further, close to a half of the respondents, 42.3% are poor, 36.2% are considered rich while 21.4% fall in the middle-income category.

The results also indicate that slightly more than half of the population 60.1%, have basic primary education, 22.7% have secondary education, 10.9% have no education at all with very few of them, 6.3% having higher education levels. A majority of the residents live in rural areas when

contrasted to those who live in the urban areas at 66% and 34% respectively. In addition to this, three-quarters of the respondents are in one form of employment or the other.

From the results obtained, respondents within the age range 25-39 formed the bulk of the sample at 53% with the rest of the age ranges falling way below 50%. It is notable that approximately three-quarters of the respondents were married at the time this research was conducted. In addition to this, respondents who used modern methods of contraception and those that did not use any amounted to 48.7 and 46.6 percent respectively with very few of the respondents using traditional and folkloric methods of contraception.

From the results therefore, a majority of the respondents are between the ages 25-39, are married, live in rural areas, are currently engaged in form of employment or the other, have primary school education and equally, choose between a modern contraceptive method and no method at all.

Table 4.1 Percentage distribution of respondents by selected background characteristics

		Number	**Percent**
Region			
	Coast	596	9.9
	North Eastern	77	1.3
	Eastern	1098	18.3
	Central	724	12.1
	Rift Valley	1783	29.8
	Western	605	10.1
	Nyanza	959	16
	Nairobi	150	2.5
	Total	**5992**	**100**
Religion			
	Roman Catholic	1292	21.6

	Protestant / Other Christian	4159	69.4
	Muslim	408	6.8
	No religion / Other	132	2.2
	Total	5991	100
Wealth Index			
	Poor	2536	42.3
	Middle-income	1285	21.4
	Rich	2171	36.2
	Total	5992	100
Level of Education			
	No education	651	10.9
	Primary	3601	60.1
	Secondary	1363	22.7
	Higher	377	6.3
	Total	5992	100
Type of place of residence			
	Urban	2040	34
	Rural	3952	66
	Total	5992	100
Respondent currently working			
	No	1483	24.7
	Yes	4504	75.2
	Total	5987	99.9
Age of the respondent			
	15-24	502	8.4
	25-39	3335	55.7
	40-49	2155	36
	Total	5992	100
Marital Status			
	Never Married	393	6.6
	Married	4403	73.5
	Widowed / Separated	1196	20
	Total	5992	100
Current use by method type			
	No method	2790	46.6
	Folkloric method	16	0.3
	Traditional method	268	4.5
	Modern method	2918	48.7
	Total	5992	100

4.3 Factors associated with unmet fertility desires

4.3.1 Association between region and unmet fertility desire

From the figure below, in all regions, more than half of the respondents, have an unmet fertility desire by the end of their reproductive career. North Eastern region displays the highest levels of unmet fertility desires with a majority of the women having less than or more children than they desired. It is important to note that the combined overall gap between unmet fertility desires and achieving actual equal to desired fertility levels is minimal. North Eastern, Rift Valley, Western and Nyanza provinces have unmet fertility rates higher than the average while Coast, Eastern, and Nairobi were below the average unmet fertility rate. Most notable, Nairobi region had a balance between the unmet fertility desires and met fertility desires at 49 and 51% respectively.
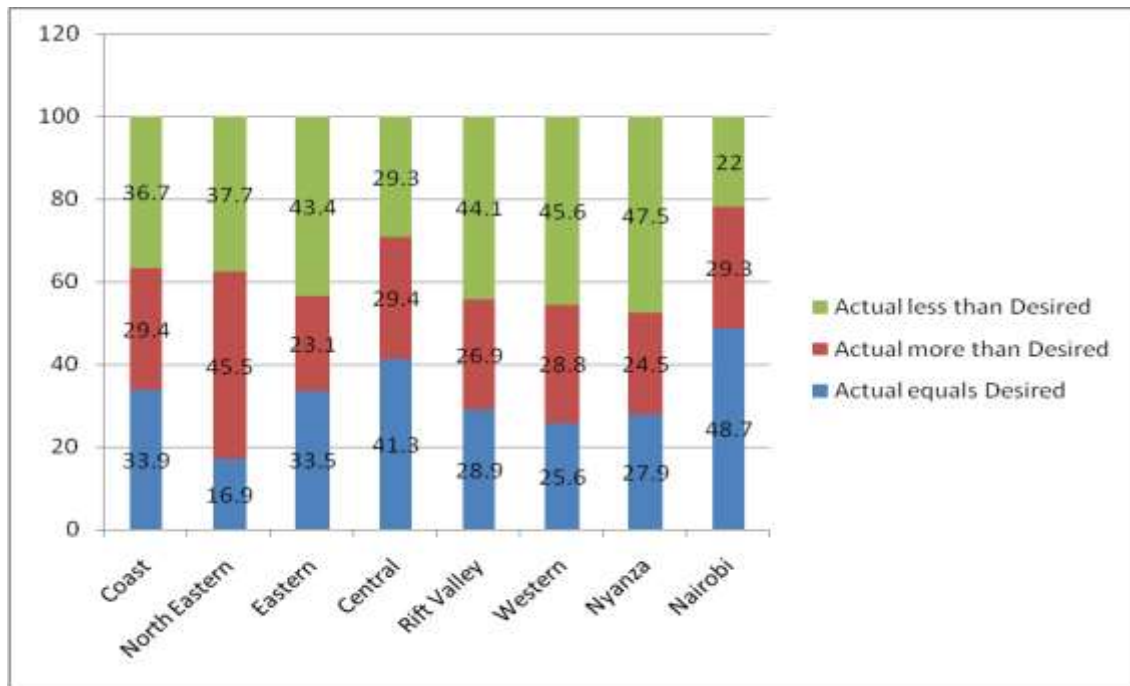

