

**CORRELATES OF UNINTENDED CHILDBEARING: A
COMPARATIVE STUDY OF NYANZA AND CENTRAL
PROVINCES, KENYA**

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**A Project Submitted in Partial Fulfilment of the Requirements for the
award of the degree of Master of Arts Degree in population studies at the
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November, 2012

DECLARATION

This research project is my own original work and has not been presented to any university for an award of a degree.

Mukami Kaaria.......... Date ...16/11/2012

This research project is presented for examination with our approval as University Supervisors.

Dr Lawrence Ikumari ..... Date ...16/11/12...

Mr. Andrew Mutuku ..... Date ...22/4/12...

DEDICATION

I dedicate this work to my nephew Glen Sydney Mawira and my parents Mr & Mrs Kaaria because of their encouragement and support during the entire period of my studies.

ACKNOWLEDGEMENT

First and foremost, I thank our Heavenly Father for his divine guidance and protection throughout my course. I am indeed indebted to acknowledge the good work my supervisors Dr. Lawrence Ikamari and Mr. Andrew Mutuku have done during the supervision of this project. This profound contribution made this project a success. I am also grateful to all my lectures at PSRI. Prof. Oucho, Dr. Wanjiru Gichuki, Dr. Otieno Agwanda, Dr. Murungaru Kimani, Dr. Anne Khasakala, Mr. Ben Obonyo and Mr. George Odipo. Special thanks to my classmates for their generous support. To all, may the good Lord bless you.

ABSTRACT

There are significant regional variations in unintended childbearing in Kenya.

This study sought to determine correlates associated with unintended childbearing in Nyanza and Central provinces of Kenya

The source of data for this study was the Kenya Demographic and Health Survey, 2008/9 which was a nationally representative sample survey. Nyanza and Central province had 1109 and 496 live births respectively. Bivariate and multivariate analyses were used to establish the relationship between the selected independent variables and unintended childbearing in the two regions. The independent variables included mother's age, number of living children, preceding birth interval, level of education, wealth index, religion, marital status, type of place of residence and ever used of contraceptive method. The study findings from multivariate analysis showed that level of education, contraceptive use, wealth index, marital status and number of living children significantly influenced the likelihood of unintended childbearing in Nyanza province while in Central province maternal age, wealth index, marital status and number of living children are significant.

Policymakers, program planners and health service providers can benefit from findings of this study to formulate suitable programmes in the two regions

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Unintended childbearing is an important public health issue. Studies in both developing and developed countries have pointed to associations between unintended childbearing and adverse socioeconomic and health outcomes for mothers and children. The latter include elevated risk of poor child development, preterm delivery, and low birth weight (Brown and Eisenberg 1995; Kost et al., 1998; Joyce et al., 2000). The Alan Guttmacher Institute (1999) estimates that 56 percent of unintended childbearing occurring to women in developing countries ends in induced abortion. Some studies have suggested that the severity of unintended childbearing may be important in understanding health impact among women (Pulley and Klerman, 2002). Many women resort to terminating unintended pregnancy to avoid risks to their lives, psychological trauma and socio economic turmoil (IPAS, 2004).

Mistimed and unwanted childbearing are indicators of imperfect control over the reproductive processes. They mirror the extent of unmet need for effective contraception either to delay pregnancies and space births (mistimed) or to stop childbearing (unwanted fertility) (Adetunji 2001). A worldwide study conducted in 2008 shows that out of the 208 million pregnancies that occurred in that year, 41% (85 million) were unintended. Out of total 208 million unintended pregnancies, 23% were reported from Africa. It is documented that the level of unintended childbearing in Africa is high and reducing marginally from 92 per 1,000 women in 1995 to 86 per 1,000 by 2008 (Signs et al., 2009). In the same study it is indicated that there are regional variations where Eastern Africa has the highest number of unintended childbearing at 118 per 1000 women. According to the UN (1997) about 43 % (75

million) of the 175 million childbearing that occur annually in developing countries are unwanted. Studies also show that the levels of mistimed childbearing seem higher than levels of unwanted childbearing (Adetunji 2001).

Unplanned childbearing account for a substantial proportion of births in Kenya; about 47.1 percent of all births in Kenya are unintended (Kenya population Data sheet 2011) and can have a variety of negative consequences on individual women, their families, and the society as a whole. Ensuring access to family planning can help manage rapid population growth by preventing unintended childbearing while reducing maternal and child mortality, and improving the health and economic well-being of families and communities. In Kenya, 46 percent of married women use contraception, with 39 percent using a modern method according to 2008-9 KDHS (KNBS & ICF Macro 2010); however, one out of four married women report an unmet need for family planning, meaning they wish to delay, space, or limit their next child but are not using any method of contraception. The term unintended childbearing or unplanned childbearing has been used to describe the sum of both mistimed and unwanted childbearing (Tsui, Wasserheit and Haggag 1997, Brown and Eisenberg 1995). Mistimed childbearing occurs when a woman did not want to get a child at that time while unwanted childbearing occurs when a woman did not want to have a child at all.

The wantedness of a child has critical implications. It could affect the uptake of appropriate maternal health care and influence pregnancy outcomes and birth weight of children (Magadi, 2003). In Kenya, behind nearly every abortion is an unintended pregnancy (Allan Guttmacher insititute, 2009)

1.2 Problem Statement

The ability to choose whether and when to have children is a crucial aspect of reproductive health (Mazharuarul and Rashid, 2004). The major goal of reproductive health programs is to ensure that women have the freedom to decide whether they want children and when and how many they want (Ikamari, 2000). Unfortunately, results show that in many developing countries that objective has not yet been achieved. A large proportion of children in those countries results from unintended pregnancies (Adentuji, 1998). According to the 2008/2009 Kenya Demographic Health Survey, the total fertility rate declined from 8.1 children per woman in 1978 to 4.6 in 2008 (KNBS and ICF Macro, 2010). Contraceptive use also increased from 7% in 1978 to 46% in 2008, thus decline in fertility in the country can be partially attributed to rise in married women using any method of contraception (Murage, 2011). However, a substantial number of births are unintended in Kenya. The proportion of births that are reported to be unintended in the country decreased marginally from 53% in 1988 to 43% in 2008 (KNBS & ICF Macro, 2010). The level of unmet need for family planning in the country is relatively high and substantial regional variations exist.

In Kenya, there are regional variations of contraceptive uptake. For example, Central province is associated with the highest probability of contraceptive use, while Nyanza province is associated with lowest probability of contraceptive use (Monica & Sigh 2003). Total fertility rate in Nyanza is at 5.4 compared to total wanted fertility of 3.9, while total fertility rate for Central province is at 3.4 as opposed to total wanted fertility rate of 2.6. (KNBS & ICF Macro, 2010) which may explain the differences in unintended childbearing. Nyanza province has 53.8 percent unintended childbearing

while Central province has 45.8 percent on unplanned childbearing (Kenya population data sheet 2011).

Askew 2009, noted that unwanted fertility in Kenya almost halved in the period 1993-1998, from 2.0 to 1.2, probably as a result of a highly effective family planning programme. However, this decrease not only stalled from 1998 to 2003, but unwanted fertility actually increased overall to 1.3 during this period. Literature on unwanted childbearing in Kenya, shows that greater attention has been on its socio-demographic correlates, national prevalence, implications for maternal and child health and care-seeking, and repeatability (Adetunji, 1998; Madise et.al, 2000; Magadi, 2003). These studies have also relied largely on national analysis. Therefore, there is need for studies on unintended childbearing at regional level and especially more so in areas with different demographic profiles. A study done Blacker, 2001 using 1989, 1993 and 1998 KDHS, the results showed substantial differentials in fertility geographically. Central province (Nairobi province excluded) is well in advance in all index of socio-economic development such as under-5 mortality, nutrition, education among others of the other five provinces. As fertility continues to fall in Kenya, these differentials can be expected to narrow but they are unlikely to disappear. According to Askew (2009) most provinces experienced a stall in their fertility rates over the decade preceding 2003, the transition has continued in Central province, reaching 3.4 to make it the second lowest rate after the largely urbanized Nairobi province. Fertility rates decreased rapidly in the first five years and then increased equally rapidly in Nyanza (by 0.6 births) and Rift Valley (by 0.5 births) provinces, negating the gains made there and bring their fertility rates back up to 5.6 and 5.8 respectively.

