

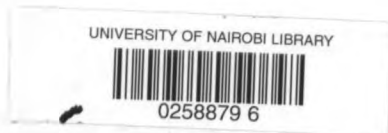
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**DETERMINANTS OF CONTRACEPTIVE NON-USE IN KENYA:
EVIDENCE FROM THE KENYA DEMOGRAPHIC HEALTH SURVEY
(1989). /)**

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BY:

MAGDALENE MUMBI KYALO



**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF
THE DEGREE OF MASTER OF ARTS IN POPULATION STUDIES OF THE
UNIVERSITY OF NAIROBI**

1996

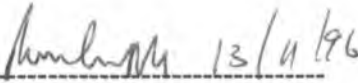
DECLARATION

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

SIGNED: -----

Magdalene Mumbi Kyalo

This thesis has been submitted for examination with my approval as a University Supervisor.

SIGNED: -----

Dr Kimani Murungaru

DEDICATION

To my dear husband and daughter who have been a great source of encouragement.

TABLE OF CONTENTS

Declaration	i
Dedication	ii
Abstract:	vi
Acknowledgement	viii
Chapter One : Intoduction and Statement of the Problem	1
Introduction.	1
1.1 Background to the Study:	1
1.2 Problem Statement	3
1.3 Objectives of the Study.	4
1.4 Justification of the Study.	5
1.5 Scope and Limitation.	6
Chapter Two: Literature Review	8
2.0 Literature Review, Conceptual Framework and Operational Model	8
2.0.1 Introduction	8
2.1 Socio-Economic Factors and Contraceptive Non-Use	9
2.1.1 Education	9
2.1.2 Wives Place of Residence and Contraceptive Non-Use	11
2.1.3 Working Status:	13
2.1.4 Proximity and Availability of Family Planning Services:	15
2.2 Demographic Variables:	18
2.2.1 Age:	19
2.2.2 Marital Status:	21
2.2.3 Number of Living children:	23
2.2.4 Number of Children Dead:	26
2.2.5 Summary of the Literature Review	27
2.3 Theoretical Framework	28
2.3.1 Conceptual Model for studying determinants of contraceptive non use	32
2.3.2 Operational Model for studying the Determinants of Contraceptive Non Use.	32
2.4 Hypothesis.	33
Chapter Three: Sources of Data and Methods of Analysis	34
3.1.0 Data and Methodology	34
3.1.1 Sources of Data	34
3.1.2 Sample Size	34
3.1.3 Sampling Procedure	35
3.1.4 Data Collection Instruments and their Coverage	35
3.2 Logistic Regression Analysis	36
3.2.1 Introduction	36
3.2.2 Multiple Logistic Regression Model	37
3.2.3 Testing for the Significance of the Coefficients	38
3.2.4 Interpretation of the Coefficients of the Logistic Regression Model	39
3.2.5 Dummy Variables	45
3.3 Cross Tabulation Analysis	46

Chapter Four: Respondents Background Characteristics.	
Differentials and Factors associated with Contraceptive Non-Use	49
4.1 Introduction	49
4.2 Definition of Variables	49
4.3 Contraceptive non-use and socio-economic, demographic and programme factors	63
4.4 Logistic Regression Results	60
4.5 Discussion of the Results	64
4.5.1 Education	64
4.5.2 Place of Residence	65
4.5.3 Working Status	66
4.5.4 Mode of Transport to source of Contraceptives	66
4.5.5 Number of Living Children	67
4.5.6 Marital Status	68
4.5.7 Number of Children Dead	68
Chapter Five: Summary, Conclusion and Recommendations	71
5.1 Summary and Conclusion	71
5.2 Summary of the Findings and Conclusions	71
5.3 Policy Recommendations	75
5.4 Further Research	76
Bibliography	77

LIST OF TABLES

Table 1:	Definition of the Variables Used in the Analysis	49
Table 4.1	The Percentage distribution of the current contraceptive non-users and users according to the wife's level of Education:	53
Table 4.2	The Percentage distribution of the current contraceptive non-users according to wife's current place of residence.	54
Table 4.3	The Percentage distribution of the current non-users according to the wife's current working status:	55
Table 4.4	The Percentage distribution of the current non-users according to the wife's current age.	55
Table 4.5	Percentage distribution of current non-users and users according to the wife's current marital status.	56
Table 4.6	Percentage distribution of current non-users and users according to the wife's current number of living children.	57
Table 4.7	Percentage distribution of Contraceptive non-users and users according to the number of children dead.	57
Table 4.8	Percentage distribution contraceptive non-users according to the mode of transport to the source of contraceptives.	59
Table 4.9	Percentage distribution of Contraceptive non-users according to the number of hours women travel to the source of contraceptives.	60
Table 4.10:	Logistic Regression Estimates on the Determinants of Contraceptive Non-Use (NUSED) and the selected independent Variables.	62

Abstract

This study examines the determinants of contraceptive non-use in Kenya. The study had three objectives. The first was to examine demographic variables associated with contraceptive non-use. The second was to examine the socio-economic variables related to contraceptive non-use. The final objective was to make recommendations on how to improve on the use level in Kenya.

The data used in the study was obtained from the Kenya Demographic Health Survey (KDHS) which was carried out in 1989. Cross tabulations were utilized to assess the association between non-use on one hand and socio-economic and demographic variables on the other while the logistic regression was used to obtain the factors which influence non-use of contraceptives.

The findings of the study revealed that there was a strong relationship between contraceptive non-use and the category of women who reported that they were living in the rural areas, those that were widowed, women who were living together with male partners and those who had lost two children through death.

For those women who were reported to be having between one and three children together with those who reported to be divorced at the time of the interview an inverse relationship between them and contraceptive non-use was found. Similar findings were observed for those women who at the time of the interview used transport to get to the source of contraceptives and those that had secondary and higher education. This therefore shows that an increase in the numbers of women in these categories will lead to a decrease in the number of contraceptive non users.

The logistic regression results showed no significant relationship between age of the woman, travel time to source of contraceptives and contraceptive non use.

From the findings, it was concluded that socio-economic factors are more influential in

determining contraceptive non-use when compared to the demographic factors. The most important recommendation of the study is that education emphasising the advantages of use of modern contraceptives be given to all irrespective of their gender status.

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CHAPTER ONE INTRODUCTION AND STATEMENT OF THE PROBLEM

1.1 Background to the Study:

Kenya's population is among the fastest growing in the world with an annual growth rate of about 3.8 percent, such a rapidly growing population places considerable constraints on social economic development goals (NCPD, 1989). According to the 1989 census, Kenya's population was 21.4 million and projections show it will rise to 35 million by the end of the century. In recognition of this, the Kenyan government in the mid 1960's, launched the family planning programme.

Although the programme has established a significant material base for its operations, it did not have appreciable effect on the overall level of fertility for a long time. Obviously, the mere existence of the family planning programme has not been sufficient to stimulate fertility decline, and one must think of its future contribution as one of facilitating the achievement of lower fertility only after other cultural, demographic and economic factors have encouraged or permitted the emergence of new family size values. It however can not go unmentioned that the programme has had some impact on the Kenyan population. According to the 1989 census, Kenyas population growth has started to decline and is now estimated to be 3.3 percent per annum (KDHS, 1993).

The upward trend in the population growth rate puts pressure on all aspects of social and economic development. One of the areas where population pressure is felt acutely is in agricultural land. In Kenya about 3/4 of the total population is concentrated in approximately 1/8 of the land area and more than 80 percent of the population lives in the rural areas (Ominde, 1983 p.5). From the 1979 census data it has been shown that 65 percent of the total population lived at a density of over 100 persons per square kilometre, 43 percent at a density of over 200 persons per square kilometre and 21 percent at over 400 per square kilometres (Ominde, 1983 p.5). These figures show increasing pressure on land which is manifested in land fragmentation, land degradation through soil erosion, rural to rural migration, leading to settlements in marginal lands (Ominde 1983 p.10), all of which have contributed to lower agricultural output

Studies describe mounting population pressures as the cause of deterioration of natural resources, endemic malnutrition and stagnating standards of living for the majority of Kenyans (Bernard F.E et al 1982). President Moi himself has warned that "Kenyas high population growth

of married women were not using any contraceptive method and only 18 percent were using a modern method. This is consistent with the observation that 62 percent of non - pregnant, sexually active non-users stated that they would be unhappy to become pregnant in a period of a few weeks from the time when they were interviewed.

This study focuses on the determinants of contraceptive non-use. This will be undertaken using the descriptive statistics and regression for interpreting the results.

1.2 Problem Statement

Policy makers, development planners and the scientific community have given some attention to the important role social, economic, cultural and political factors play in the processes of population change. They have warned about the increasing danger of the social conflicts and illegal activities associated with ever increasing population growth. Currently, the prevention of births is, in developing countries, not only the most important but also the most variable and the most mysterious factor of fertility. In Kenya, the high population growth drew the attention of the authorities in the early 1950's and in 1955, the Family Planning Associations in Nairobi and Mombasa were formed and initiated efforts to create awareness and provide modern contraceptive services. In 1961, these associations merged to form the Family Planning Association of Kenya. It was assumed that fertility reduction is closely associated with declines in maternal and child morbidity and mortality. Therefore the programme has operated within the maternal and child health care services since its inception.

The main developmental goal of family planning was to improve the social and economic conditions of the Kenyan families. However the broad demographic goal was to lower the rate of population growth. It was hoped that the family planning programme would lead to the attainment of a more balanced population structure by the year 2000. However, this does not seem to have been achieved because of the persistent high rates of contraceptive non use (Kaseje 1986).

In spite of having a national policy to promote family planning, contraceptive practice in Kenya is still low. In general, it appears that the attitudes of the Kenyan women towards fertility control are negative, suggesting that just promoting availability of family planning services may not greatly affect contraceptive practice. This is supported by the fact that there are, low acceptance rates

and high rates of dropouts of acceptors of family planning programmes and high fertility rates have been reported by most studies carried out in the country (KDHS 1989). It has been noted that the objectives of the programme were to persuade more people to join family planning programmes, to educate them on how to use modern methods of family planning. These were generally aimed at improving the acceptance rates, lowering the non-use rates and as a result, reducing fertility within the shortest period possible but these desirable effects do not seem to have been achieved as per the plan according to the results of the surveys that have been carried out in Kenya. According to the KCPS (1984), Kenya's TFR increased from 6.0 in 1948 to 6.8 in 1962 and further to 7.9 in 1979 before it dropped to 7.7 in 1984. The data being used in this study i.e the KDHS (1989) revealed that the TFR had dropped to 6.7 births per woman at national level although the decline was not uniformly spread all over the country.