Figure 4.1 Association between region and unmet fertility desire

The Pearson's Chi-Square indicates a significant relationship between region and unmet fertility desire at p<0.000.

Table 4.2 Chi-Square test for the significance of association between region and unmet fertility desire

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	137.780[a]	14	.000
Likelihood Ratio	139.725	14	.000
Linear-by-Linear Association	11.371	1	.001
N of Valid Cases	5992		

4.3.2 Association between religion and unmet fertility desire

Figure 4.2 below shows that all women regardless of their religious affiliations exhibited high levels of unmet fertility desires two and a half times more than those that have achieved their fertility desires. Women who do not ascribe to any religion have the highest numbers of unmet fertility desires equal to three-quarters of that population with only a quarter of them having met their fertility desires by the end of their fertility cycle.
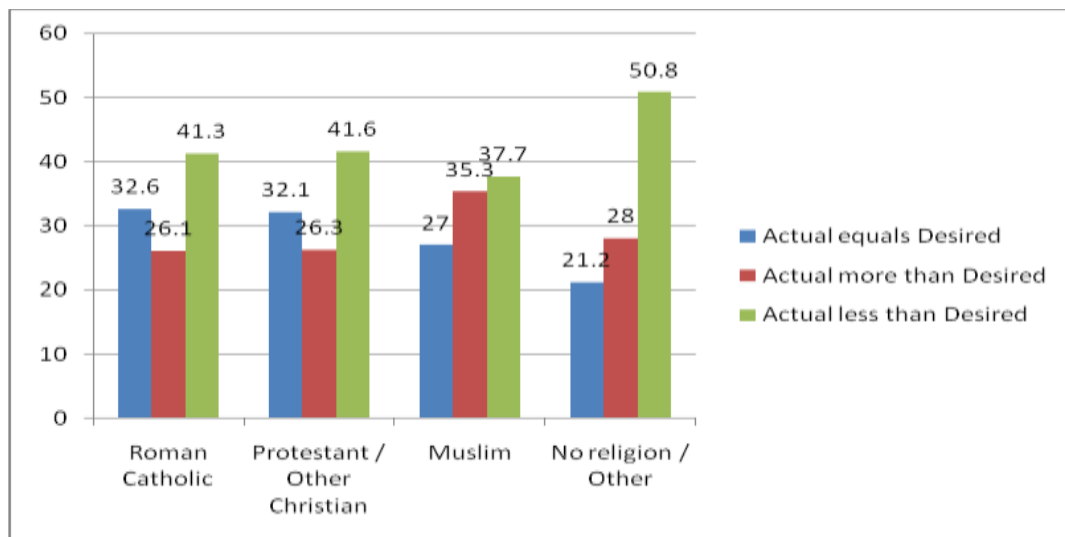

Figure 4.2 Association between religion and unmet fertility desire

The Pearson's Chi-Square indicates a significant relationship in the findings at p<0.001.

Table 4.3 Chi-Square test for the significance of association between religion and unmet fertility desire

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.868ᵃ	6	.001
Likelihood Ratio	23.502	6	.001
Linear-by-Linear Association	3.171	1	.075
N of Valid Cases	5991		

4.3.3 Association between wealth Index and unmet fertility desire

Figure 4.3 below indicates that there is an association between wealth index and fertility desires among women. The relationship is more pronounced among the poor and middle especially where the actual family size is not as much as desired.
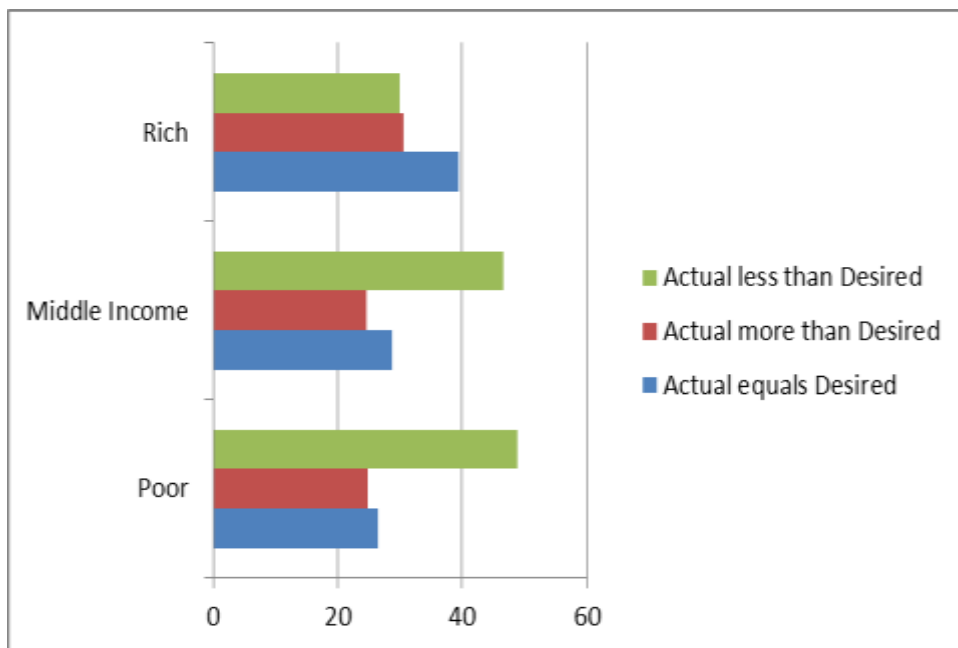