The purpose of this study is to establish the effects of socio-economic, socio-cultural and demographic factors on unintended childbearing in Central and Nyanza provinces of Kenya. These two regions have distinct demographic profiles. Central province has already experienced fertility transition while Nyanza province has a high fertility and high and declining childhood mortality. The two regions also differ significantly in terms of socio-economic development levels and socio-cultural beliefs and practices. The main research question that needs to be answered will be:

What factors are associated with unintended childbearing in Nyanza and Central provinces of Kenya?

1.3 Objectives of the study

The general objective of the study was to establish the correlates of unintended childbearing in Nyanza and Central provinces of Kenya. The specific objectives were:

1. To determine socio-economic factors influencing unintended childbearing in Nyanza and Central provinces in Kenya
2. To establish the effect of socio-cultural factors on unintended childbearing in Nyanza and Central provinces in Kenya
3. To determine the effect of demographic factors influencing on unintended childbearing in Nyanza and Central provinces in Kenya

1.4 Justification of the study

According to Jessica et al., (2008), unintended childbearing is a concern from both a human rights and a public health perspective. At the 1994 International Conference on Population and Development (ICPD) held in Cairo, the Programme of Action stated that "[all couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information,

education and means to do so" (ICPD 1994: Principle 8). A similar sentiment emerged from the Committee on Unintended Pregnancy of the Institute of Medicine. In 1995, the Committee concluded that "the consequences of unintended pregnancy are serious, imposing appreciable burdens on children, women, men, and families" (Brown and Eisenberg 1995:1).

Unintended childbearing underpins country's effort towards achievement of development goals. When children born are either mistimed or unwanted, the rate of population growth raises unexpectedly thus impacting negatively to social needs of the citizens. Low level of unintended childbearing is an indicator of successive family planning programmes and lower fertility while a high level of unintended childbearing would suggest family programmes have been less effective in enabling people fulfill to their fertility preference (Ikamari, 2000). In Kenya, there is high knowledge about contraceptive but uptake of the contraceptives is almost halved. There are regional differences in CPR in Kenya. For instance, in Central Province the CPR is at 66.7% while for Nyanza province stands at 37.3%. The gap of contraceptive use between the two regions shows that factors that prevent women in the two regions from adopting their fertility preferences are varied in intensity.

Since there is little information on the factors of unintended childbearing in Nyanza and Central provinces, this study will contribute to valuable knowledge on unintended childbearing in the two provinces. Information obtained will help planners, policy makers and programs in population and other sectors of development to design specific interventions to address the issue of unintended childbearing on the two regions as a core area in population growth control and management for enhanced economic development of Kenyan economy. Reduction in infant mortality reduces fertility thus economic development of the country.

1.5 Scope and Limitation of the study

The study focused on factors associated with unintended childbearing in Nyanza and Central provinces in Kenya. The study used child file subset data of the 2008/2009 KDHS data set and focused on only children borne of women in Nyanza and those children borne of women in Central provinces. The sample size for children in Nyanza is 1109 and for children in Central 496.

The major limitation of this study is that during the data collection process, the main reasons from the woman of why they felt that their pregnancy was unintended were not asked. The study only focuses on correlates that have been reviewed to have an association with unintended childbearing elsewhere to verify if they have an effect with unintended childbearing in Nyanza and Central regions

Also, the study is limited to some variables which were only collected during the survey. For example, spouse data on either the pregnancy was intended or not was not collected.

CHAPTER TWO

LITERATURE REVIEW

2.1: Introduction

This chapter presents literature reviewed on factors and differentials of unintended childbearing. Literature on socioeconomic, sociocultural and demographical factors of unintended childbearing will be examined. The review is conceptualised under the objectives of the study and focuses mainly on the maternal age, number of living children, preceding birth interval, level of education, wealth index, type of place of residence, religion, marital status, and ever use of any method of contraceptive with unintended childbearing.

2.2 Theoretical Background

Over 100 million acts of sexual intercourse take place each day in the world, resulting to around 1 million conceptions, about 50% of which are unplanned and about 25% are definitely unwanted (Akalework, 2008; WHO, 2007). In 1989, Westoff et. al, hypothesized that unwanted childbearing patterns in developing countries has some relationship with the overall patterns and trends in total fertility rates. Similarly, Boongaarts and Lingbourne (1995) suggest that an association exists between aggregate levels of unwanted fertility and the stage where a country is along the course of fertility transition. Bongaarts (1997) demonstrated that over time, a transition occurs in the proportion of unwanted births observed in a population that transition in unwanted fertility seems related to fertility levels.(Adetunji 2001). Boongaarts explains that unwanted fertility is zero when no women want to stop childbearing. In the middle of fertility transition, it peaks when about half of women who wanted no more children use effective contraceptive. When all women who wants no more births

use effective contraceptive, unwanted fertility drops to zero thus, an inverted U relationship.

According to Askew et.al (2009), unwanted fertility in Kenya declined rapidly to a low of 1.2 in 1998, probably due to an enormous expansion in the availability of a range of contraceptives from a diversity of sources. The decline then stalled and increased slightly to 1.3 births per woman in 2003, probably due to a sustained diminishment in the effectiveness of the public sector delivery systems, including withdrawal of community-based distribution of contraceptive services. This increase in unwanted fertility was highest among the poorest quintile, suggesting that family planning services were becoming less accessible to the poorest of the poor.

2.3 Socio-economic variables

Socio- economic factors serves as background factors in influencing if the childbearing is unintended or not. In this study literature reviewed is on three socio economic factors namely: level of education, wealth index and place of residence.

2.3.1 Level of Education and Unintended Childbearing

Education can be interpreted as a measure of self efficacy of competence and capacity to make informed decisions and of access to information through print and mass media that may be unavailable to the unschooled. An educated woman then is presented as a competent actor who believes that she has the capacity to get the best out of the world without succumbing helplessly to the whims and caprices of nature (Acidwell, 1979, 1984). According to Geda and Lako (2011); Akalework, (2008), little advance in education improves women's decision making power, leading to avoidance of unintended childbearing. Consequently it is expected that an educated

woman would not have a child that she is not prepared to have, if she had access to the means of preventing it. According to Ainsworth et al. (1998) educated women are more likely to use contraceptive methods than low-educated counterparts.

Previous studies in the United States have found that education is negatively associated with unintended childbearing (Anderson, 1981; Williams, 1991). A study done in Bangladesh on levels and correlates of unintended pregnancies found that level of education is inversely related to unintended childbearing (Sarkar, 2009). Findings of the analyses from a number of countries also indicated that women with better education levels were less likely than those with less education levels to have more children than that which they regard as ideal (Adetunji, 1997; Shaheen, Diaeldin, Chaaya, and El Koueiheb, 2007). Another study found out that majority of women experiencing unwanted and mistimed childbearing had at least a high school education (Denise et.al., 2004).