There is need to investigate the determinants of contraceptive non use even when the government and many non governmental organisations have put such great efforts in promoting the family planning programme. It is also the intend of this study to understand the characteristics of women who do not use contraceptives even when these services are offered for free. There are also other factors which contribute to the persistent non use of contraceptives and these will also form a major component of this study. The study focuses on this problem and therefore attempts to identify and study the various socio-economic and demographic factors which influence contraceptive non use.

1.3 Objectives of the Study.

The general objective of this study is to examine the determinants of contraceptive non use in order to feed the results into Kenya's national Family Planning Programme. The specific objectives are:

- 1) To examine the demographic and socio-economic characteristics and differentials of

contraceptive non users.

- 2) To identify factors that contribute to contraceptive non use.
- 3) To make recommendations for policy makers and further research on contraceptive non use.

1.4 Justification of the Study

Since the ability of the family planning programmes to contribute to fertility decline rests on women's acceptance and continued use of birth control methods, understanding the factors responsible for couples not to use birth control methods would therefore be useful.

The principal objective of family planning programmes established in many high fertility countries like Kenya is to promote fertility regulation by means of contraceptive use. As part of this effort to increase contraceptive use, the present study examines the factors influencing contraceptive non-use. This is very useful not only from a theoretical standpoint but also from a practical point of view, as the study will enable one to identify the factors responsible for non-use of contraceptives. The identification of such barriers to family planning use efforts can be directed towards addressing them in the attempt to increase use. The study will be useful to planners and more so in the family planning sector now that there is a study which has been done on the determinants of contraceptive non-use.

The Kenya Demographic Health Survey of 1989 noted declines in the Total Fertility Rates as compared to the previous surveys such as the Kenya Contraceptive Prevalence Survey (KCPS) of 1984 and the Kenya Fertility Survey (KFS) of 1978. A study of this nature is therefore important as knowing the determinants of non use will influence a further decline in the Total Fertility Rates.

Another justification for undertaking this study is that too little is known about the phenomenon of contraceptive non use. The findings of the study will increase this knowledge and form a basis for tackling the problems constraining the use of available contraceptives.

1.5 Scope and Limitation

This study focuses on the socio-economic and demographic factors which influence contraceptive non-use.

The study is based on the data from the Kenya Demographic Health Survey which was undertaken in 1989. The survey covered 13 districts namely: Kilifi, Machakos, Nyeri, Meru, Muranga, Kirinyaga, Kericho, Uasin Gishu, South Nyanza, Kisii, Siaya, Kakamega and Bungoma in which a total of about 10,000 rural households were selected and nearly 1000 households in urban areas. The study therefore had some kind of bias against the urban areas but understandably so given the small urban population in the country.

In this study women aged 15 - 49 years who are believed to be physiologically capable of having a child were interviewed. This particular study is only interested in those who among them reported that they were not using contraceptives.

The survey, though national in coverage excluded North Eastern province, and four districts in Eastern province which together account for about 5 percent of Kenya's total population. Thus the survey like other surveys conducted by the Central Bureau of Statistics did not cover North Eastern province because it is not in the National Sample Survey and Evaluation Programme (NASSEP) sampling frame.

Despite the above limitations, the study yields reliable information on the determinants of contraceptive non-use as this is the most reliable data source currently available at the national level

in Kenya. However, subsequent studies can be conducted with any other more current data so as to compare the results.

CHAPTER TWO LITERATURE REVIEW

2.0 Literature Review, Conceptual Framework and Operational Model

2.0.1 Introduction

The literature reviewed in this chapter focuses on various studies that have been undertaken both in Kenya and the world in general. The selected socio-economic and demographic variables included in these studies are reviewed noting their influence on contraceptive non-use in various countries of the world.

Kenya is on record as being among the first countries in Africa to develop a favourable policy towards family planning. However, success in recruiting acceptors and in retaining them has been slow despite the apparent unmet demand for family planning services (World Bank, 1984). Unfortunately for family planning programmes, the act of adopting a reliable modern method of contraception does not necessarily have the dramatic effect upon fertility that had been expected. The explanation, as all who are familiar with family planning programmes know, lies in discontinuation (often called "dropout" or "disadoption" (Singuefied;1977:1). So far too little is known about this phenomena of discontinuation and hence non-use of contraceptives. Yet, if ultimate success is to be achieved in bringing average family size to the level where it is consistent with the level of aspiration of the public and the long term development plans of the nation, this problem of contraceptive non-use must be solved. A solution requires understanding non-use in all aspects; medical, physiological, psychological economic, political, religious and cultural.

The literature examined here focuses on the various studies that have been concerned with the same issue.

2.1 Socio-Economic Factors and Contraceptive Non-Use

2.1.1 Education

Education, particularly female education, is one factor in development process that generally has been demonstrated to have a significant effect on fertility. According to Mosley (1981), education brings a new set of values, new aspirations and a new outlook in life as well as skills to take advantage of new opportunities. A rise in the level of female education can ultimately lead to a decline in fertility through the reduction in the levels of contraceptive non-use.

Mazur (1981) argues that contraceptive non-use decreases with the increase in the level of the wife's education. He found the lowest contraceptive non-use among the married women in Poland with secondary and higher education.

Abdullah et al (1984) in a comparative study on contraceptive non-use in the Commonwealth Caribbean countries found a negative relationship between wife's education and contraceptive non-use. In Guyana, for instance, it was found that education explained 4.3 percent and 1.0 percent variance in current non-use of contraception among the exposed Non-Indian women respectively.

In Trinidad and Tobago, education explained 1.4 percent variance in current non-use of contraception among exposed women. And in Jamaica, education accounted for about 1.8 percent variance in current non-use of contraception among exposed women (Abdullah et al 1984).

According to Rich (1973) reduction in levels of contraceptive non-use and hence reduced fertility has often been related to the spread of education. Educational development, in the broad sense of the word, of course encompasses a wide variety of activities ranging from an increase in

schools and classroom activities, to use of more advanced farming or industrial technologies, or improvements in literacy skills developed outside of the classroom. Increases in education should lower patterns of contraceptive non-use. In Peninsular Malaysia women with at least some education had lower rates of contraceptive non-use compared with uneducated women (Julie Da Vanzo et al., 1987).

Monteith et al., (1987) indicated that in Paraguay women with more than primary education were less than twice as likely to be contraceptive non-users than women with no formal education and those with incomplete primary school education.

Caldwell (1968a) found out that in Nigeria contraceptive non-use declined steeply with the level of the women's education. In this study, it was noted that in 1964, women with post secondary and university education had very low levels of non-use.

Education is thought to discourage non-use through its negative influence on family size. This is because education increases the couples aspiration for social mobility and wealth accumulation and decreases the lifestyle and consumption patterns, which reduce the desire for large families.

Henin (1973) argues that illiterate women nurse traditional antagonism towards the use of contraception. Diffusing knowledge about contraceptive non-use is also hard to achieve among illiterate females who are more often than not characterised by rural background and low levels of employment than those in the modern sector of the economy.

Mburugu and Oucho (1984) found illiteracy among respondents in private sector institutions as a major contributor to the non-use of contraceptives. It was observed that 50 percent and 20 percent of the women and men respectively were illiterate. This would limit the use of audio-visual educational media based on reading materials written in English, Kiswahili or Vernacular.

According to Gachuhi (1972), education is a prerequisite to the lowering of the rates of contraceptive non-use. The researcher sees the education of either the husband or the wife as a facilitating factor to the adoption of family planning. Education is also an important factor in changing peoples perception. For the purposes of family planning in Kenya adult education, health education for both the young and old alike, as well as other forms of campaigning to convince the population of the changing situation in their lives will be a priority if there is to be widespread reduction in the rates of contraceptive non use.

2.1.2 Wife's Place of Residence and Contraceptive Non-Use

Place of residence has in several studies as will be noted in this section, to have an influence on the non-use of contraceptives. It has been found that those women who live in the rural areas are more likely to be non contraceptors when compared to their counterparts living in the urban areas. Obstacles to the adoption of family planning for those living in the rural areas are identified as very low levels of literacy, infrastructure, female participation in non-agricultural jobs, and inadequate health infrastructure and an acute shortage of health personnel.

There are also many factors which tend to inhibit the acceptance of family planning. These can be found in the realm of religion, psychology, politics, economics as well as social.

In our society in which most of the population lives in the rural areas, there are some familial arrangements, attitudes, beliefs, and customs which offer formidable resistance to modernisation and thus to the desirable rapid social and economic development.

A survey conducted in a Brazilian state of Sao-Paulo found that rural women were more likely than their urban counterparts not to contracept. Contraceptive non-use was least in the interior city of Sao-Paulo city, 34 percent of the residents were not contracepting and in Sao-Paulo city

where 36 percent of the women were not contracepting. In comparison 41 percent of the women living in the rural areas were not contracepting.

In Mexico, Bailey et al (1982) found out that less educated, rural women were more likely not to use contraceptives than their urban counterparts.

In Egypt a national fertility survey conducted in 1983 found that 48 percent of the urban women and 84 percent of the rural women were not contracepting (Awad et al, 1983)

Abdullah et al (1984) found that in Guyana, Jamaica, Trinidad and Tobago, non-use of contraception was lower for urban women than in the rural areas. However in Trinidad and Tobago the difference in the level of contraceptive non-use between the urban and the rural women was very small.

A KAP study in the Sais plain of Morocco (Lapham, 1970) revealed that non-use of contraception is less in the urban areas than in the villages, although it is high in neither. There was no apparent effect of age on the non-use of contraceptives, when age was separated from the number of the living children. Wives in the city who come from mixed urban/rural backgrounds expressed less approval than wives who had always lived in an urban setting but greater approval than rural wives.

Findley and Orr (1978) studied urban-rural variations in contraceptive non-use using data drawn from World Fertility Survey. In this study it was found that the average Total Fertility Rate was lower for urban areas (4.95 births) and higher for rural areas (6.35 births) and this was attributed to the low levels of contraceptive non-use in the urban areas.

According to Mosley (1981), the reduction in fertility among the women residing in the urban areas is consistent with the low level of contraceptive non-use and appears to be a function of a very significant reduction in the pregnancy progression ratio.