Figure 4.3 Association between wealth index and unmet fertility desire

The Pearson's Chi-Square indicates a significant relationship in the findings at p<0.000.

Table 4.4 Chi-Square test for the significance of association between wealth index and unmet fertility desire

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	194.948[a]	4	.000
Likelihood Ratio	198.440	4	.000
Linear-by-Linear Association	161.032	1	.000
N of Valid Cases	5992		

4.3.4 Association between level of education and unmet fertility desires

The figure 4.4 below indicates a relationship between level of education, and unmet fertility desires. From the figure, more than half of women across all education levels have unmet fertility desires. The second feature of this figure is that women with no education exhibited the highest levels of unmet fertility desires, while women with higher levels of education exhibiting the least levels.

At a lower scale, women with primary school level of education exhibited a more pronounced association in the actual less than desired category among women with primary school level of education.

Figure 4.4 Association between level of education and unmet fertility desires

The Pearson's Chi-Square indicates a significant relationship in the findings at p<0.000.

Table 4.5 Chi-Square test for the significance of association between level of education and unmet fertility desire

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	103.711[a]	6	.000
Likelihood Ratio	106.206	6	.000
Linear-by-Linear Association	70.912	1	.000
N of Valid Cases	5992		

4.3.5 Association between employment status and unmet fertility desires

Findings as per the figure 4.5 below indicate a significant association exists between the respondent current working status and unmet fertility desire more specifically with regard to those whose actual family size was less than what they desired. More than half of the women sampled experienced unmet fertility desires. In addition, women that did not have a form of employment had a higher number of unmet fertility compared to those with a form of employment.
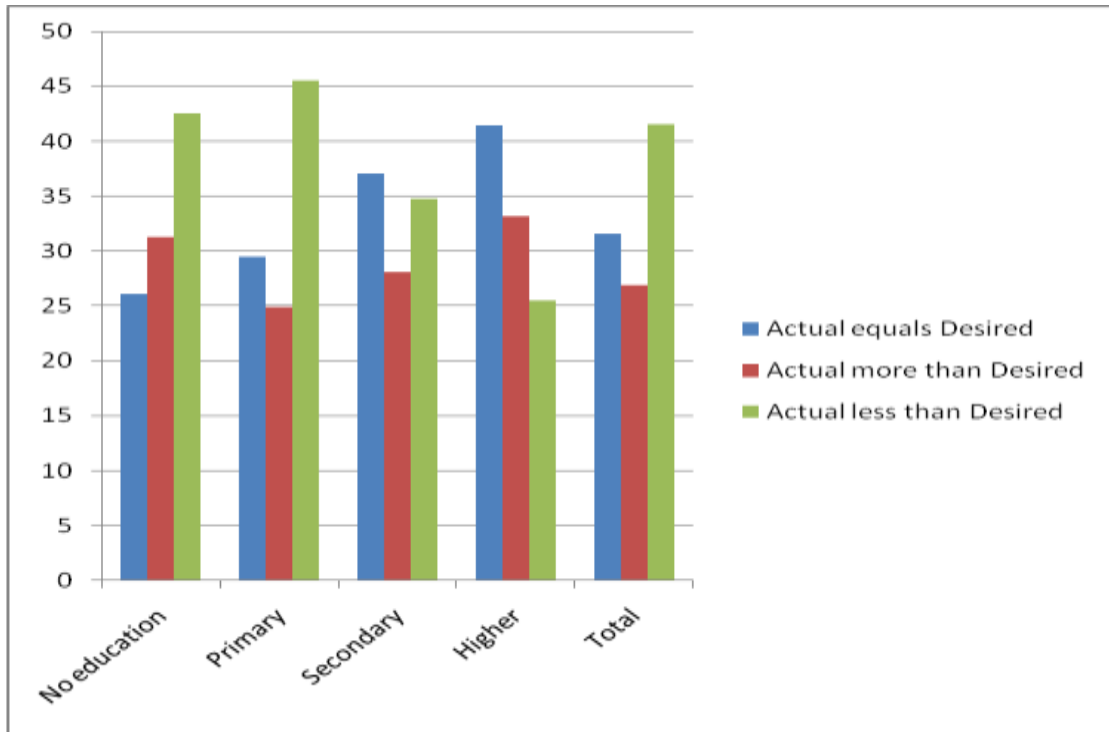

Figure 4.5 Association between employment status and unmet fertility desires

The Pearson's Chi-Square indicates a significant relationship in the findings at p<0.002.