2.3.2 Wealth Index and Unintended Childbearing

Previously studies in developed countries have shown that poverty is associated with the level of unintended childbearing in a society (Forest, 1991; Williams, 1991; Anderson, 1981). The rate of unintended births increased by 44% among poor women but declined among women who were at or above 200% of the poverty level between 1994 and 2001 (Finer and Henshaw, 2006). In a study conducted in Chile, women aged less than 25 years old of low socioeconomic status were more likely than their peers living in households of better socioeconomic status to have unplanned childbearing (Herold, Thompson, and Valenzuela, 1994). Another study done in Indonesia revealed that higher rates of unintended childbearing seemed to occur from mothers who were poor. Poor mothers have also the higher mistimed childbearing.

while the rate of unwanted childbearing was higher among the rich mothers. (Nur et.al, 2009). According to Eggleston (1999) poverty did not show an effect on the risk of unintended childbearing among women in Ecuador.

2.3.3 Place of residence and unintended childbearing

Urban women are less likely than rural women to have more children than which they regard as ideal. This is because they are able to access the contraceptives of their choice as compared to women who live in rural areas (El Roueiheb, 2007). Another study revealed that rural women and illiterate women are more likely to have an unintended birth than urban and literate women (Ikamari, 2000). Other studies have also argued that, urban women are more likely to experience higher level of unintended childbearing since they prefer small family size. Mothers who live in urban areas were more likely to classify the childbearing as unintended compared to those mothers living in rural areas (Nur et.al, 2009) A study done in Kenya showed that rural residence was associated with a higher chance of a mistimed birth than urban residence (Magudi, 2003).

2.4: Demographic Variables

2.4.1 Maternal Age and Unintended Childbearing

Generally, age is a measure of both biological and social maturity. The age of a woman at the time of conception could influence whether the childbearing is mistimed or unwanted because age may indirectly reflect a woman's level of material, biological, social and emotional preparedness for the responsibilities of childbearing. According to Geda and Iako (2011), the risk of experiencing unintended childbearing is higher among the younger and older women compared to those in the middle ages.

Young women have higher likelihood of misuse or non-use of effective family planning methods than older women and have greater risk to have mistimed than an intended childbearing (Kost and Forrest, 1995; Williams, 1991). Older women reported a much higher level of unintended childbearing as compared to younger women (Abbassi-Shavazi et.al, 2004). In another study it was found that unintended childbearing declined with age (Allaby, 1995) but in some other a U shaped relationship was observed (Forrest, 1994; Forest and Singh, 1990). A study done in Indonesia revealed that mothers whose age was between 35 and 49 have the highest tendency to classify their childbearing as unwanted, while mothers whose age was between 25-34 have the highest percentage of classifying their childbearing as mistimed (Nur Jaeni et.al, 2009). A study done in Kenya shows that unintended childbearing appears to decline with the mother's age at conception (Ikamari, 2000).

2.4.2 Number of living children and unintended childbearing

The proportion of mistimed childbearing has been found to decrease as the number of children increases, while the proportion of unwanted childbearing increases with parity (Anderson, 1981). The pattern implies that a large proportion of children borne by women who already had several surviving children were actually unwanted. Another study found out that unintended childbearing increased with the number of living children greater than 3 (Ikamari, 2000). According to Monica and Singh (2003), parity has a strong association with contraceptive use; women with at least five living children are 6.5 times more likely than those with no living children to use contraceptives therefore controlling unwanted childbearing.

2.4.3 Birth interval and unintended childbearing

Birth order is a demographic variable that is importance to study as an influence of unintended childbearing, previous studies have shown different result on its influence. According to Jalal, 2004 women with higher birth order reported a higher rate of unintended childbearing. The highest rate of unintended childbearing was found to occur to women whose previous birth intervals were close (less than 3 years) (Nur et.al, 2009). Women with higher birth order reported significantly higher rate of unintended childbearing (Adhikari, et.al, 2009). DHS data confirm that in many countries women desire considerably longer birth intervals than they achieve, reflecting a large unmet need for birth spacing (Westoff and Rafalimanana, 2000).

2.5 Sociocultural variables

2.5.1 Marital status and unintended childbearing

Although the meaning and definition of marriage are undergoing rapid change in various cultures, previously studies have found that woman's current marital status was consistently a strong prediction of mistimed and unwanted childbearing (Denton and Scott, 1994; Forrest, 1994). Never married women are usually more likely than ever married ones to describe their childbearing as mistimed or unwanted (Forrest and Singh, 1990) Single mothers are significantly more likely to have a mistimed birth than married or separated/divorced women (Ikamari, 2000).

2.5.2 Religion and unintended childbearing

Religion can influence ones attitude towards family planning and childbearing. Women who belong to religions that oppose the use of family planning are less likely to use contraceptives for fear of being against their religious beliefs, hence they have

higher chances of unintended births than women who support and use contraceptives (Ikamari, 2000) Another study found out that Muslim women were at higher risk of experiencing unintended childbearing as compared to non-Muslim (Murage, 2011). It is hypothesized that the higher fertility of a religious group could be explained by the teachings of the religion on issues related to childbearing (Agadjanian, 2001; McQuillan, 2004).

2.6 Intervening Variables

2.6.1 Contraceptive use and unintended childbearing

Unplanned childbearing mostly arise as a result of misuse or non-use of family planning methods, or a noticeable contraceptive failure (Adetunji, 1997; Bongaarts, 1997; Forrest, 1994). Couples practice contraception in order to avoid pregnancies, but the risk of failing to achieve this objective is significant except for those who rely on sterilization. Annual failure rates range from a few percent for methods such as the pill and the intrauterine device to more than 20 percent for traditional methods such as periodic abstinence (Hatcher et al., 1990). In the absence of induced abortion, these failures lead to unwanted births (except for a small proportion that ends in spontaneous abortion or stillbirth). The high proportion of mistimed pregnancies (particularly in sub Saharan Africa) clearly suggest an unmet need for better spacing, while the high and increasing proportion of unwanted childbearing suggest a high and increasing unmet need for cessation of childbearing (Westoff and Bankole 1995).

Increasing use of modern contraceptive is an effective intervention for decreasing unintended childbearing (Singh S. et.al, 2009; Origanje et.al, 2009. According to Adhikari R. et.al(2009), a woman has higher knowledge of family

planning methods, she is more likely to be aware of the benefits of those methods which in turn will motivate her to use the family planning methods and be less likely to have unintended childbearing. According to Eggleston (1999), use of modern contraceptives did not reduce the risk of experiences unintended childbearing

2.7 Summary of Literature Review

From the literature that has been reviewed, unintended childbearing is proximately caused by the ever use of contraceptive while other background factors such as level of education, wealth index, age of the mother and others have an influence the proximate variable. Findings from various studies have shown consistency on the influence of the correlates on the unintended childbearing while others have shown some controversies. Level of education has been demonstrated to influence unintended childbearing negatively; that is the higher the level of education the lower the intended childbearing; at the same time positively, the higher the level of education the higher the level of unintended childbearing. Other factors with such controversy from the review include: place of residence; whereas some studies have associated higher unintended child bearing with rural areas other studies have pointed out higher unintended child bearing in urban area.

Similarly, some studies shows more unintended childbearing is experience by women of low socio economic status while others have indicated that unintended childbearing is more with the women with high wealth index. Age of the mother, religion, number of living children and birth interval have demonstrated consistence with the result on unintended childbearing. This study tested the hypotheses for the two provinces in Kenya to identify variables that are of significant in influencing unintended childbearing. Understanding the determinants of unintended childbearing

would lead to better interventions to avoid such childbearing, and improve the wellbeing of mothers and children (Santeli et.al 2003). Research on unintended childbearing supports public health professionals to plan and implement more efficient programmes with regard to maternal and child health (Jaeri, 2009).