The results of studies already carried out through out Africa show that the family size tends to be uniform both in urban and in rural Africa. The desired and preferred number of children for urban women is about 6.3 and for the rural women it is about 7.7 (KFS, 1977/78 ; KCP , 1984; Farooq et al. 1987; FFFP 1971; UNESCO, 1981). These studies have also shown that education level appears to be significantly related to lower family size. For instance in Nigeria wives with college and higher education wanted about 4.3 and 4.7 for urban and rural women respectively (Farooq, 1987:77). Similarly, in Kenya urban women and rural women with secondary and college education have preferred 6 and 8 children respectively (KFS, 1978; KCPS, 1984; Ocholla-Ayayo and Muganzi, 1987). These observations are a contradiction of the norm that contraceptive non-use is high in the rural areas when compared to the urban areas.

2.1.3 Working Status:

In the contemporary world, contraceptive non-use of individual families tends to vary with income. Although the relation between contraceptive non-use and income is not linear, poor families seem to have more children born than rich families. The observation presumes that fertility is a function of rational economic choice for a couple. The cost of raising a large family and especially educating children tends to discourage rich families from possessing many children. Higher income families generally tend to seek better quality life for their children and must forego numbers to attain it.

Mamlouk (1982) in a comparative study found a negligible difference in the levels of contraceptive non-use between the working and the non-working women in Costa Rica, Jordan and the Republic of South Korea. She found that in the Phillipines and the Panama, the use of contraception among working women was 14 percent and 17 percent respectively, higher than among

non-working women. However in Peru, she found that women who were employed used contraception at the rate of 20 percent lower than the unemployed women. Taha and Abdelghany (1981) did a study in Egypt and found out that the contraceptive non-use rates of women classified as top white collar group was lower than that of women classified as blue-collar group. Even the contraceptive non-use of the low white collar groups was higher than that of blue collar workers, farmers and services. This was attributed partially to the difference in childlessness among occupational groups and partially to defective data.

In many societies women's participation in wage employment has been associated with a decline in contraceptive non-use. According to Mosley (1981), in Kenya, while essentially many married women are fully engaged in the rural agricultural economy few are in the formal labour sector. The difference in fertility level in these women is primarily the result of contraceptive non-use producing a significant reduction in menstruating interval.

If fertility is regarded as the independent variable, small family size raises the opportunity for women to participate in the modern labour force outside the home. Conversely, if female employment in the modern sector, which is dependent on the levels of education, is taken as the independent factor, it would mean that actual or anticipated employment would lead to low levels of contraceptive non-use, child spacing and consequently smaller family size (Groat et al; 1976)

Groat et al; (1976) has further pointed out that childless women stand better chances of working outside home than do prolific women. In addition the duration of employment, the timing of marriage and the kind of employment are important factors which call for due consideration. But it must be noted that women with low wages are characterised by low educational levels, low occupational status, rural background and lower exposure to contraceptive information.

The strength of the negative relationship between female employment and contraceptive non-

use is one of the strongest observed in the literature. In general high occupational status is found to be significantly associated with lower parity levels and greater child spacing. Moreover, high status jobs in the modern sector are rare in an agricultural economy (Goldstein, 1972). As a result, educated women move to urban centres to look for jobs commensurate with their levels of education.

2.1.4 Proximity and Availability of Family Planning Services:

In order to accept use of a contraceptive method, a woman must not only know what the method is and where to obtain it, but must also be able to reach a source of supply or services. The proximity, or physical accessibility of family planning services can be measured in terms of travel time to a source of services or supplies, distance, means of transport (walk, bus, taxi) and convenience. Closeness of a source is of most importance for a method, such as oral contraceptives or condoms, which requires that there be no interruption in supply (Pop. Reports:1981).

The unavailability of a variety of family planning methods is a major determinant of contraceptive non-use (Mburugu, Oucho; 1984). Proximity and availability of family planning facilities is an issue at hand in the adoption of Family Planning.

Chen et al (1983) argued that other things being equal, accessibility to contraceptives has a strong effect on contraceptive non-use. In this study, which was carried out among a sample of 1915 married women aged 15-44 interviewed in the Guatemala National Survey of 1979, it was found that contraceptive non-use increased with increase in travel time.

Tsui et al (1981), using data from world fertility survey of six countries namely Bangladesh, India, Korea, Mexico, Malaysia and Thailand on contraceptive non-use among exposed women aged 20-44 years found low levels of contraceptive non-use in communities with high levels of contraceptive availability.

In a study carried out by Ikamari (1985), he found out contraceptive non-use increased with travel time. The percentage of non-users increased from a low 5.7 percent among the women who took less than 60 minutes to reach the nearest source of contraceptive services to a high 24.0 percent among those who indicated that they took at least 60 minutes or more.

Knowledge of a source of contraceptives is not as extensive as knowledge of at least one method of contraception. It has been shown that women who know of a method but not where this method can be obtained are more likely to be contraceptive non-users.

Where knowledge of a source is low, then there are high rates of contraceptive non-use. In Nepal, in 1981, about 48 percent of married women had not heard of any modern contraceptive method and an additional 17.4 percent did not know of any family planning service outlet. Of the remaining 36.6 percent (only one in every five), 4 out of every 5 were not using modern contraceptives (Cornelius and Novak, 1983).

Knowledge of a source is related to availability as well as accessibility of contraceptives. In recent surveys the term "availability" has been defined narrowly to consist of two elements:

1. Knowledge of a specific source or services to which a user may go.
2. Proximity of a source in terms of travel time, mode of transport and convenience.

These two elements can be said to consist of geographic, cognitive, economic and administrative aspects of availability. The availability and accessibility of effective means of fertility regulation, mediated through provider transactions with clients in turn lead to its acceptance and use.

The component of service and service related activities which in this study the author focuses narrowly on the time taken to the source where the client can obtain contraceptives will affect some women more than others. If the services are far and wide or are distributed in such a way that women view them as unavailable and inconvenient, it is only women who are highly motivated

mainly because of their socio-economic status who will utilise the services and those who do not belong to this category of women and are exposed to being pregnant will therefore contribute to the high rates of contraceptive non-users.

Most studies on determinants of contraceptive non-use in developing countries have focused on factors influencing whether or not couples at risk of pregnancy want to limit their fertility. They have not looked at the fact that once a couple decide to limit child bearing or to space births, contraceptive non-use may be influenced by lack of family planning information, services, supplies (Pebley and Brackett, 1982 pp. 84-92).

Dow et al (1980, 1981) observed that proximity to a source of contraceptives service may have critical effect on the probability that a potential client will not actually contracept. In their study among rural Kenyan women, they found that women who said that they were near to a source of contraceptive services were significantly more likely to be less of contraceptive non-users than the women who lacked the access. However it should be pointed out that visiting a facility does not necessarily imply that the visitor will actually become a contraceptive.

Mungai (1986) using path analysis found out that those women who report the longest travel time to a source also have the least knowledge of a family planning outlet and they are the least likely to use these sources for family planning services. A woman who uses some form of transportation will tend to perceive family planning outlets to be more accessible and available.

Travel time to a source depresses knowledge of a family planning outlet and the probability of use for the non-user is curtailed. It has been found in other studies that where family planning availability levels are low or moderate, there are distinct differentials in perceptions of availability and accessibility (Cornelius and Novak, 1983).

Results from the World Fertility Survey (1985) indicated that making family planning more accessible decreases their non-use. Women who have to travel long distances and spend many hours before they get to their source are more likely to be contraceptive non-users. The further a woman lives from a source of family planning, the less likely she is to know where to go for family planning and consequently to be a user.

In rural Kenya, women who lack access to a family planning clinic are more likely to be contraceptive non-users than those who live near one. In the Kenya Contraceptive Prevalence Survey (1984) only 26 percent of the women in survey reported travel time of less than 30 minutes, 22 percent took 30 - 50 minutes and 48 percent reported more than an hour.

Mburugu and Oucho (1984) found that contraceptive supply delivery points for the populations were inadequate and while government family planning services are freely provided, the clinics where these services could be found were introducing transport costs. Family planning specific staff were scarce causing long waiting at the centres.

Lack of access to services is an important reason for rural/urban imbalance in contraceptive non-use.

2.2 Demographic Variables:

Reproductive goals and health concerns are dynamic; they change with age, health status, and events such as marriage, dissolution of marriage, and births of children. Contraceptive choice is likewise a dynamic process, changing according to the circumstances, personal goals, and cultural norms of contraceptive users. Choice is also influenced by the characteristics of the available contraceptive methods (e.g their effectiveness, health implications, ease of use, and reversibility) and by the quality of the family planning services provided.

Looking at demographic and social characteristics of acceptors in Taiwan, Freedman and Takeshita (1966) observed that "demographic variables are much more important than social and economic variables in determining who becomes a contraceptive non user" and that demographic pressures provide the constant incentives for family limitations with and without the existence of an organised programme. Non-use rates decreased markedly with number of living children and sons at the outset of the programme. The largest difference in non-use rates is between those who initially had no son and those who had one. Having at least a second son is associated with an additional but lesser decrease in non-use rates. The lowest non-use rates were recorded among those with at least three or four children and at least two sons. These results validate the significance of the values expressed by the respondents in the survey carried out before the programme.

2.2.1 Age:

According to the population reports (1981) the extend of contraceptive non-use varies with age usually reaching a peak in the 30's and increasing thereafter. At their 20's most women are adding to their families, after 40 years, many women consider themselves infecund.

As far as age is concerned, Westoff and Ryder's study showed that younger women aged less than 30 years had lowest non-use rates than older women (panker and Jones, 1967). In contrast, Kanitkers study showed that women aged over 35 years had the lowest non-use rates (Panker and Jones, 1967).

Phillips (1978) found out that age is a major determinant of contraceptive non-use in the Phillipines. When specific methods were examined, Phillips (1978) found out that age was a major determinant of pill use. In Mexico, Bailey et al (1982) found out that older women were more likely to use oral contraceptives if they got those contraceptives from a pharmacy rather from a private

physician or trained field worker.

Freedman and Barelson (1967) have documented that contraceptive non-users tend to be generally young. The percentage of the non-user decreases to the high thirties for women aged 25-39 before it rises to about 70 percent for women over 40 years (KCPS 1984).

In Java-Bali region older women were less likely to be contraceptive non-users than younger women. Contraceptive non-use decreased with increase in age (Soeradji, 1982). Norma Abdullah et al. (1984) reported a similar trend in the Caribbeans where contraceptive non-use increased for the 40-49 age group to the same level as for 20-29 age group.

In Thailand, experience of contraception was relatively low among the young and older age groups and women in the 25-34 age category had the lowest proportion of non-users (Clelland et al., 1979).

Among married couples in south India, of the total women under aged between 15 - 50 years, two thirds were not using some method of family planning (Caldwell et al., 1984).