Table 4.6 Chi-Square test for the significance of association between employment status and unmet fertility desire

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.010ᵃ	2	.002
Likelihood Ratio	12.046	2	.002
Linear-by-Linear Association	6.464	1	.011
N of Valid Cases	5987		

4.3.6 Association between place of residence and unmet fertility desires

These findings as per the figure 4.6 below indicate a significant association exists between the respondents' place of residence and unmet fertility desire. This relationship is more pronounced among women living in the rural areas where actual family size was less than what they desired. Women in rural areas have the highest overall unmet fertility desires at more than 70 percent. Although women in urban centers exhibit higher levels for meeting desired fertility, the gap between them and those in rural areas is low.
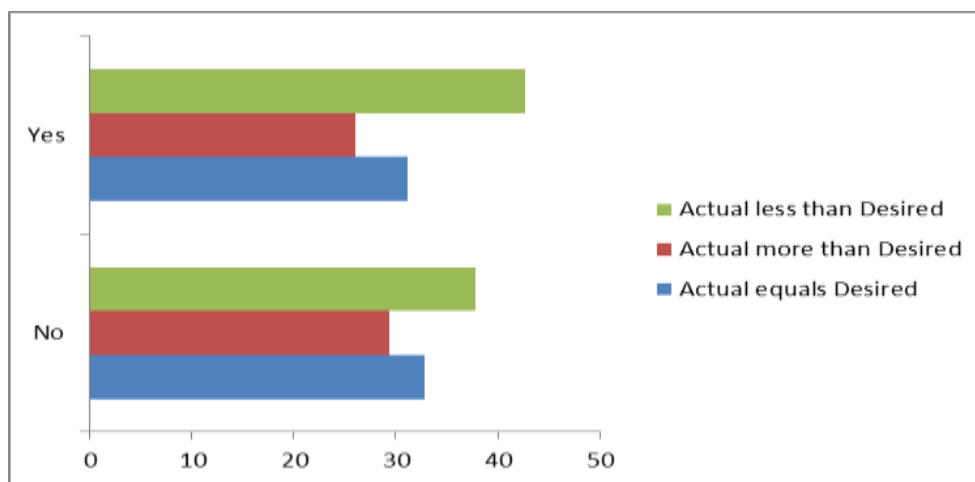

Figure 4.6 Association between place of residence and unmet fertility desires

The Pearson's Chi-Square indicates a significant relationship in the findings at p<0.000.

Table 4.7 Chi-Square test for the significance of association between place of residence and unmet fertility desire

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	105.401[a]	2	.000
Likelihood Ratio	106.876	2	.000
Linear-by-Linear Association	72.455	1	.000
N of Valid Cases	5992		

4.3.7 Association between age of the respondent and unmet fertility desires

The findings below indicate a significant association exists between respondent's ages compared to unmet fertility desire. This relationship is more pronounced among women aged 40-49 where actual family size was less than what they desired with a majority of them having unmet fertility desires. Most noticeably, women tend to desire more children as they age.
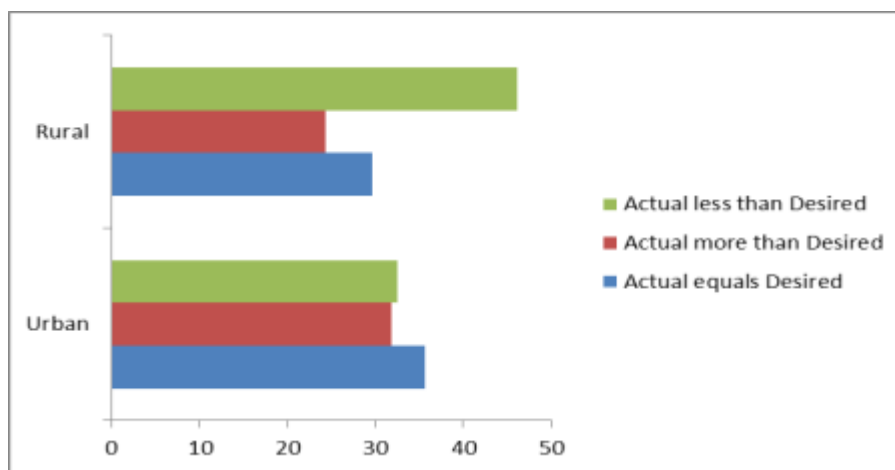

Figure 4.7 Association between age of the respondent and unmet fertility desires

The Pearson's Chi-Square indicates a significant relationship in the findings at p<0.000.

Table 4.8 Chi-Square test for the significance of association between age of the respondent and unmet fertility desire

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	272.836[a]	4	.000
Likelihood Ratio	305.633	4	.000
Linear-by-Linear Association	182.333	1	.000
N of Valid Cases	5992		

4.3.8 Association between marital status and unmet fertility desire

The findings from the figure below indicate a noteworthy relationship exists between marital status and unmet fertility desire. This relationship is more pronounced among widowed and separated women where actual family size was less than what they desired.