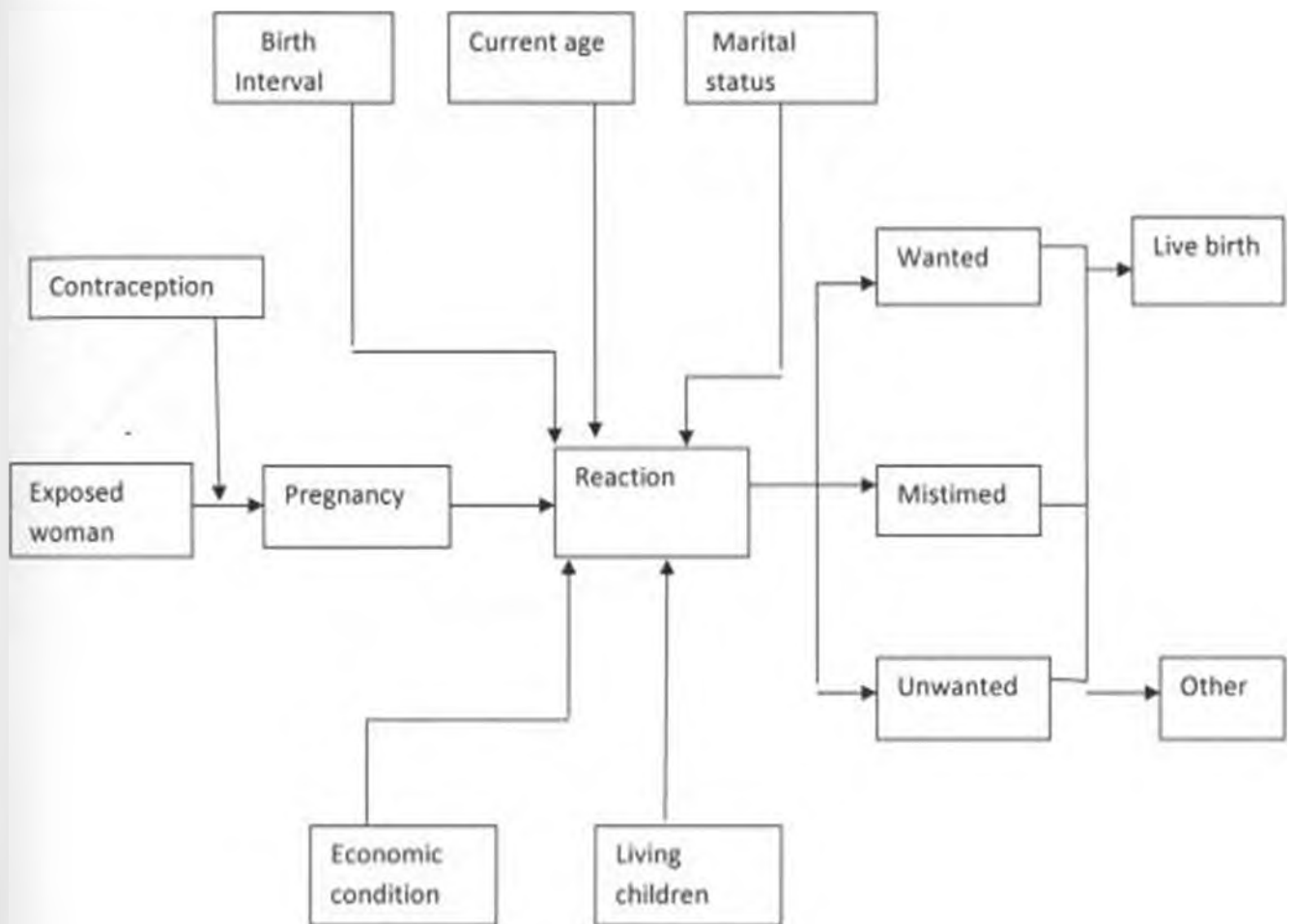
2.8 Conceptual Framework.

Conceptual framework was adapted from Adetunji, 1998. The framework shows how an exposed woman is at risk of becoming pregnant. Woman reaction to the intention status of childbearing (wanted, mistimed and unwanted) is determined by previous birth interval, current age, marital status, economic condition and living children. The result of pregnancy is either a live birth or other outcome for instance abortion. In addition, it shows that with family planning intervention services, pregnancy can either be prevented or delayed. Studies have shown that family planning programs can reduce fertility by assisting couples in preventing unplanned childbearing. Therefore, efforts to improve family planning services go a long way towards alleviating existing unmet need for contraception and would make a large contribution to reducing unintended childbearing (Singh.et al., 2010; Murage 2011).

When a woman discovers that she is pregnant, the major factor in the reaction process is any intention or circumstances that preceded the pregnancy. The framework further shows, that there are factors that affects women reaction to pregnancy either positively or negatively thus classifying the pregnancy either as wanted, mistimed or unwanted (Westoff, 1980). Factors that determine the woman's reaction will either positively or negatively influence the decision about pregnancy intention. Where the negative factors on pregnancy reaction outweigh the positive ones, the pregnancy is likely to be reported as mistimed or unwanted. If positive factors on the same are

more than the negative factors the pregnancy will be reported as wanted. For example, a career woman in her mid-twenties with high economic social status and married is likely to report her child wanted unlike if the child was as a result of contraceptive failure during her critical point in her career where a break from working would bring financial strains in her family (Adler, 1992; Murage, 2011)