In Nigeria, Weiss and Udo (1981), found out that women aged 21 years had the highest non-use rates.

In the study of rural Kenya, women who were not contracepting were on average younger than those who had never done so (Caldwell, 1968). According to the KDHS (1989), prevalence was lowest 13 percent among the 15-19 year olds. In the same survey (KDHS 1989) it was found that knowledge of any method of modern contraceptives is lowest (83 percent) among women aged 45-49 and highest (95 percent) among women aged 20-24. Similarly, knowledge of a source of contraceptive information or services is lowest (81 percent) among women aged 45-49 and highest (93 percent) among women aged 20-24. These results reveal that non-use rate for any method is low for women in the age groups 20-24 (40 percent) and 25-29 (47 percent). Non-use is lowest among

women aged 30-39 (39 percent) but then increases slightly for all women aged 40-44 years (44 percent) and 45-49 (50 percent). Another study in Kenya by Sanghvi (1984) recorded that oral contraceptive non-use rates tend to be low among the young with a mean age of 22.6 years. Only 10.6 percent of the sample examined by Sanghvi (1984) was found to be beyond 34 years old.

Gachuhi (1974) in a KAP survey of the youth that covered three primary Teacher training colleges, a secondary science teachers college, an Agricultural college, two secondary schools, and a secretarial college in Kenya concluded that very few people are using contraceptives even though many of them know of their existence and approve of their use. Ninety percent of the respondents had never used any form of contraceptive and only 8.5 percent were currently using contraceptives. This was the case despite the fact that 83 percent of the males and 46 percent of the females had sexual intercourse.

Older women aged 40-44 are less likely to use family planning than younger women, as women stop using contraceptives as they grow older. Age determines the degree of exposure to knowledge of contraceptive use depending on the relationship with other factors for example place of residence, education attainments and ones cultural values of reproduction (Oucho, 1989).

2.2.2 Marital Status:

According to population reports (1979) women who marry late, that is, mid or upper 20's tend to have fewer children than those who marry early. Historically, rising age at marriage is as a response to stress, a way for young people to defer marriage responsibility until they have had sufficient resources to support a family. Today, age at marriage may rise in response to the opportunity for women to be educated and to work productively outside home.

Onsongo (1991) found that women who are married as expected have the lowest non-use rates

as compared to those who are either divorced, separated or single. Single women have the highest non-use rates though the difference between their rates and those of the divorced/separated was negligible.

According to Ojaka (1986), the married status forms the least of the contraceptive non-users. The majority are the widowed. The researcher concluded that the currently married women may contribute as a minority to contraceptive non-use because they are at a greater risk of conception by virtue of having a husband and being aware of this greater risk, they may avoid being contraceptive non-users. Also the entire push of family planning in Kenya is towards married women.

Forrest and Fordyce (1988) have documented that all of the net decline in the level of contraceptive non-use of the most effective methods occur among married women.

Bumpass and Rindfuss (1984) showed that non-use of coitus related methods appears to rise substantially when a currently married woman becomes separated from her husband. This may result from the cooperation and trust between partners required for some of the coital related methods such as condom or withdrawal. Parity also tends to affect contraceptive non-use. Women at parity zero or one may be ambivalent regarding the prospect of a pregnancy and may not use effective methods. Parity and marital status may also interact, with the effect of marital status on contraceptive non-use being smaller for nulliparous women than for women who have had at least one child. Parity also indexes fecundity and women's knowledge about their own fecundity.

It is a popular belief that in Kenya, the issue of family planning is mainly a concern for those who are married and those with families. The introduction of modern family planning methods especially when done indiscriminately has been a controversial issue in the country, where one "school of thought" supports the adoption of family planning by anybody who is sexually active (including school girls), the other school of thought opposes the advocacy of the methods to

everybody. The church in Kenya is very concerned and opposes the introduction of the methods to the youth or to those who have no family to plan for. The fact is that the youth form about 50 percent of our population and about 35 percent of children born in the world are born by children. The United Nations estimates that the youth aged below 15 in Kenya will have increased by 2.9 million in 1980 to 7.8 million in the year 2000 representing an increase of 149.1 percent (UN, 1983).

What is important in terms of fertility limitation strategy is that while most of these young people do not even attend schools where they could at least be introduced to human anatomy and reproduction, 71 percent of them marry while still under the age of twenty, without ever knowing anything about their bodies and especially about human reproduction. They therefore are a group of women in the reproductive age group who might be ignorant of the modern methods of contraceptives and therefore most likely to be non users of the same (Gachuhi, 1975).

2.2.3 Number of Living children:

Palmore et al (1976,1979) found out in Thailand that women who had reached or exceeded their desired family sizes were less of contraceptive non-users than those women whose desired family sizes had not been attained.

Diedre (1979) found out that among the married Hungarian women, those with two or more children were the least contraceptive non-users. He found out that 15 percent of them were not contracepting compared with 73 percent and 31 percent among those with no child and one child respectively.

In contrast to the findings of the United Nations studies (UN, 1979) on contraceptive non use in the Republic of Korea, Mamlouk (1982) argued that in the Republic of Korea, Thailand, Columbia

and the Dominican Republic, the non-use of contraceptives tended to increase rather than decline with the increase in family size. She however found out a declining tendency towards contraceptive non-use as the family size increased in Bangladesh and Fiji. She attributed the increase in contraceptive non-use with the increase in parity to the more traditional attitudes among the higher parity older women since they were more likely to be less educated, less aware of the modern methods of contraception than the young women.

Abdullah et al (1984) found that among the non-Indian and Indian women in Guyana, family size explained 3.1 percent and 6.9 percent respectively of variance in non-use of contraceptives. Among the non-Indian exposed Guyanan women, family size was second to wife's level of education in predictive power, whereas among the Indian Guyana women it was the more powerful explanatory variable, explaining 60.5 percent of the 11.4 percent variance in contraceptive non-use that all the six explanatory variables included in the regression model explained.

Ikamari (1985) found that the highest number of contraceptive non-users were those women who said that they had no living children when compared with other women who had achieved their desired family sizes.

World wide, family planning is used to prevent births when family size is complete than to space births. In Asia only, three quarters were not using contraceptives and two thirds in Latin America and Middle East in 1985 (Kathy et al., 1985). When birth control first appears among the married, fertility is usually initially reduced among women of high parity (Coale, 1969). Kathy (1985) reports that contraceptive non-use decreased among women with at least one child.

In Paraguay, contraceptive non-use was relatively high among married women with no living children but decreased rapidly after women had their first and second child. It was only after the fifth living child that limiting family size became the motive for not being a non-user of contraceptives

(Monteith et al., 1987).

Immewahr (1981) observed that in Sri Lanka, women who had given birth to four or more children as the desired number were less of contraceptive non-users than those who had stated less than four as the desired number.

Heinsel (1968) reported that women who were less of contraceptive non-users in the KAP survey in rural Kenya were somewhat older than the others. In the Kenya Demographic and Health Survey (1989), low parity women were more likely to be contraceptive non-users than those with many children. In a society where contraception is infrequent and unfamiliar, its practice is likely to be adopted only after a family has reached or surpassed the number of children felt to be appropriate or manageable.

There has been debate about whether contraceptive non-use in sub-saharan Africa is constrained to very high levels by a desire for large families. The level of current non use registered by recent surveys in Botswana (72 percent) and Zimbabwe (62 percent) are therefore notable for indicating that at least moderate levels of contraceptive non use is prevalent in settings where a large majority of women currently want to have more children (UN:1989).

Studies on the relationship between the number of children and contraceptive non use have been carried out in a number of countries. In the Philippines, Rodrigues (1978) found out that the desire for additional children does appear to have much effect on contraceptive non use. In Mexico, Bailey et al (1982), found out however that higher parity women tended to contracept longer than their lower parity counterparts. In Nigeria on the other hand, it was found out that women who did not know whether they wanted another child or said that it was up to God to decide for them had high rates of contraceptive non-use.

Ocholla-Ayayo (1991) concludes that the fear of infant or child death is not the only reason which could make the work of the family planning programmes difficult in Africa. There are many cultural factors included in the desire to have many children for various other reasons. In Africa, children provide the best social security at old age, and such an investment is not assured in the family planning programme. Children are part of the quantum lineage continuity which a single child family can not achieve. In Africa, children enter the religious system as when a child is considered an ancestor reborn and is named after the deceased ancestor. Sons, according to the common tradition, will inherit the fathers authority and protect the lineage wealth after the death of the parents. Since girls are also preferred as they are the source of wealth through marriage, to have more girls is a sign of potential wealth and respect. In many African traditional settings, a man's or a woman's social status increases with the number of children he or she has, and more still with the number of males or females already married or circumcised. Among many societies in Africa, a man who did not have any child was not represented or invited to attend important gatherings and give contributions or make decisions that could affect the community.

2.2.4 Number of Children Dead:

According to a United Nations Study (1989) child mortality and contraceptive non-use are positively related. Child mortality creates a desire to replace a child or to insure against future child mortality. Hence childhood mortality affects contraceptive non-use through the desire for more children to ensure that the desired number of children survive to adulthood.

However Scrimshaw (1979) argues that high childhood mortality may signal a readiness to initiate vigorous family planning effort and hence the lowering of the high rates of contraceptive non-use. This observation according to Ikamari (1985) questions the validity of the widely held opinion

that all countries whose childhood mortality is high parents will try to produce enough children to ensure against future child mortality or will try to invariably try to replace dead children.

Perhaps another barrier to the adoption of contraceptives among the Kenyan population might be the perceived chances for the survival of children. Ocholla Ayayo (1988) notes that in the past, it was necessary for couple to have as many children as possible because of the high child mortality. Having many children ensured the survival of some to adulthood. These days as health care has improved and the chances of a child's survival are far better than they have ever been, one would think that parents would not want to have as many children as they did before. However, many of our people, especially those in the rural areas still do not think that chances of childhood survival are any better than they were several years back. This could be one of the most important barriers to adoption and use of contraceptives among the many people in Kenya who report knowledge of a modern method of contraceptives.

As in many developing countries, parents in Kenya typically value children a great deal as economic assets and old age insurance (Schuler and Goldstein, 1989, Ahmed 1991, Caldwell, 1976). Therefore they tend to have large families and a preference for sons over daughters. Such preference for sons and high fertility intention is expected to have serious implications for effective reduction in the high rates of contraceptive non use and the success of family planning in Kenya.

2.2.5 Summary of the Literature Review

From the above literature review, it can be noted that both socio-economic and demographic variables have an influence on contraceptive non-use. The selected categories of these variables have a significant impact on the non-use of contraceptives as has been shown from different scholars who have studied the subject.