Those women who have never been in a union have the highest numbers of unmet fertility desires and notably more children than they desire. Married women have the lowest levels of unmet fertility desires at 55% and the highest met fertility desires at 42%.

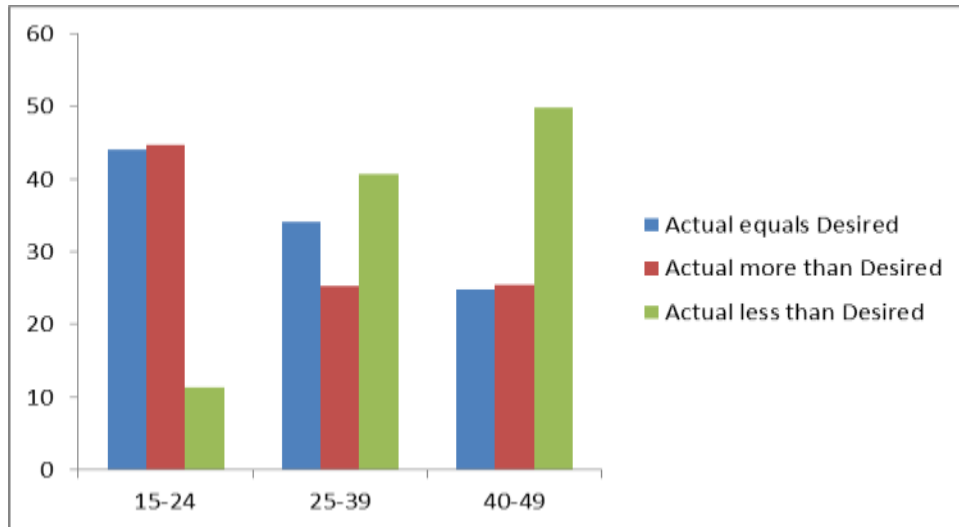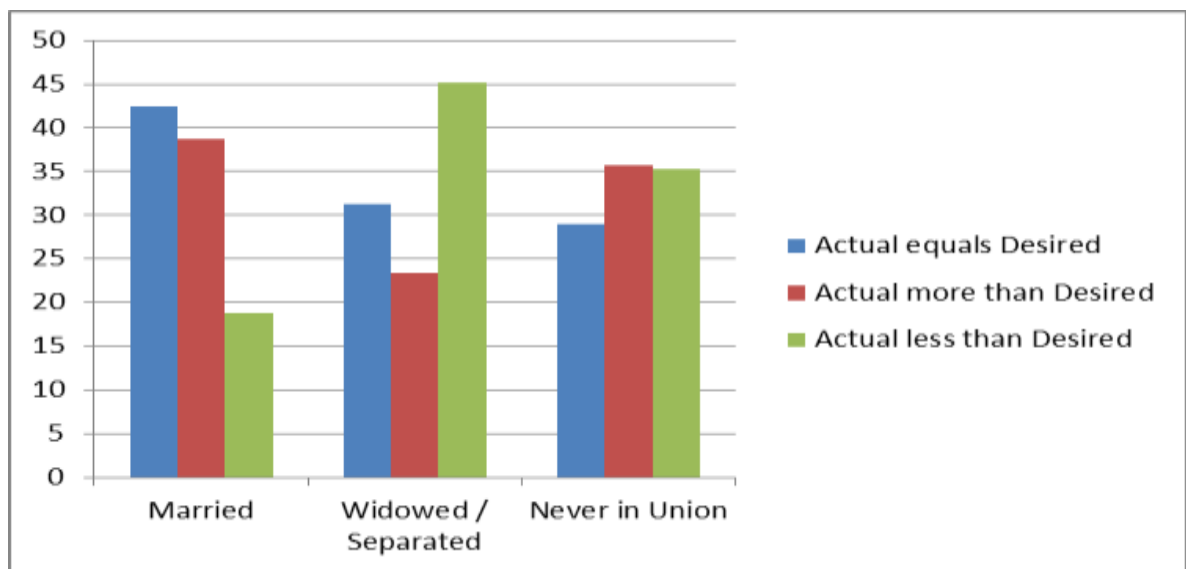**Figure 4.8 Association between marital status and unmet fertility desire**

The Pearson's Chi-Square indicates a significant relationship in the findings at p<0.000.

Table 4.9 Chi-Square test for the significance of association between marital status and unmet fertility desire

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	166.663[a]	4	.000
Likelihood Ratio	173.210	4	.000
Linear-by-Linear Association	7.310	1	.007
N of Valid Cases	5992		

4.3.9 Association between current use of contraceptives and unmet fertility desire

The findings from the figure below indicate a significant association exists between current use of contraceptives and unmet fertility desire. This relationship is quite pronounced among all other categories except those that did not use any contraceptive method where actual family size was less than what they desired.