Figure 2.1 Conceptual Framework

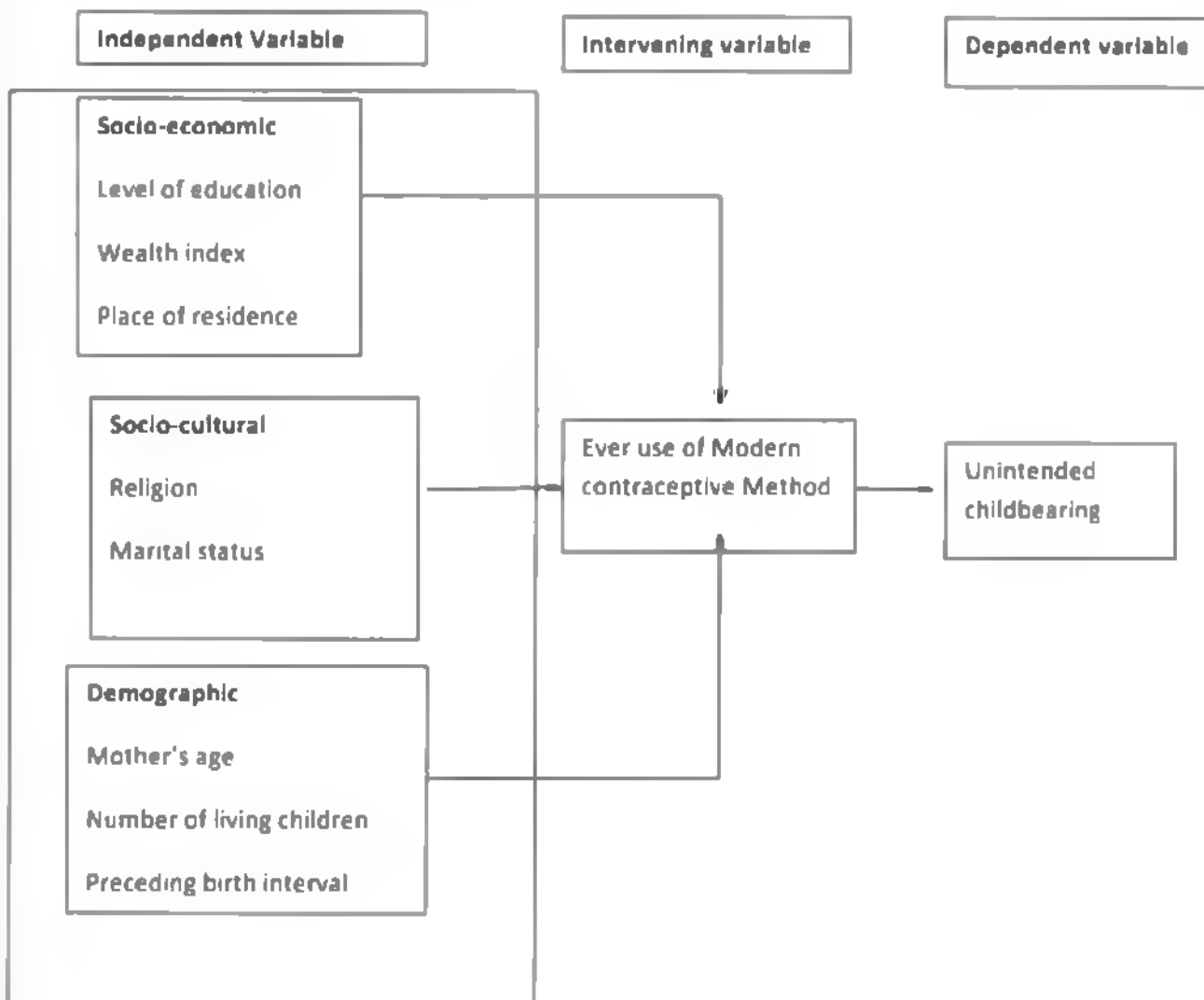


Source: Adetunji, A. (1998).

2.9 Operational Framework

The framework indicates relationships among factors that are known to influence unintended childbearing. Independent variables are factors which are broadly classified into socio-economic, socio-cultural, and demographic while the intervening variable is ever use of modern contraceptive. The dependent variable is unintended childbearing which is a measure of women's pregnancy intentions and is measured by asking the respondent to recall their feeling when their last pregnancy five years before survey occurred.

Figure 2.2 Operational Framework



2.10 Operational Hypotheses

1. Unintended childbearing is positively associated with the number of living children in household.
2. Unintended childbearing is negatively associated with women's level of education.
3. Unintended childbearing is positively associated with wealth index
4. Women living in rural areas are more likely to experience unintended childbearing compared to those women living in urban areas
5. Older women are more likely to experience unintended childbearing compared to those who are young
6. Women with closer preceding birth interval are more likely to experience unintended childbearing than those women who have a preceding birth interval of 3 years or more
7. Women who are in a marital union are less likely to experience unintended childbearing compared to those women who are not in a marital union
8. Ever use of modern Contraceptive is negatively associated with unintended childbearing

CHAPTER THREE

DATA AND METHODOLOGY

3.1 Introduction

This chapter will discuss the data source of data that will be used in the study and also methods of data analysis that will be utilized.

3.2 Source of Data

The source of data for this study is the Kenya Demographic and Health Survey (KDHS), 2008/9 which was a nationally representative sample survey. This is a cross sectional survey which was conducted among 8444 married women in the reproductive age (15–49 years). The primary purpose of the KDHS is to generate recent and reliable information on fertility, family planning, infant and child mortality, maternal and child health, and nutrition. This information is intended at serving and supporting policy makers and programme planners in assessing and designing programmes and interventions for improving family planning and reproductive health services in the country.

The women respondents were asked questions about their socio demographic background, their children, their knowledge and use of contraceptives, their children's health, reproductive health, and other information as well. In Nyanza province, 1318 women respondent were asked questions and among these women, 1109 live births were reported during five years preceding the survey date in the region. In Central province, 973 women were interviewed and reported 496 live births during five years preceding the survey date. These women were asked the planning status of the most recent birth; whether the birth was mistimed, unwanted or was born according to plan.

From these respondents, 577 births in Nyanza province and 233 births in Central province were unintended.

3.3 Methods of data analysis

This study used cross tabulations and logistic regression as the main methods of data analysis. These methods are described in details below.

3.3.1 Descriptive Statistics

Descriptive statistics was used to show the distribution of the social economic, social cultural, demographic and intervening variables of the study population.

The study used bivariate analysis to investigate the relationship between women's childbearing intention status and a number of socio-demographic variables (maternal age, preceding birth intervals, number of living children/parity, level of education, place and region of residence, ever used of contraception, wealth index, religion, and marital status). The significance was tested using Chi-square. The formulae for testing is as follows

$$\chi^2 = \sum \frac{(f_e - f_o)^2}{f_e}$$

Where:

f_e = expected frequencies

f_o = observed frequencies

P-value of <0.05 at 95% confidence interval was taken as significant. Chi-square test does not give us much information about the strength of the relationship between the variables, logistic regression was further utilised identify factors

associated with unintended childbearing in Central and Nyanza provinces, Kenya.

3.3.2 Logistic regression

Logistic regression is a type of regression analysis used for predicting the outcome of a categorical criterion variable based on one or more predictor variables. The probabilities describing the possible outcome of a single trial are modeled, as a function of explanatory variables, using a logistic function

Logistic regression measures the relationship between a categorical dependent variable and usually a continuous independent variable (or several), by converting the dependent variable to probability scores. Binomial or binary logistic regression refers to the instance in which the observed outcome can have only two possible types (e.g., "dead" vs. "alive", "success" vs. "failure", or "yes" vs. "no") i.e you either have unintended childbearing or not.

The dependent variable of the study (unintended childbearing) is dichotomous therefore logistic regression was applied to determine the net effects of a set of independent variables.

The mathematical formula of logistic regression is as follows;

$$p/(1-p) = \exp(a + Bx + c)$$

Analysis was undertaken separately for Nyanza and Central provinces in order to identify factors which may operate differently in the two regions.

Description of Variables

Variable		Description	Measurement
Dependent Variable			
Unintended Child bearing	Child	intentions	1=Unintended child 0=Intended child
Independent Variables			
Socio-economic	Level of Education	Mother's highest level of education	0= No education 1=primary 2= secondary and higher
	Wealth index	Wealth status of the mother	0=poor 1=middle 2=Rich
	Type of place of residence	Mother's type of residence	1= urban 0= rural
Demographic	Maternal age	Mother's age at conception	1= 24 and below Years 2= 25-34 Years 3= 35+ Years
	Marital status	Mothers marital status	0=never married 1=currently married 2=Formerly married
	Number of living children	Number of living children	0=0-2 children 1=3-5 children 2=6+children
	Birth interval		0=First birth 1=24 months and below 2=25 months and above
Socio-cultural	Religion	Mother's Religion	1=Roman catholic 2= Protestant 3=other
Ever use of contraceptive	Ever use of contraceptive	Ever use of contraceptive	1=Yes 0=No

CHAPTER FOUR

CORRELATES OF UNINTENDED CHILDBEARING

4.1 Introduction

This chapter presents results of the various factors that determine unintended childbearing among women in Nyanza and Central provinces of Kenya. It begins by a description of the background characteristics of the study sample followed by differentials of the distribution of unintended childbearing by various background characteristics. Finally, the chapter presents results of the correlates of unintended childbearing in Nyanza and Central provinces of Kenya.