2.3 Theoretical Framework

This section of the study looks at the appropriate theoretical framework which can be used to explain the interrelationship of the selected variables and contraceptive non-use. The framework which has been used widely in studying the fertility phenomena is based on the Davis and Blake framework which was developed in 1956. In this framework eleven variables which influence fertility directly were identified. These were:- age at first sexual intercourse, frequency of intercourse, permanent celibacy, broken unions by divorce, separation or desertion and unions broken by death of husband, voluntary abstinence, involuntary abstinence (from impotence, illness, unavoidable but temporary separation), fecundity or infecundity as affected by voluntary causes, use or non-use of contraceptive methods, foetal mortality from involuntary causes and foetal mortality from voluntary causes. However the framework has not been widely used it could not be easily incorporated into reproductive models because of these large number of variables (Bongaarts, 1978).

A framework which has been widely used is the Bongaarts framework which was developed in 1978. In this framework a smaller set of eight intermediate or proximate determinant factors of fertility were identified. These factors were reclassified into the broad categories of biological and behavioural variables. These eight proximate determinant factors identified include; proportion of reproductive time spent in marriage, contraception, post partum infecundability, frequency of intercourse, sterility, spontaneous inter-uterine mortality and duration of viability of ova and sperm. Variations in any of them causes changes in fertility. The intermediate variables are assumed to determine the degree of risk of exposure throughout the different stages of biological reproductive cycle designated as intercourse, conception and gestation. The intermediate variables are the only factors through which socio economic and demographic conditions can affect contraceptive non-use.

According to the framework the influence of socio-economic, socio-cultural, demographic

and environmental factors on fertility is through the proximate determinant factors. However, only four of these factors viz:- proportion married, contraception, induced abortion and post partum infecundability. are the most important variables according to Bongaarts.

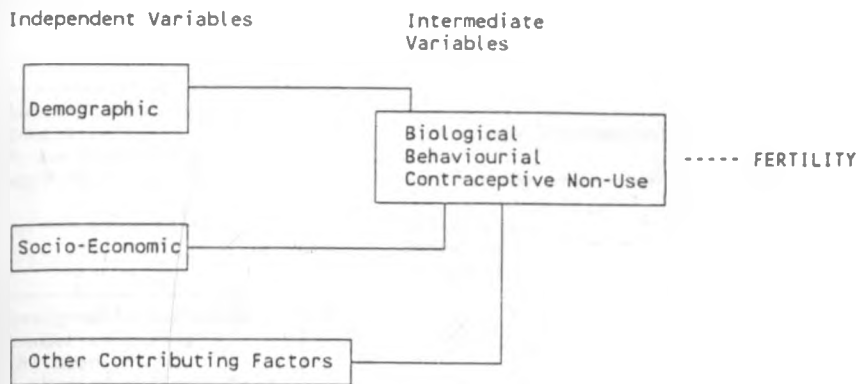
Contraceptive non use is one of the proximate determinants which influence fertility. The level of contraceptive non-use of a society is determined by the level of non acceptance of the same. Thus it can be argued that socio-economic, demographic factors affect the level of contraceptive non-use.

The Bongaarts framework has for instance been used to assess the relative contributions of the proximate determinant factors on fertility in Kenya using the KFS (Kenya Fertility Survey) of 1977-78. In this study it was found that contraceptive non-use is an important intermediate determinant only for those with secondary education and above and in metropolitan cities. In the rest of the population, post-partum amenorrhoea and proportion married are the only important intermediate determinants of marital fertility (Sabiti K.;1984).

The conceptual model developed for this study is based on the Bongaarts model.

2.3.1 Conceptual Model for studying determinants of contraceptive non use

Figure 1

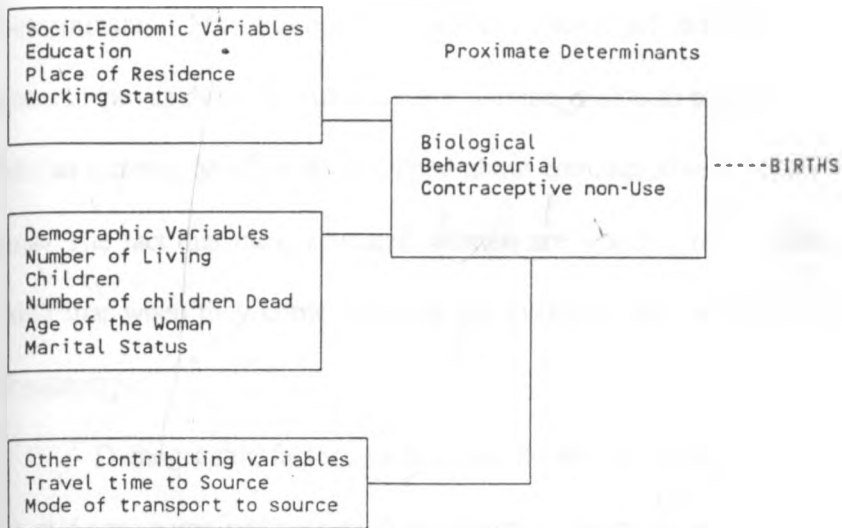


The proximate determinants which have been stated by Bongaarts are:

1. Exposure factors
 - i. Proportion married
2. Deliberate marital fertility control factors
 - i. Contraception
 - ii. Induced abortion
3. Natural marital fertility factors
 - i. Lactational infecundability
 - ii. Frequency of intercourse
 - iii. Sterility
 - iv. Spontaneous intrauterine mortality
 - v. Duration of the fertile period

2.3.2 Operational Model for studying the determinants of contraceptive non use.

Figure 2:



As shown in the conceptual framework (figure 1), the level of contraceptive non-use in the society is determined by socio-economic and demographic status of the woman. However these do not affect the non-use of contraceptives directly but they do so indirectly through the proximate determinants. For example, a woman's level of education does not affect her non-use of contraceptives directly. An educated woman is able to purchase any contraceptive method since she has an income. She is well informed about contraceptive methods and can therefore use any suitable one. The fact that most educated women are working means that they are occupied during the day such that when they come home in the evening, they are too tired to engage in sexual intercourse frequently.

Demographic factors such as age do not also affect contraceptive non-use directly. Early age or mid ages combined with high frequency of intercourse and non-use of contraceptives leads to high fertility.

The above examples explain how fertility is affected by socio-economic and demographic variables through the proximate determinants such as contraceptive non-use and frequency of intercourse. The above argument was adopted by Bongaarts (1987). He argued that the proximate determinants affect fertility directly and if it changes, then fertility necessarily changes (assuming the other intermediate variables remain constant), while this is not necessarily so for the indirect determinants such as income or education. The non-use of contraceptives is therefore operationalised as shown in the below.

The above framework shows how the various socio-economic, demographic factors affect contraceptive non use through behavioural and biological factors. As it was indicated earlier, these factors do not influence the non-use of contraceptives directly. Contraceptive Non-use is the dependent variable though it is one of the behavioural factors affecting fertility.

2.4 Hypotheses

In the course of the literature review, a number of hypotheses arose. It is the intention of this study to test these hypotheses.

- 1) Age does not have a significant impact on contraceptive use or non-use.
- 2) The higher the level of education the lower is the contraceptive non-use.
- 3) That there is a positive relationship between the wives' working status and contraceptive non-use. The women who are not currently working are more likely to be contraceptive non-users than those who are currently working.
- 4) That type of residence has an impact on contraceptive non-use with those living in the rural areas having high levels of non-use.
- 5) That the unmarried status varies directly with contraceptive non-use.
- 6) That contraceptive non use is negatively related to the number of surviving children. Women with few or no surviving children are more likely to be contraceptive non users.
- 7) That there a positive relationship between the experience of child mortality and contraceptive non use. Women who have lost many children through death are more likely to be contraceptive non users than their counterparts who have lost no child through death.
- 8) Travel time to the nearest source of contraceptives is positively related to contraceptive on

CHAPTER THREE SOURCES OF DATA AND METHODS OF ANALYSIS

3.1.0 Data and Methodology:

This chapter presents the data used for analysis in this study and the techniques employed for this analysis. Due to the importance accorded to family programmes, researchers have tried to develop evaluation programmes in order to ascertain its effects. Despite the great deal of attention in the evaluation of the performance of the programmes, the methodologies are still controversial and the results inconclusive. This is due to a wide range of constraints, not all of which are unique to family planning. This study intends to use Regression analysis and cross tabulations as the methods of assessing the determinants of contraceptive non use. The cross tabulation was used basically because of its simplicity and appropriateness for comparative purposes whereas regression analysis was used due to its capability to disentangle both absolute and relative effects of the exogenous variables upon a dependent variable.

3.1.1 Sources of Data:

The data used in this study are drawn from the 1989 Kenya Demographic and Health survey. This is a National survey which was carried out by the National Council of Population and Development (NCPD) in collaboration with the Central Bureau of Statistics (CBS) and the Institute for Resource Development (IRD). The survey covered all the Kenyan provinces except the North Eastern.

3.1.2 Sample Size:

The Kenya Demographic and Health survey sample was designed to produce completed interviews with 7,500 women aged between 15 and 49 and with a sub-sample of 1000 husbands of these women. A total of 9,836 households were selected, of which 8,343 were identified as occupied households during the fieldwork and 8,173 were successfully interviewed. In these households, 7,424 eligible women were identified out of which 7,150 were successfully interviewed. In addition, 1,116 husbands were interviewed out of a total of 1,397 eligible ones. The eligible husbands were those who spent the night before the interview in the selected households and whose wives were

successfully interviewed.

The study sample consisted of all those women who were aged between 15 and 49 and who reported that they were not using any modern method of contraception.

3.1.3 Sampling Procedure:

Data collection in the Kenya Demographic and Health Survey was undertaken using the master sample of the Central Bureau of Statistics which is stratified by urban-rural residence and within the rural stratum, by individual districts. The selection of the sample was undertaken in two stages. In the first stage, 1979 census enumeration areas were selected with probability proportional to size. The selected enumeration areas were then segmented into the expected number of standardized clusters, one of which was selected at random to form the NASSEP cluster. The selected clusters were then mapped and listed by CBS field staff. In rural areas, household listings made between 1984 and 1985 were used to select the Kenya Demographic and Health Survey households, while Kenya Demographic and Health survey pretest staff were used to relist households in the selected urban clusters.