Women whose response to using a contraceptive method was no, have the highest percentage of unmet fertility desires. Of particular mention is that women who use folkloric methods had the highest wish to have more offspring with only 6% of them having more than they desired, and a significant range of 43% between those with more children than they desired and those that achieved the exact number of children they desired at the end of their reproductive careers.
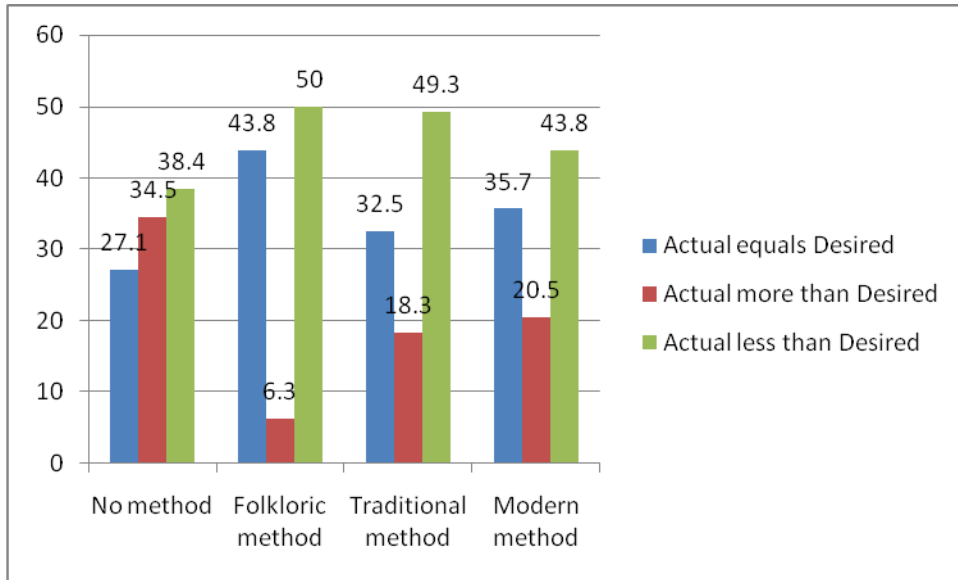
Figure 4.9 Association between current use of contraceptives and unmet fertility desire

The Pearson's Chi-Square indicates a significant relationship in the findings at p<0.000.

Table 4.10 Chi-Square test for the significance of association between current use of contraceptives and unmet fertility desire

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	164.029[a]	6	.000
Likelihood Ratio	165.153	6	.000
Linear-by-Linear Association	1.720	1	.190
N of Valid Cases	5992		

4.4 Determinants of unmet fertility desires

The table 4.11 below gives the odds ratios of factors correlated with unmet fertility desires achieved by running a multinomial regression of the variable 'unmet fertility desire'; a categorical variable that measures the number of living children in excess of, or less than the desired from the reference category.

From the table below, region is seen as an outstanding factor in determining whether a woman will get a variation from the number of children desires. Women in all regions are more likely to get more children than they desire when compared with those in Nairobi region. Notably, women residing in Western and North Eastern regions are 2 times more likely to have more children than they desire compared to their counterparts in Nairobi region. In addition, women in North Eastern region are three times more likely to have fewer children than they desire compared to their counterparts in Nairobi.

Wealth index is also significantly associated with the probability of getting different actual than desired number of children. Both the poor and middle-income earners had higher odds of having different actual than desired numbers of children. The poor and middle-income earners are more likely to have less than they desire when equated to the rich.

Level of educational attainment is also a significant factor when inferring the differences between the actual and desired numbers of children a woman is bound to have. Those with primary level of education are more likely to have fewer children than they desire when a comparison is made with their counterparts with higher education. Marital status is a significant factor in regards to women's unmet fertility desires. Widowed and separated women are less

likely to get a number higher than they desire. Compared to women who have never been in a union, they are more likely to have fewer offspring than they wish to have.

Current use of contraceptives is also a significant factor in determining whether women will get their desired number of children. Those who currently do not engage the use any methods aimed at controlling contraception are more likely to have more children than they desire compared to those who use modern contraceptive methods.

Table 4.11 Odds ratios of factors related to unmet fertility desires

Variable	Actual more than Desired		Actual less than Desired	
	Parameter Estimates	Standard Errors	Parameter Estimates	Standard errors
Intercept	0	.361	0	.361
Region				
Coast	1.137 ***	.233	1.144 ***	.249
North Eastern	2.610 ***	.418	3.293 ***	.442
Eastern	1.091 ***	.219	1.425 ***	.234
Central	1.203 ***	.222	0.847	.240
Rift Valley	1.393 ***	.212	1.881 ***	.229
Western	1.786 ***	.233	2.042 ***	.246
Nyanza	1.382 ***	.223	1.971 ***	.236
Nairobi (Ref)	1		1	
Religion				
Roman Catholic	0.719	.270	0.571	.249
Protestant/ Other Christian	0.755	.263	0.581	.243
Muslim	0.956	.294	0.722	.276
Other (Ref)	1		1	
Wealth Index				
Poor	1.087 ***	.093	1.960 ***	.087
Middle-income	1.128 ***	.101	1.784 ***	.093
Rich (Ref)	1		1	
Highest education level				