4.2 Study Population Characteristics

The results of the distribution of the study sample by various background characteristics are presented in Table 4.1. The results show that majority of live births occurred to women below age 24 in both Nyanza (55%) and Central (43%) provinces, while the least births were observed among women in age of 35 and above in Nyanza (10%) and Central (16%) provinces in Kenya. The results indicate that the highest proportion of births was attributed to women with primary level of education in both Nyanza (75%) and Central (67%) provinces of Kenya. In both provinces women with no education experienced least live births at 2% in Nyanza and at 1% in Central. The results further indicate that women living in rural areas in both provinces had highest proportion of live births at 81% (Nyanza) and 80% (Central), while those women living in urban areas in both Nyanza and Central regions had least live births at 19% and 20% respectively.

Table 4.1: Percentage distribution of the study population according to the selected variables

VARIABLE	REGION OF RESIDENCE	
	Nyanza	Central
	Number (Percentage)	Number(Percentage)
Maternal age		
<24	609(54.7)	215(43.3)
25-34	390(35.2)	204(41.1)
35+	112(10.1)	77(15.5)
Level of Education		
None	18(1.6)	5(1)
Primary	832(75)	331(66.7)
Secondary+	259(23.4)	160(32.3)
Type of place of Residence		
Rural	901(81.2)	397(80)
Urhan	208(18.8)	99(20)
Contraceptive use		
Ever used	360(32.5)	293(59.1)
Never Used	749(67.5)	203(40.9)
Wealth index		
Poor	514(46.3)	76(15.3)
Middle	217(19.6)	126(25.4)
Rich	378(34.1)	294(59.3)
Religion		
Roman Catholic	198(17.9)	109(22)
Protestants	895(80.7)	376(75.8)
Others	16(1.4)	11(2.2)
Marital status		
Never married	74(6.7)	30(6)
Currently Married	916(82.6)	401(81.5)
Formerly married	119(10.7)	62(12.5)
Number of Living children		
0-2	476(42.9)	254(51.2)
3-5	482(43.5)	198(39.9)
6+	151(13.6)	44(8.9)

Preceding birth interval		
First Birth	279(25.2)	137(27.6)
24 months and below	256(23.1)	56(11.3)
25months and above	574(51.8)	303(61.1)

Source: Primary analysis of KDHS 2008/9

The result indicates that majority of live births in Nyanza province occurred to women who had never used contraceptive at 66%, while majority of births in Central province occurred to women who had ever used contraceptive at 59%. Distribution by wealth index shows that women from poor households in Nyanza experienced the highest proportion of live births at 46% while in Central province the majority of live births were attributed to women from the rich households at 59%.

In both provinces the highest live births occurred to Protestants women; Nyanza and Central at 81% and 76% respectively, while the lowest live births occurred to women whose religion was classified as others at 1% in Nyanza and 2% in Central. Currently married women experienced the highest number of live births in both Nyanza (83%) and Central (82%) while lowest number of live births occurred to women who were never married at 7% in Nyanza and 6% in Central provinces of Kenya. Women in Central province who had 0-2 living children had the highest live birth at 51%, while women who had 3-5 living children in Nyanza province had the highest live births at 44%. The results further indicate that women in both provinces who had the highest number of live births had a preceding birth interval of 25 months and above; Nyanza (52%) and Central (61%).

4.3 Differentials of Unintended Childbearing by Various Background Characteristics

The results of differentials of unintended childbearing in Nyanza and Central provinces in Kenya are presented in Table 4.2. The results show that maternal age was significantly associated with unintended childbearing in both Nyanza and Central provinces. Women aged of 24 years and below had highest proportions of all the unintended childbearing that occurred in both the provinces; Central at 50 percent and Nyanza at 58 percent, while the lowest unintended childbearing occurred to women of maternal age of 35 years and above, at 12 and 16 percentages in Nyanza and Central respectively. On the other hand, the lowest proportion of birth occurred among women aged 35 and above years in both provinces.

The result further indicates that level of education was significantly associated with unintended childbearing in Nyanza province but had no association with unintended childbearing in Central province. Majority of women in Nyanza province (80%) had primary level of education compared to 70 percent in Central province had unintended childbearing. The results also show that 20 percent of women in Nyanza had secondary and above level of education while about 29 percent of women in Central province had secondary and above level of education. Contraceptive use was found to be significantly associated with unintended childbearing in Nyanza province but no significant association was found in Central province. Over 64 percent of women who had unintended childbearing had never used any type of contraceptive method in Nyanza province while 44 percent of the same women had never used any contraception in Central province.

Table 4.2: percentage distribution of the factors of unintended childbearing among study population according to the selected variables

VARIABLE	REGION OF RESIDENCE			
	Nyanza		Central	
	Intended	Unintended	Intended	Unintended
	Number (percentage)	Number (Percentage)	Number (Percentage)	Number (Percentage)
Maternal age				
<4	274(51.5)	333(57.7)	101(38.4)	114(48.9)
25-34	213(40.0)	177(30.7)	122(46.4)	82(35.2)
35+	45(8.5)	67(11.6)	40(15.2)	37(15.2)
X ² =11.57; df=2; sig.=0.003			X ² =6.96; df=2; sig.=0.031	
Level of Education				
None	11(2.1)	7(1.2)	1(0.4)	4(1.7)
Primary	377(70.9)	455(78.9)	169(64.3)	162(69.5)
Secondary-	144(27.1)	115(19.9)	93(35.4)	67(28.8)
X ² =9.64; df=2; sig.=0.008			X ² =4.375; df=2; sig.=0.112	
Type of place of Residence				
Rural	425(79.9)	476(82.5)	205(77.9)	192(82.4)
Urban	107(20.1)	101(17.5)	58(22.1)	41(17.6)
X ² =1.24; df=1; sig.=0.266			X ² =1.54; df=1; sig.=0.215	
Contraceptive use				
Ever used	154(28.9)	206(35.7)	162(61.6)	131(56.2)
Never Used	378(71.1)	371(64.3)	101(38.4)	102(43.8)
X ² =5.76; df=1; sig.=0.016			X ² =1.48; df=1; sig.=0.224	
Wealth index				
Poor	216(40.6)	298(51.6)	25(9.5)	51(21.9)
Middle	120(22.6)	97(16.8)	71(27.0)	55(23.6)
Rich	196(36.8)	182(31.5)	167(63.5)	127(54.5)
X ² =14.24; df=2; sig.=0.001			X ² =14.61; df=2; sig.=0.001	
Religion				
Roman Catholic	94(17.7)	104(18)	64(24.3)	45(19.3)
Protestants	426(80.1)	496(81.5)	194(73.8)	182(78.1)
Others	12(2.3)	4(0.7)	5(1.9)	6(2.6)
X ² =4.75; df=2; sig.=0.093			X ² =1.979; df=2; sig.=0.372	
Marital status				

Never married	7(1.3)	67(11.6)	5(1.9)	25(10.7)
Currently Married	486(91.4)	430(74.5)	225(85.6)	179(76.8)
Formerly married	39(7.3)	80(13.9)	33(12.5)	29(12.4)
X ² =64.48: df=2: sig.=0.000			X ² =17.017: df=2: sig.=0.000	
Number of Living children				
0-2	246(46.2)	230(39.9)	154(58.6)	100(42.9)
3-5	228(42.9)	254(44.0)	95(36.1)	103(44.2)
6+	58(10.9)	93(16.1)	14(5.3)	30(12.9)
X ² 8.24: df 2: sig =0.016			X ² =15.87: df=2: sig.=0.000	
Preceding birth interval				
First Birth	129(24.2)	150(26.0)	73(27.8)	64(27.5)
24 months and below	101(19.0)	155(26.9)	21(8.0)	35(15.0)
25 months and above	302(56.8)	272(47.1)	169(64.3)	134(57.5)
X ² =12.73: df=2: sig =0.002			X ² =6.34: df=2: sig =0.042	

Source: Primary Analysis of KDIHS 2008/9

Furthermore, results indicate that wealth index had a significant association with unintended childbearing in both Nyanza and Central provinces. In Central province, the highest number of unintended childbearing was reported by rich women at 55 percent while poor women in the same province had lowest unintended childbearing at 22 percent. Poor women in Nyanza province had more unintended childbearing at 52 percent while middle women had lowest cases of unintended childbearing (17%).