It was felt that in the Kenya Demographic and Health survey reliable estimates of certain variables could be produced for the rural areas in the 13 Districts that had initially been targeted by the National Council for Population Development: Kilifi, Machakos, Meru, Nyeri, Murang'a, Kirinyaga, Kericho, Uasin Gishu, South Nyanza, Kisii, Siaya, Kakamega and Bungoma. Thus all 24 clusters in the NASSEP were selected for inclusion in the Kenya Demographic and Health Survey sample in these 13 districts. About 450 rural households were selected in each of these districts, just over 100 rural households in other districts, and about 3000 households in urban areas, for a total of 10,000 households. Sample weights were used to compensate for the unequal probability of selection between strata.

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3.1.4 Data Collection Instruments and their Coverage:

Three questionnaires were utilized in the survey: household questionnaires, one to list members of the selected households; Women's questionnaire, to record information from all women aged 15-49 years who were present in the selected households the night before the interview; and the husband's questionnaire, to record information from the husbands of interviewed women in a sub sample of households.

The analysis in this study is based on the data collected using the women's questionnaire.

3.2 Logistic Regression Analysis

3.2.1 Introduction

Two types of analysis were undertaken in the study. The preliminary analysis was cross tabulation analysis and logistic regression which has been used to determine the probability of an event occurring (in this case, contraceptive non-use) given certain conditions (i.e the independent variables).

The fitting of a logistic regression model is undertaken in the same way as that of any model-building technique such as linear multiple regression. The idea is to find the best fitting model to describe the relationship between an outcome (dependent or response variable) and a set of independent (predictor or explanatory) variables, often called covariates.

The difference between logistic regression model and the linear regression model is that the outcome variable (dependent) in logistic regression is binary or dichotomous.

A logit model analysis is a probability regression model which expresses the dichotomous variable, Y_i as a non-linear function of the explanatory variables $X_{i,s}$. The model can thus be interpreted as the probability that the dependent variable will occur.

The simplest form of logistic regression is when the dependent variable is related to only one independent variable. This model can be expressed as shown below:-

$$\pi(x) = \frac{e^{\beta_0 + \beta_1 x}}{1 + e^{\beta_0 + \beta_1 x}} \quad 1.1$$

Where $\pi(x)$ = Probability of an event occurring.

e = the base of the natural logarithms, approximately 2.718.

β = Coefficient to be estimated.

x = Independent variable.

A transformation of $\pi(x)$ that is central in the use of logistic regression is the logit transformation. This is defined, in terms of $\pi(x)$, as follows:

$$g(x) = \ln \left[\frac{\pi(x)}{1 - \pi(x)} \right] \quad 1.2$$

$$= \beta_0 + \beta_1 x$$

This transformation is important because it has many of the desirable properties of linear regression model. The logit, $g(x)$ is linear in its parameters, may be continuous, and may range from $-\infty$ to $+\infty$ depending on the range of x .

3.2.2 Multiple Logistic Regression Model

This deals with a logistic model of more than one independent variable, i.e. the "the multivariate case".

Thus, as in the case of simple logistic model, we have a collection of p independent variables denoted by $x' = (x_1, x_2, \dots, x_p)$. Then the conditional probability that the dependent variable occurs is denoted by $P(Y=1|x) = \pi(x)$. The logit of this probability as in the case of the simple logistic model is given by equation:

$$g(X) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p \quad 1.3$$

in which case:

$$\frac{\pi(X)}{1 + e^{g(X)}} \quad 1.4$$

The variables specified for the logistic model can also be categorical and hence requires that dummy variables be defined for each of such variables.

In general if a variable has k possible values, then $k-1$ dummy variables will be needed. For example, suppose the j^{th} independent variable, x_j has k_j levels. Then k_j-1 dummy variables can be

denoted as D_{ju} and the coefficients for the dummy variables can be denoted as B_{ju} , $u = 1, 2, \dots, K_{ju}-1$.

Thus, the logit for a model with p variables and the j^{th} variable being discrete would be:

$$g(X) = \beta_0 + \beta_1 X_1 + \dots + \sum B_{ju} D_{ju} + B_p X_p. \quad 1.5N$$

3.2.3 Testing for the Significance of the Coefficients

After estimating the coefficients, our first look at the fitted model commonly concerns an assessment of the significance of the variables in the model. This usually involves formulation and testing of a statistical hypothesis to determine whether the independent variables in the model are "significantly" related to the outcome variable. One approach to testing for the significance of the coefficient of a variable in any model relates to the following question. Does the model that includes the variable in question tell us about the outcome (or response) variable than does a model that does not include that variable?. This question is answered by comparing the observed values of the response variable to those predicted by each of two models; the first with and the second without the variable in question. If the predicted values with the variable in the model are better, or more accurate in some sense, than when the variable is not in the model, then we feel that the variable in question is significant.

The guiding principle with logistic regression is - compare observed values of the response variable to predicted values obtained from models with and without the variable in question. In logistic regression comparison of observed to predicted values is based on the log likelihood function defined as:

$$L(\beta) = \ln [l(\beta)] = \sum_{i=1}^n \{y_i \ln [\pi(x_i) + (1 - y_i) \ln [1 - \pi(x_i)]]\} \quad 1.6$$

This function expresses the probability of the observed data as a function of the unknown parameters.

The comparison of observed to predicted values using the likelihood function is based on the following expression:

$$D = -2 \ln \left| \frac{\text{(likelihood of the current model)}}{\text{(likelihood of the saturated model)}} \right|$$

For purposes of assessing the significance of an independent variable we compare the value of D with and without the independent variable in the equation. The change in D due to including the independent variable in the model is obtained as follows:

$$G = D(\text{for the model without the variable}) - D(\text{for the model with the variable})$$

The calculation of the log likelihood and the likelihood ratio test are standard features of any good logistic regression package. This makes it possible to check for the significance of the addition of new terms to the model as a matter of routine.

3.2.4 Interpretation of the Coefficients of the Logistic Regression Model

In logistic regression the estimated coefficients for the independent variables represent the slope or rate of change of a function of the dependent variable per unit of change in the independent variable. Thus, interpretation involves two issues: Determining the functional relationship between the dependent variable and the independent variable, and appropriately defining the unit of change for the independent variable.

In order to fit a logistic model, the first step is to determine what function of the dependent variable yields a linear function of the independent variables. This is called the link function

[McCullagh and Nelder, 1983]. In the case of a linear regression model it is the identity function since the dependent variable is linear in the parameters, i.e. it is the function $y=y$. In the logistic regression model the link function is the logit transformation:

$$g(x) = \ln \{ \pi(x) / [1 - \pi(x)] \} = \beta_0 + \beta_1 x.$$

For a linear regression model the slope coefficient, β_1 , is equal to the difference between the value of the dependent variable at $x+1$ and the value of the dependent variable at x , for any value of x . For example, let $y(x) = \beta_0 + \beta_1 x$ from which it follows that $\beta_1 = y(x+1) - y(x)$. In this case, the resulting coefficient expresses the resulting change in the measurement scale of the dependent variable for a unit of change in the independent variable.

In the case of logistic regression model, then, $\beta_1 = g(x+1) - g(x)$. That is, the slope coefficient represents the change in the logit for a change of one unit in the independent variable x .

Logit analysis is like a multivariate regression method for estimating relative risk. The logit coefficients are the natural logarithms of the relative odds by which determinants of contraceptive non-use are different from those of use of contraceptives. An odd is the ratio of the frequency of being in one category to the frequency of not being in that category and is interpreted as the chance that an individual randomly selected will be observed to fall into the category of interest. The odds ratio here is marginal odds applying to the total frequencies while holding the effect of the other variables constant.

The logistic model can be re-written in terms of the odds of an event occurring. The *odds* of an event occurring are defined as the ratio of the probability that it will occur to the probability that it will not. It is easier to think of odds, rather than log odds, and the logistic equation can be written in terms of odds as:

$$\frac{\text{Prob(event)}}{\text{Prob(no event)}} = e^{\beta_0 + \beta_1 X_1 + \dots + \beta_P X_P} \quad 1.7$$

$$= e^{\beta_0 + \beta_1 X_1 + \dots + \beta_P X_P}$$

Then e raised to the power β_i is the factor by which the odds change when the i th independent variable increases by one unit. If β_i is positive this factor will be greater than 1, which means that the odds are increased; if β_i is negative the factor will be less than 1, which means that the odds are decreased. When β_i is 0 the factor equals to 1, which leaves the odds unchanged.

To estimate the determinants of contraceptive non use, a logistic regression model was fitted for the various socio-economic and demographic factors specified in the theoretical framework. Each of the independent variables was recoded and specified in form of dummy variables. The dependent variable was specified as 1 and zero otherwise as discussed below:-

A. Demographic variables

AGEA - Indicates those women in the age group 15-19. It forms the reference category.

AGEB - Indicates those women in the age group 20-24 (coded 1 if the case, 0 otherwise).

AGEC - Indicates those women in the age group 25-29 (coded 1 if the case, 0 otherwise).

AGED - Indicates those women in the age group 30-34 (coded 1 if the case, 0 otherwise)

AGEE - Indicates those women in the age group 35-39 (coded 1 if the case, 0 otherwise).

AGEF - Indicates those women in the age group 40-44 (coded 1 if the case, 0 otherwise).

AGEG - Indicates those women in the age group 45-49 (coded 1 if the case, 0 otherwise).

2. Marital Status

NEVMAR - Indicates those women who reported that they have never married. It forms the reference category.

MARR - Indicates those women who reported that they were currently married at the time of the interview (coded 1 if the case, 0 otherwise)

LIVTOG - Indicates those women who reported to be living together with a male partner at the time of the interview (1 if the case, 0 otherwise)

WIDOWED - Indicates those women who were widowed at the time of the interview (1 if the case, 0 otherwise).

DIVORCED - Indicates the women who reported to be divorced (coded 1 if the case, 0 otherwise).

NOTLIV - Indicates those women who were not living together with their spouses at the time of the interview (coded 1 if the case, 0 otherwise).

3. Number of Living Children

CHILD0 - Indicates those women who reported that they had no child. It forms the reference category.

CHILD1 - Indicates those women who had one living child (coded 1 if the case, 0 otherwise).

CHILD2 - Indicates those women who had two living children (coded 1 if the case, 0 otherwise).

CHILD3 - Indicates those women who had three or more than three living children (coded

1 if the case, 0 otherwise)

4. **Number of Children Dead**

DEAD0 - Indicates those women who did not have any dead child. It forms the reference category.

DEAD1 - Indicates those women who had one dead child (coded 1 if the case, 0 otherwise).