Variable	Actual more than Desired		Actual less than Desired	
	Parameter Estimates	**Standard Errors**	**Parameter Estimates**	**Standard errors**
No education	0.966	.185	1.333 ***	.187
Primary	0.954	.139	1.829 ***	.147
Secondary	0.884	.143	1.291 ***	.152
Higher (Ref)	1		1	
Respondent currently working				
Not Working	0.932	.084	0.903	.079
Working (Ref)	1		1	
Type of place of residence				
Urban	1.208 ***	.079	0.846	.075
Rural (Ref)	1		1	
Age of the respondent				
15 – 24	0.982	.126	0.116	.167
25 – 39	0.806	.079	0.535	.071
40 – 49 (Ref)	1		1	
Marital status				
Married	0.699	.144	0.636	.170
Widowed / Separated	0.743	.087	1.351 **	.086
Never in union (Ref)	1		1	
Current use of contraceptive method				
No method	1.974 ***	.770	1.028 ***	.072
Folkloric method	1.073 ***	.266	0.925	.562
Traditional method	0.987	.188	1.112 ***	.153
Modern method (Ref)	1		1	

Key: *=P<0.05, **=P<0.01, ***=P<0.001

4.5 Discussion

This study sought to look at socioeconomic and demographic facets responsible for differences between the actual and desired family sizes in Kenya from a sample of women drawn from the Kenya Demographic Health survey 2014 data, who theoretically had completed reproduction. The results from this study indicated that 41.5 percent of the respondents had fewer children than they actually desired indicating that they had a desire for large families.

These findings are consistent with data collected in Nigeria by Ibisomi in 2011 where 77 percent of women studied did not realize expected fertility desires. Although the number of women with fewer children than desired is high, the fact that they desire more children indicates an unmet fertility desire which would easily be fulfilled should they get better living conditions, medical care among other things. This desire is best explained by the social constructs of traditional African societies where children were adored, a factor that promotes the high fertility rate in the country.

From the study, region is a significant factor in determining fertility preferences. North Eastern province has the highest odds of having excess fertility. This can be explained by the culture and traditions of communities living in the region which prevent women from accessing and using contraception compared to other regions across the country (Kenya National Bureau of Statistics and ICF Macro, 2010). North Eastern also has the highest odds of women having fewer children than they desire. The patriarchal nature of their society coupled with early marriages and lack of proper education explains this desire for more children. The odds of survival in this region are also slim due to the harsh environmental conditions, insecurity and an underdeveloped health

sector. Western and Nyanza provinces have statistically significant odds that indicate a high desire to have more children. Communities in these two regions live in mostly rural areas where there is an abundance of food due to good climatic conditions making life cheaper as compared to Nairobi region.

Wealth index is also a significant factor in determining fertility preferences from the data analyzed. The odds of getting more children than one would wish for increase as one moves ranks from being poor to the middle class and decreases for women with fewer children than they desired from the poor to the middle class. The odds ratios for having fewer children than desired are statistically significant and could be explained by the quality-quantity tradeoff here wealthier more educated families prefer to give birth to fewer children whom they can sufficiently provide them with the best education, healthcare and housing among other things rather than have a more children whom they can barely afford to cater for (Hanushek, 1992).

Primary education makes the variable "highest education level" significant in determining fertility preferences. Although not significant, the odds ratio for getting more children than desired decreases with the achievement of higher education levels. Women who have achieved primary education have the highest probability of having fewer children than they desire. Women in primary school have just begun puberty and are at the start of a long reproductive life. They begin reproduction at an early age and end up getting more children than they desire compared to their counterparts.

In the study, age was noted to be a vital determinant of fertility preferences. Odds ratios decrease with increasing age for women with more children than they desired and vice versa. Odds ratios for women with fewer actual than desired number of children increases with age because as they age, so does their exposure to contraception and family planning initiatives that help them reduce the rate of childbirth. Marital status is also a significant determinant of fertility preferences. Widowed and separated women are less likely to have a higher number of children than desired and are more likely to have fewer children.

This can be explained by the burden of child upbringing coupled with the absence of a companion makes it difficult for such women to get more children. The current use of contraceptive methods also plays a big role in directing fertility preferences. Women who find no use in contraceptives are more likely to have more offspring than they desire. Although contraceptives are offered free of charge at government hospitals in the country, accessing them is not entirely costless. This together with the unwillingness of their partners to use contraception makes it difficult for many women especially in rural areas to access such contraceptives hence increasing the chances of conception. The role that choices play in unmet fertility desires cannot be underscored. The choice of whether to use contraception or not impacts highly on a woman's potential to attain desired numbers of children.

In reference to a study conducted by Mueni (2014), using the Kenya Demographic and Health Survey, 2008/9 data, there are significant changes in the dependent variable. This study is consistent with the findings from work done by Mueni in 2014. There has been a 2.4 percent drop for women with a balance between the actual and desired numbers of children. There has

also been a 4.1 percent drop in the number of women that have more actual number of children than they desire. Additionally, there is a 6.5 percent increase in those with fewer children than desired. This can be attributed to the rising cost of living, increased education of women and employment which negatively influence the actual number of children a woman will have by the end of her reproductive career.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This section gives a summary of the findings of the study, concludes, and provides recommendations for policy and further research.