The findings indicate that marital status was significantly associated with unintended childbearing in both Nyanza and Central provinces. Currently married women in both provinces recorded highest unintended childbearing at 75 percent in Nyanza and at 77 percent in Central province while, never married women had lowest

unintended childbearing at 11 percent and 12 percent in Nyanza and Central respectively. The number of living children was significantly associated with unintended childbearing in Nyanza and Central provinces. The result indicates that those women who had 3-5 living children reported highest proportion of unintended childbearing at 44 percent in Nyanza and at 44 percent in Central. Lowest number of unintended childbearing was reported among women who had 6 children and more in both the regions.

A further finding indicates that there was a significant association between unintended child bearing and the preceding birth interval in both regions. Those women who had a preceding birth interval of above 25 months reported highest proportion of unintended childbearing compared to those who had their first birth and those who had 24 months and below birth intervals. In Nyanza province the unintended childbearing among those women who had a preceding birth interval of 25 months and above was at 47 percent while at Central was at 58 percent.

The study didn't establish any significant association between unintended child bearing and religion and place of residence in both Nyanza and Central provinces

4.4. Correlates of Unintended Childbearing in Nyanza and Central Provinces of Kenya

The results of correlates of unintended childbearing in Nyanza and Central provinces of Kenya are presented in Table 4.3

Maternal age was a significant factor influencing unintended childbearing among women in Central region and no association was found in Nyanza province. Women in Central and Nyanza provinces, age 25-34 years, were 82 and 30 percent respectively less likely to experience unintended childbearing as compared to women

who were 24 years and below. The results imply that odds of experiencing unintended childbearing were higher for women in Nyanza province compared to those in Central province. Consistent with a study done in Kenya (Ikamari 2000) unintended childbearing appears to decline with the mother's age at conception.

The results further showed that level of education was a significant factor in influencing unintended childbearing in Nyanza province but no association was found in Central province. Women who had at least secondary level of education in Nyanza province were 30 percent less likely to experience unintended childbearing as compared to those women who had no education, while in Central province secondary and above level of education was associated with higher risk of unintended childbearing even though the results were not significant. Like a previous study done by Ainsworth et al. (1998) educated women are more likely to use contraceptive methods than low-educated counterparts thus avoiding unintended childbearing.

Contraceptive use was a significant factor influencing unintended childbearing in Nyanza province but was not significantly related to unintended childbearing in Central province. Women in Nyanza who had never used contraceptive were 70 percent more likely to experience unintended childbearing as compared to those who had ever used contraceptives, while in Central province those women who had never used contraceptive were 3 percent more likely to experience unintended childbearing. The odds of experiencing unintended childbearing were higher for women in Nyanza province compared to those in Central province. Increasing use of modern contraceptive is an effective intervention for decreasing unintended childbearing (Singh S. et.al, 2009)

Table 4.3: Multivariate logistic regression result of correlates of unintended childbearing in Nyanza and Central provinces, Kenya

VARIABLES	REGION OF RESIDENCE					
	Nyanza			Central		
	B	S.E.	Exp(B)	B	S.E.	Exp(B)
Maternal Age						
<24(RC)						
25-34	-0.358	0.285	0.699	-1.726	0.424	0.178***
35+	0.212	0.258	1.236	-0.484	0.339	0.616
Level of education						
None(RC)						
Primary	0.3	0.528	1.349	-0.958	1.201	0.384
Secondary +	-0.341	0.166	0.711*	0.007	0.236	1.007
Type of place of residence						
Rural(RC)						
Urban	0.033	0.222	1.033	0.213	0.276	1.238
Contraceptive use						
Ever used(RC)						
Never used	0.533	0.143	1.704***	0.029	0.218	1.029
Wealth index						
Poor(RC)						
Middle	-0.406	0.192	0.666*	-0.75	0.307	0.472*
Rich	0.068	0.219	1.07	0.273	0.256	1.315
Religion						
Roman Catholic(RC)						
Protestants	-0.852	0.644	0.426	0.09	0.794	1.095
Others	-0.968	0.63	0.38	-0.058	0.766	0.944
Marital status						
Never married(RC)						
Currently married	-1.751	0.465	0.174***	-2.095	0.585	0.123***
Formerly married	1.066	0.221	2.905***	0.058	0.31	1.059
Number of living children						
0-2(RC)						
3-Five	1.13	0.282	3.096***	2.629	0.508	13.858***
6+	0.544	0.235	1.723*	1.189	0.424	3.284**
Preceding birth interval						
First birth(RC)						
24 months and below	-0.243	0.225	0.784	-0.237	0.399	0.789
25 months and above	0.3	0.207	1.349	0.02	0.307	1.02
Constant	-0.598	0.761	0.55	-0.636	0.985	0.529

***p<0.00, **p<0.01,*p0.05

Source: Primary analysis of KDHS 2008/9

Furthermore, the results show that wealth index was a significant predictor that influenced unintended childbearing in both provinces. In Nyanza and Central Provinces women from households classified as middle class were 33 percent and 53 percent respectively less likely to experience unintended childbearing as compared to those women from poor households. The results imply that odds of experiencing unintended childbearing were higher for women in Nyanza province compared to those in Central province. The findings were consistent with a study done by Finer and Henshaw, 2006, that rate of unintended births increased by 44% among poor women but declined among women who were at or above 200% of the poverty level between 1994 and 2001.

There was significant relationship between marital status and unintended childbearing in both Nyanza and Central province in Kenya. Currently married women in Nyanza province were 83 percent less likely to have unintended childbearing as compared to women who were never married while women in Central province were 88 percent less likely to experience unintended childbearing. The results are consistent with a previous study done by Forrest & Singh, 1990. The women who were formerly married in Nyanza and Central provinces were 191 and 6 percent respectively more likely to experience unintended childbearing compared to women who had never been married. This implies that the odds of experiencing unintended childbearing for formerly married women from Nyanza province is higher than for Central province.

Number of living children was also significantly related to unintended childbearing in the two regions. Women who had 3-5 living children in Nyanza province were 210 percent more likely to have unintended childbearing compared to those women who had less or equal to two living children and 1286 percent in Central

province. Women who had 6 living children and more in Nyanza and Central provinces were 72 and 228 percent respectively more likely to experience unintended childbearing compared to women who had 0-2 living children. This implies that the odds for experiencing unintended childbearing were higher for women in Nyanza province compared to Central province. The results are confirmed by a previous study done by Ikamari 2000.

The study did not establish significant relationship between the variables: type of place of residence, religion, preceding birth interval and unintended childbearing among women in Nyanza and Central provinces of Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides summary of the findings, conclusions and recommendations on policy, programmes and further research on unintended childbearing among women in Nyanza and Central provinces of Kenya.

5.2 Summary

The study set out to establish the socioeconomic, sociocultural and demographic factors that influence unintended childbearing among women living in Nyanza and Central provinces, Kenya using KDHS 2008/9. Multivariate logistic regression was utilized as the main method of analysis to show the strength of the association between the independent variables and dependent variables. The dependent variable, unintended childbearing was categorical in nature. The independent variables included in the study were maternal age, level of education, wealth index, contraceptive use, marital status, type of place of residence, religion, number of living children and preceding birth interval.