DEAD2 - Indicates those women who reported that they had two children dead (coded 1 if the case, 0 otherwise).

DEAD3 - Indicates those women those women who reported that they had three or more than three children dead (1 if the case, 0 otherwise).

Socio-Economic Variables

1. **Education**

NONE - Indicates those women who have no education. It forms the reference category.

PRIED - Indicates those women who have primary education (coded 1 if the case, 0 otherwise).

SECED - Indicates those women who had secondary education (coded 1 if the case, 0 otherwise).

HIGED - Indicates those women who had more than secondary education (1 if the case, 0 otherwise).

2. **Place of Residence**

URBRES - Indicates those women who were living in the urban areas at the time of the

interview (coded 1 if the case, 0 otherwise).

RURES - Indicates those women who were living in the rural areas at the time of the interview (1 if the case, 0 otherwise).

3. Working Status

CURRNWOR - Indicates those women who reported that they were not engaged in formal employment at the time of the interview. It forms the reference category.

CURRWOR - Indicates those women who were in formal employment at the time of the interview (coded 1 if the case, otherwise).

Other Related Variables

1. Mode of Transport to Source of Contraceptives

TRANS1 - Indicates those women who walked to the source of contraceptives. It forms the reference category.

TRANS2 - Indicates those women who used some form of transport to the source of contraceptives (coded 1 if the case, 0 otherwise).

2. Hours taken to get to source of contraceptives

HRSA - Indicates those women who reported that they took less than one hour. It forms the reference category.

HRSB - Indicates those women who reported that they took one hour to get to the source of contraceptives (coded 1 if the case, 0 otherwise).

HRSC - Indicates those women who took two hours to get to source (coded 1 if the case, 0

otherwise).

HRSD - Indicates those women who took three or more hours to get to the source of contraceptives (coded 1 if the case, 0 otherwise).

3.2.5 Dummy Variables:

Suppose that the independent variable has $k > 2$ distinct values. Dummy variables must therefore be formed to represent the categories of the variables. The method for specifying dummy variables involves setting all of them equal to zero for the reference group and then setting a single dummy variable equal to 1 for each of the other groups.

The key independent variables in this analysis are work status, education, place of residence, travel time to source, mode of transport to source of getting contraceptives, age, marital status, number of living children and the number of children dead.

Education was categorized into the following: no education (NOED)- primary education (PRIED), secondary Education (SECED) and higher education (HIGED).

Work status was categorised into categories: Currently working (CURRWY) and Currently not working (CURRWN).

Two categories were defined for place of residence namely: urban (URBRES) and rural (RURES).

Travel time to source was categorized into: less than one hour (HRSA), one hour (HRSB), two hours (HRSC) and three and more hours (HRSD).

Mode of transport used by the woman to the source of contraceptives was defined into two categories namely: those who walk (TRANS1) and those who use transport (TRANS2).

One of the demographic variables included in this study was Age which was categorized into

the following seven categories i.e AGEA those belonging to age group 15-19 ; AGEB those in age group 20-24, AGE C those in age group 25-29; AGED those in age group 30-34; AGEE those in age group 35-39; AGEF those in age group 40-44 and lastly AGE G those who belonged to the age group 45-49.

Another demographic variable was marital status which was divided into six categories: those who were never married (NEVMAR), those who were married (MARR), those who were living together (LIVING), those who were widowed(WIDOW), the divorced (DIVOR), and those who were reported not to be living together (NOTLIV).

Number of living children was defined into seven categories: No living child (CHILD0), one living child (CHILD1), two living children (CHILD2), three living children (CHILD3), four living children (CHILD4), five living children (CHILD5), six living children (CHILD6) and seven living children (CHILD7).

For those children a woman reported dead at the time of interview, there were five categories namely: No child reported dead (DEAD0), one child reported dead (DEAD1), two children reported dead (DEAD2), three children reported dead (DEAD3) and finally four children reported dead (DEAD4).

3.3 Cross Tabulation Analysis:

Cross tabulation analysis was carried out to determine the association of the current contraceptive non users and categories of each of the selected variables.

These association were examined by using the column percentages of the cross tabulation tables. Differences in such percentages indicated the level of association.

To determine whether these associations were significant a chi-square test was undertaken.

The chi-square is used to measure the extent of association as well as the statistical test of hypotheses that a relationship does not exist.

The use of chi-square is to test the hypothesis that two variables of a cross tabulation are independent. Generally, two variables by definition are independent if the probability that a case falls into a given cell is simply a product of the marginal probabilities of the two categories defining a cell. The probability under independence of an observation falling into cell ij is estimated as:

$$p(\text{row } i \text{ and column } j) = \frac{(\text{count in row } i)}{N} \frac{(\text{count in column } j)}{N}$$

To obtain the expected number of observations in cell (ij) , the probability above is multiplied by the total sample size.

$$\begin{aligned} E_{ij} &= N \frac{(\text{count in row } i)}{N} \frac{(\text{count in column } j)}{N} \\ &= \frac{(\text{count in row } i) (\text{count in column } j)}{N} \end{aligned}$$

The Pearson chi-square is a statistic which is more often used to test if the row and column variables are independent. This statistic is calculated by summing over all the cells of the squared residuals by expected frequencies.

$$\sum \frac{X^2}{E_{ij}} = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \quad 1.8$$

In order for us to produce an estimate of how likely

(or unlikely) this calculated value is, if the two variables are in fact independent the calculated chi-square is compared to the critical points of the theoretical chi-square distribution.

It should be remembered that the value of the chi-square depends on the number of rows and columns in the table being examined and therefore the degrees of freedom for the table should be known. The degrees of freedom are defined as the number of cells of the tables that can be arbitrarily filled when the row and column totals (marginals) are fixed. For an $R \times C$ table, the

degrees of freedom are $(R-1) \times (C-1)$, since $(R-1)$ rows and $(C-1)$ column cells must be chosen so that the marginal totals are maintained.

In our study SPSS Computer Package has been used to calculate the observed significance level of the test. If the level of significance is small i.e less than 0.05 then the hypothesis that the variables are independent is rejected.

CHAPTER FOUR: RESPONDENTS' BACKGROUND CHARACTERISTICS, DIFFERENTIALS AND FACTORS ASSOCIATED WITH CONTRACEPTIVE NON USE

4.1 Introduction

This chapter deals with the presentation of the results of the study. The chapter is organised into three sections. The first describes the variables utilized in the analysis. Section 2 presents the analysis based on cross tabulation tables to determine the association between non-use of contraceptives and each of the independent variables. The final section of the chapter presents the results of the analysis based on the logistic regression model. In this section, the variables found to significantly explain non-use of contraceptives are presented and discussed.

4.2 Definition of Variables:

The definition of variables are presented below in Table 1 and are given in percentages.

Table 1: Definition of the Variables Used in the Analysis

The Table below shows the various percentages of the different categories of women included in the study.

Dependent Variable: Contraceptive Non-use

Independent Variables:

Demographic Variables	Percent
1. Age	
AGEA (Reference Category)	20.7
AGEB	18.2
AGEC	18.6
AGED	13.9
AGEE	12.6

	AGEF	9.6
	AGEG	6.3
2.	Marital Status	
	NEVMAR (Reference Category)	26.2
	MARR	63.0
	LIVTOG	3.5
	WIDOWED	2.8
	DIVORCED	3.1
	NOTLIV	1.4
3.	Number of Living Children	
	CHILD0 (Reference Category)	23.5
	CHILD1	12.2
	CHILD2	31.9
	CHILD3	32.4
4.	Number of Children Dead	
	DEAD0 (Reference Category)	76.4
0	DEAD1	20.0
	DEAD2	3.0
	DEAD3	0.6

Socio-Economic Variables

5.	Education	
	NOED (Reference Category)	25.4
	PRIED	54.3
	SECED	20.0
	HIGED	0.3
6.	Place of Residence	
	URBRES (Reference Category)	17.3
	RURES	82.7
7.	Working Status	
	CURRNWOR (Reference Category)	88.2
	CURRWOR	11.8

Other Related Variables

8.	Mode of Transport	
	TRANS1 (Reference Category)	65.2
	TRANS2	34.8

9. Hours taken to get to Source of Contraceptives	
HRSA (Reference Category)	60.8
HRSB	21.3
HRSC	17.9

From the Table, it can be noted that majority of the women who were not contracepting were those in the age category 15-19 (20.7 percent) followed by those in 25-29 (18.6 percent). The least percentage (6.3) was noted among the women in age group 45-49.

As for the marital status of the women who were considered for the study, the Table shows that the highest percentage was drawn from women who reported they were married with 63 percent. They are followed by those who were never married who comprised 26.2 percent. The least was noted among those who were not living together (1.4 percent).

Women who reported that they had three or more living children form the highest percentage in this category with a percentage of 32.4. They are followed closely by those who had two children (31.9 percent). Those with no child at the time of the survey had a percentage of 23.5. The least in this group of women was noted among those who had one child (12.2 percent).

The distribution of the number of children dead depicts that majority of the women were those who had lost no child with 76.4 percent. The smallest percentage (0.6 percent) is noted in the group of women who had three or more children dead.

When the level of education of the women is examined, the Table shows that majority of them are those who had primary level with 54.3 percent. They are followed by those who reported that they had no education (25.4 percent) with the least being among those who had higher education (0.3 percent).

According to the Table, those women who were living in the rural areas at the time of the

study comprised the majority with 82.7 percent while those living in the urban areas were 17.3 percent. As for the working status, majority of the women were those who reported that they were not working (88.2 percent) while those who were working comprised 11.8 percent.

When we look at the other related variables which contribute to the non-use of contraceptives, it can be noted that those who reported that they walked to the source of contraceptives were more (65.2%) than those who used some form of transport (34.8 percent).

The women who reported that they took less than one hour to the source of contraceptives were the majority in this category (60.8 percent). The least was noted among those who took two or more hours with 17.9 percent.

From the Table, it can therefore be noted that majority of the women considering the socio-economic factors were those who were living in the rural areas comprising 82.7 percent and 54.3 percent respectively. Those who were not working at that time also formed a majority of 88.2 percent. The least in this category was among the women who reported to have higher education (.3 percent)

For the demographic factors, the majority was found among those women who reported that they were married with 63 percent with the least being noted among those who were married but not living together with their spouses at the time of the interview.

4.3 Contraceptive non-use and socio-economic, demographic and programme factors.

This section examines the relationship between non-use and each of the variables which are hypothesized to influence it.

Table 4.1 The Percentage distribution of the current contraceptive non-users and users according to the wife's level of Education:

Table 4.1 shows the women's level of education and their percentages of contraceptive non use.