5.2 Summary

This study focused on understanding why there exist differences in the actual and desired fertility across the country from the study sample (5992 women who have theoretically completed childbearing). Of these, 31.6 percent had a match between their actual and desired number of children. 26.9 percent of them had more children than they desired and 41.5 percent had fewer children than they desired. There has been a significant increase in the number of women that have fewer children than they desire to slightly over 41 percent of this sample population consistent with the increase in the contraceptive prevalence rate across the country.

From the study, region, wealth index, highest education level, age of the respondent, type of place of residence, marital status and current use of contraceptive method were invaluable predictors to fertility preferences. Odds ratio decrease with increasing age of women for those with more children than they desire. On the flipside, odds ratios for women with fewer children than they desire increases with age. Women who are not in union are found to have fewer children than they desire because of the cost associated with child upbringing and lack of companionship.

The use of contraceptives and the method of choice are also important since women who do not use either modern or traditional forms of contraception find themselves with higher numbers of children than they actually desire. Education is particularly important as it is noticeable that the more educated a woman is, the higher the probability that she will have either fewer children than they desire or have an actual number of children that she desires. The odds of getting more children than one desires, reduces with the attainment of higher education. Women with primary education however portray a different trait since they tend to have a larger desire to have many more children, unlike their counterparts without any form of education and those with secondary school education and above.

The fact that girls in primary schools have just set into puberty does not help the situation as many of them fall into early pregnancies and begin childbearing early thus having a longer childbearing period. The quantity-quality trade-off in the number of children a family is bound to have is manifested in the number of children that the middle class and the poor have with the poor having more children than they desire and the wealthier individuals having fewer children than they desire. Region is also an important factor with different regions churning out different odds ratios for both categories. Women residing in the North Eastern region, due to the infrastructural development in their regions, education standards and oppressive cultural attributes have many children with most of their women having fewer children than they desire. This region also has the highest chance of having excess fertility.

Although most of the odds ratios from the multivariate analysis are not significant, region, wealth index, highest education level, age of the respondent, and marital status are significant

predictors of women getting fewer children than they desire. Marital status and current use of contraceptive method are the only significant factors for women getting more children than they desired.

5.3 Conclusion

A number of factors, as seen in the analysis in previous chapters, have a significant positive and negative effect on the desire to have a specific number of children. In an era of tough economic times, family planning, and population control, this desire is curtailed and more often women end up having more or fewer children than would have wished for. Practically, achieving this desired number of children is challenging with demographic, socioeconomic and individual factors determining the actual number of children a woman is bound to have. Significantly, women's education, age, wealth index, contraceptive use and region of residence play a huge role in this realization.

According to Bongaarts 2008, education is key in contributing to fertility decline as it keeps women engaged in school for longer years and exposes one to contraception, opens up opportunities for wealth creation and assists a woman make informed choices. There is an increase in the number of women that have fewer children than they desired when compared with previous work done by Mueni (2014), an indication that the increase in contraceptive prevalence experienced in Kenya coupled with education programs is working well to push women into deciding how many children they actually have.

5.4 Recommendations

This research looks at how actual and desired family sizes differ across different regions in Kenya and links this to possible socioeconomic and demographic factors responsible for this outcome. This is useful as it gives an overview of fertility preferences and explains why family sizes cannot be precisely attained. Through follow-up surveys, significant factors that have been noted to be contributors to this divide could be explored further to explain why this difference exists. The study of fertility preferences can best be achieved through a longitudinal survey where women are followed through a period of time to the end of their childbearing period. Since this is a laborious endeavor, such studies as this, based on such data collected in a five-year interval could be done and a pattern achieved which can be a sound basis for further analysis.

On policy, this study adds to the existing works that confirm the role of education and contraceptive use to reducing the number of children a woman will have by the end of her reproductive years. The introduction of family planning programs and free contraception has seen many women reduce their chances of conception and ultimately control how often they get children. Free primary education implemented by the Government of Kenya has made it easier for women to get access to secondary and higher education. Dropping out of primary school allows girls to get into early marriages hence starting childbearing at an early age. This research qualifies this statement. By keeping these girls longer in school, they delay their reproductive life and start childbearing at a later age. There is a need for the government to invest more into secondary education in order to control population growth.

There is need for programmes to incorporate cultural attributes in the design and development of program material in order to understand, reach out and effectively communicate such messaging on the need to have smaller better families. As with the North Eastern province where culture is a predominant factor in determining the number of children a woman has, understanding this patriarchal nature and finding ways to effectively address this through messaging is the first step to changing attitudes and perceptions which in turn affects behavior.

The concept of unmet fertility desires requires a deeper reflection and analysis. This is because the discrepancy between intended fertility and the outcomes is influenced in part by individual choices such as not using contraceptives which intermittently elevate the risk of unintended fertility. The reduction of fertility in Kenya is part of a governmental policy where programs are instituted to undermine the barriers to the implementation of desires to avoid pregnancy. Targeted actions that sway reproductive preferences as a result of choice when implemented accurately are bound to have a successful impact on population management.

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