The study indicates that more than half of all live births that occurred in Nyanza and Central provinces were unintended at 52 percent and 47 percent respectively. Women who had never used any method of contraceptive in Nyanza province had the highest (67.5) proportions of unintended child bearing while those women who had ever used any method of contraceptive from Central province recorded highest (59.1) proportion of unintended childbearing. Majority of unintended childbearing in Nyanza province were associated with women from household

classified as poor while households which were classified as rich in Central province, recorded highest proportions of unintended childbearing.

Results of bivariate analysis showed that factors which were significantly associated with unintended childbearing in Nyanza province included; maternal age, level of education, contraceptive use, wealth index, marital status, number of living children and preceding birth interval while type of place of residence and religion did not have significant association with influencing unintended childbearing in the region. Differentials which are significantly associated with influencing unintended childbearing in Central province are maternal age, wealth index, marital status, number of living children and preceding birth interval while level of education, type of place of residence, contraceptive use and religion did not have any significance.

The study findings showed that level of education, contraceptive use, wealth index, marital status and number of living children significantly influenced the likelihood of unintended childbearing in Nyanza province while maternal age, wealth index, marital status and number of living children, significantly influenced the likelihood of unintended childbearing in Central province.

5.3 Conclusions

Five correlates are significantly associated with likelihood of influencing unintended childbearing in Nyanza and four in Central province.

Marital status was significantly associated with the likelihood of unintended childbearing in Nyanza and Central provinces. Consistent with previous studies, unmarried women in both regions, are associated with unintended childbearing compared to those women who were currently married. Never married women are

usually more likely than ever married ones to describe their childbearing as mistimed or unwanted (Forrest & Singh, 1990).

Wealth index is an important correlates of unintended childbearing in the two provinces. Women from households which were classified as middle class were significantly associated with unintended childbearing. Consistent with previous studies such as (Finer & Henshaw, 2006), unintended childbearing is inversely associated with wealth index; also a study done in Africa by Forest, 1991 showed also that poverty is associated with unintended childbearing. These findings are likely due to the fact that richer women have a wide choice and can afford contraceptives than women from households classified as poor.

The study findings indicated that number of living children significantly influenced the likelihood of unintended childbearing in both regions. Women who had 3-5 children experienced more unintended childbearing than those women who had 0-2 children. Previous studies done by Ikamari 2000, also found out that, unintended childbearing increased with parity. The study hypothesis, the higher the number of living children, the higher the likelihood of unintended childbearing, was confirmed by the finding.

The study showed high level of unintended childbearing among women who had never used contraceptives in Nyanza province. Research done by Origanje et.al, (2009) showed that use of modern contraceptives is positively associated with unintended childbearing. Majority of women in Nyanza are not using contraceptive therefore high unintended childbearing. This may be associated with lack of accessibility of contraceptives, and also lack of knowledge of the modern contraceptives in the region. Contraceptive use was not associated with unintended childbearing in Central province.

Women aged 24 years and below are most at risk of experiencing unintended childbearing in Central province as compared to those women who are between 25 years and 34 years. This confirms findings done by Geda and Iako (2011), that the risk of experiencing unintended childbearing is higher among the younger and older women compared to those in the middle ages. Maternal age was not associated with unintended childbearing in Nyanza province.

Women with secondary and more education in Nyanza province were less likely to experience unintended childbearing than women who had no education. Consistent with previous study done by Akalework (2008), little advance in education improves women's decision making power, leading to avoidance of unintended childbearing. Level of education is not associated with unintended child bearing in Central province.

5.4 Recommendations

This study shows evidence that factors associated with unintended childbearing in the two regions are different thus specified interventions that could substantially improve women's ability to achieve their desired fertility preference in Nyanza and Central provinces of Kenya. These factors which significantly influence the likelihood of unintended childbearing have clear programmatic implications on interventions which should be employed in order to address the issue of unintended childbearing in the two regions.

Policymakers, program planners and health service providers can benefit from these findings to formulate suitable programmes in the two regions.

There is need for more regional comparative studies to be carried on unintended childbearing in provinces where there is cultural diversity and qualitative studies to find out why women have unintended childbearing in the country.

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APPENDICES

APPENDIX 1: Central Province logistic regression analysis output

Variables in the Equation

	B	S E	Wald	df	Sig	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Birthinterval			580	2	.748			
Birthinterval(1)	-.237	.398	.354	1	.552	.789	.361	1.725
Bethinterval(2)	.020	.307	.004	1	.949	1.020	.559	1.861
Livingchildren			32.407	2	.000			
Livingchildren(1)	2.829	.608	28.809	1	.000	13.858	5.123	37.485
Livingchildren(2)	1.188	.424	7.882	1	.005	3.284	1.432	7.532
Conuse(1)	.029	.218	.018	1	.894	1.029	.671	1.579
religion			.372	2	.830			
religion(1)	.090	.794	.013	1	.909	1.095	.231	5.191
religion(2)	-.058	.788	.008	1	.940	.844	.210	4.236
wealthindex			9.696	2	.008			
wealthindex(1)	-.750	.307	5.977	1	.014	.472	.259	.862
wealthindex(2)	.273	.258	1.143	1	.285	1.315	.798	2.170
levelofeducation			.662	2	.718			
levelofeducation(1)	-.958	1.201	.638	1	.425	.384	.036	4.038
levelofeducation(2)	.007	.236	.001	1	.978	1.007	.634	1.597
V502			18.045	2	.000			
V502(1)	-2.095	.585	12.818	1	.000	.123	.039	.387
V502(2)	.058	.310	.035	1	.852	1.059	.577	1.946
V102(1)	.213	.276	.599	1	.439	1.238	.721	2.125
Maternalage			20.966	2	.000			
Maternalage(1)	-1.728	.424	18.653	1	.000	.178	.078	.409
Maternalage(2)	-.484	.339	2.030	1	.154	.616	.317	1.199
Constant	-.636	.985	.417	1	.518	.529		

a. Variable(s) entered on step 1: Birthinterval, Livingchildren, Conuse, religion, wealthindex, levelofeducation, V502, V102,

Maternalage

APPENDIX II Nyanza province logistic regression analysis output

Variables in the Equation

	B	SE	Wald	df	Sig.	Exp(B)
Step 1 ^a						
V102(1)	.033	.222	.022	1	.883	1.033
V502			64.498	2	.000	
V502(1)	-1.751	.465	14.203	1	.000	.174
V502(2)	1.066	.221	23.200	1	.000	2.905
matage2			12.081	2	.002	
matage2(1)	-.358	.285	1.572	1	.210	.699
matage2(2)	.212	.258	.674	1	.412	1.238
levelofeducation			5.534	2	.063	
levelofeducation(1)	.300	.528	.321	1	.571	1.349
levelofeducation(2)	-.341	.166	4.213	1	.040	.711
wealthindex			9.194	2	.010	
wealthindex(1)	-.406	.192	4.456	1	.035	.666
wealthindex(2)	.068	.219	.096	1	.757	1.070
religion			2.722	2	.256	
religion(1)	-.652	.644	1.750	1	.185	.426
religion(2)	-.968	.630	2.362	1	.124	.380
Conuse(1)	.533	.143	13.680	1	.000	1.704
numberoflivingchildren			17.411	2	.000	
numberoflivingchildren(1)	1.130	.282	16.045	1	.000	3.096
numberoflivingchildren(2)	.544	.235	5.385	1	.021	1.723
birthinterval			11.384	2	.003	
birthinterval(1)	-.243	.225	1.171	1	.279	.784
birthinterval(2)	.300	.207	2.087	1	.149	1.349
Constant	-.598	.761	.617	1	.432	.550

a. Variable(s) entered on step 1: V102, V502, matage2, levelofeducation, wealthindex, religion, Conuse, numberoflivingchildren, birthinterval.