Education of the Woman				
Response	No Education	Primary Education	Secondary Education	Higher Education
Non Users	69.2	71.1	48.1	20.0
Users	30.8	28.9	51.9	80.0

Significance .0000

Education is hypothesized to be negatively related to non-use of contraceptives in this study. A number of reasons have been advanced to explain this relationship. Education is said to bring a new set of values, new aspirations and a new outlook on life as well as skills to take advantage of new opportunities. When applied to contraception, this would imply that more educated people are therefore less likely not to use contraceptives. The data summarized in Table 4.1 appears to support this assertion. As shown in this Table, the proportion not using contraceptives increases with the increase in the levels of education. Non-users among those with no education decreases from slightly less than seventy percent to about twenty percent among those with higher than secondary education.

According to Ocholla Ayayo (1991), increasing education enables more women to participate in paid economic activities. This means that such women have less time for child care. The relative cost of child rearing then rises. There is also a corresponding higher desire to educate children, and thus their entry into the labour force is delayed. Furthermore, education may raise aspirations for material goods, and decrease the relative desire for children. Education exerts a much stronger influence on sexual behaviour than does traditional sex taboos and urbanisation. The study referred to above also found that preference for a one to two year birth interval is almost twice as high among wives with secondary education as among wives with no education. The results could therefore be construed to bear corroborate the aforementioned study.

It is also easier to communicate to educated people about a new technology and innovations in general. Educated people will in most cases not enter into early marriages because of their desire to complete studies, thus they will look into ways of preventing unwanted pregnancies. As educated

people will tend to adopt family planning methods they constitute the least percentages of contraceptive non-users.

Uneducated people are also assumed to be agriculturists, who due to demand for child labour, will not be inclined to limit their family sizes. This is because in an agricultural peasant society, children are an asset used for domestic assistance and farm work.

Table 4.2 The Percentage distribution of the current contraceptive non-users according to wife's current place of residence.

Place of Residence

Response	Urban	Rural
Non Users	54.6	62.3
Users	45.4	37.7

Significance .0000

Place of residence is also hypothesized to be negatively related to contraceptive non-use. As shown in Table 4.2 the proportion of contraceptive non-users is higher in rural areas compared to urban areas. The proportion of non-users in the rural areas is 61 percent compared to about 55 percent in the urban areas.

Urban life is also more supportive or permissive of non-traditional behaviours than the rural areas (Ikamari,1986:77)

As has been pointed out by other researchers like Ocholla Ayayo (1991:157) notes that family planning services have not been properly co-ordinated to reach majority of the population and the programme has not fully penetrated to the rural areas where there are far too few clinics to cater for the whole population. Even where the clinics are available they lack contraceptives, and are unable to effectively disseminate information for potential contraceptors. In the rural areas where medical information on possible side effects is not readily available, one case of negative side effects is enough to deter users and acceptors from visiting the clinic any more.

Table 4.3 The Percentage distribution of the current non-users according to the wife's current working status:

Respondent currently Working

Response	No	Yes
Non User	63.9	39.1
User	36.1	60.9

Significance .0000

Employment appears to influence contraceptive non-use. Women who are employed are less likely to be contraceptive non-users than their unemployed counterparts. This is attributable to the fact that the employed have greater access to contraceptive services than the unemployed exposed women as they can easily obtain them from private or public clinics. This may also be due to the need among the employed to have fewer children whom they can feed well, clothe, educate and for whom they can provide with other basic needs of life. The time demanded by the occupation may also necessitate that the women have fewer children to take care of and hence the high contraceptive prevalence rate.

The results of this study presented in Table 4.3 seem to support this assertion. The proportion not using contraception among women who are employed is about 40 percent compared to 64 percent for those who were indicated not to be working.

Table 4.4 The Percentage distribution of the current non-users according to the wife's current age.

Age group (in years)

	15-19	20-24	25-29	30-34	35-39	40-45	45+
Non Users	86.0	59.9	52.7	49.7	49.9	55.6	61.2
Users	14.0	40.1	47.3	50.3	50.1	44.4	38.8

Significance: .0000

According to this Table, the proportion of non-users is highest among young and the old women and lowest for women in the lowest age group. As shown in this Table non-users consisted 86 percent for women in age group 15-19 while about 61 percent among women aged 45 years and over were non-users. Women aged 25-29 was about 53 percent as shown in the Table. AS further shown in the table the proportion of non-use decreases sharply for women in the age group 30-39 years.

Table 4.5 Percentage distribution of current non-users and users according to the wife's current marital status.

Percent of Contraceptive non use according to marital status of women at the time of the survey is reported in Table 4.5.

		Current Marital Status				
Response	Nev.Mar	Marr.	Liv.Tog	Widow	Divor	N.Liv.Tog
Non Users	77.0	45.9	54.8	53.8	50.5	63.6
Users	23.0	54.1	45.2	46.2	49.5	36.4

Significance: .0000

The Table indicates that the highest proportion of non-users is for women who were reported not to have married followed by those who were not living together with their husbands. As expected, non-use is shown to be lowest for married women.

There is a noted low percentage of non-users of contraceptives among the widowed and the divorcees. The explanation for this could be that the two categories would not want to have any more children. Presumably the social implications of getting children when one is a widow or a divorcee are so negative that such women may opt to use contraceptives.

Table 4.6 Percentage distribution of current non-users and users according to the wife's current number of living children.

Table 4.6 reports the proportions of non contracepting women by number living children.

		Number of Living Children			
Response	0	1	2-4	5+	
Non Users	86.1	60.9	52.8	50.8	
Users	13.9	39.1	47.2	49.2	

Significance .0000

The Table shows that the proportion of non-users is highest for those women who did not have any living children and increases with the increase in the number of living children. As shown in the Table about 80 percent of women who did not have a living child were non-users compared to about 57 percent for those with five or more living children.

Table 4.7 Percentage distribution of Contraceptive non-users and users according to the number of children dead.

Table 4.7 shows the number of children reported dead by the proportion of non contracepting women.

		Number of Children Dead			
Response	0	1	2-4	5+	
No. of cases	3214	543	222	91	
Non User	60.9	86.1	52.8	50.8	
User	39.1	13.9	47.2	49.2	

Significance .0000

The Table suggests that the highest percentage of contraceptive non-users are for those women who had one child dead. The explanation for this could be because these are women who want to replace their dead children and therefore do not use contraceptives. It is interesting to note

that low percentages are reported for women who have lost between two and four children and again for those mothers who have lost more than five children. There are plausible explanations for this anomaly, the widely held belief being that those women who have lost children are the ones who constitute the high percentage of contraceptive non-users. It is argued that child mortality creates the desire to replace a child or to insure against future child mortality. Other explanations ensue.

First, it was worth noting from the frequencies that the sample of women who had lost three and four children was very small when compared to the other women who reported having lost none, and one child respectively. It is therefore assumed that this might not have been a proper representation of the women in this category and most of the ones interviewed might have been those who were using contraceptives.

Second, it is also assumed that these women might be having other many living children. It is therefore in order to find that they are less of contraceptive non-users because they already have their desired family sizes.

Third, it is agonizing for a woman to lose a large number of children through death. It is common in some African cultures to associate many child deaths with a curse. It can therefore be assumed that these women have decided not to bear more children who might also die, an explanation which implies these low percentages of contraceptive non-users.

A low percentage of contraceptive non-users is noted among those women who reported that they had not lost any child through death. The explanation for this could possibly be that these women, as mentioned earlier, have attained the desired number of children. Having not lost any child, they would also want to space their births by not being contraceptive non-users.

Table 4.8 Percentage distribution contraceptive non-users according to the mode of transport to the source of contraceptives.

Table 4.8 reports the modes of transportation a woman reported using to her source of contraceptives and percentages of contraceptive non use.

Response	Method of Transport	
	Walk	Transport
No. of cases	1921	858
Non User	51.0	61.0
User	49.0	39.0

Significance: .0000

It is noted from the Table that the proportion of non-users was higher for those who used transport to the source contraceptives supplies (61 percent) as compared to those who walked to the source (51 percent). An explanation for this could be that the source of contraceptives for those women who used transport is not near and that is why they have to use it. It is expensive in monetary terms of money to use a means of transport, a fact which might itself discourage some potential users to opt not to use.

On the other hand, it can be noted from the Table that those who walk comprise about one third of the non-users. This might be because the source is near hence their walking. Proximity to a source of service has been noted to have critical effect on the probability that a potential client will not actually contracept. This finding therefore corroborates Dow's study (1981) carried out among Kenyan rural women, which found that women who said they were near to a source of contraceptive services were significantly more likely to be less of contraceptive non-users than the women who lacked the access.

Poor transportation system has occasionally acted as a barrier to communication. Therefore there should be an excellent mode of transportation system for family planning to be accessible to all people, especially the poor who cannot afford to foot the travel expenses.

Table 4.9 Percentage distribution of Contraceptive non-users according to the number of hours women travel to the source of contraceptives.

Table 4.9 shows the travel time to the nearest source of contraceptives as reported by non-contraconceiving women.

	Hours to get to Source		
	< 1	2	3+
Non Users	47.9	58.2	66.2
Users	52.1	41.8	33.8

Significance .0000

The Table shows that the proportion of non-use is highest for women who took three hours or more to get to the source of contraceptives followed by the women who took two hours.

The explanations for these findings include the fact that the time taken to the source discourages many women from becoming users of modern contraceptives. There arises the issue of costs in terms of time, energy spent and money. Where women have to spend so much time before they get to the service delivery point (SDP), potential users among them might opt to become non users and utilise this travel time in attending to other matters.

Women who reported taking one hour or less constitute the least percentage of contraceptive non-users. This confirms Mungai's (1986) finding based on the Kenya Contraceptive Prevalence Survey of 1984 that those women who report the longest travelling time to source are the least likely to use these sources of family planning.

4.4 Logistic Regression Results:

In this sub-section, the results of the logistic regression is the other method of analysis used in this study are presented. The main objective of the analysis undertaken is to determine the variables which have a significant effect on non-use of contraceptives. In order to determine such variables, the logistic models were developed using the stepwise procedure. In this approach, the variables were included in the regression models on the basis of their level of significance. Thus LIVTOG, those women who reported to be living together with their husbands was the most

significant variable and was therefore the first variable to be included in the model. The other models were similarly developed as shown in Table 4.10.

The interpretation of the results are based on the final model presented in Table 4.10. This model includes all the variables which were found to be significantly related to non-use of contraceptives at 5 percent level of significance. For each of the variables, the coefficients and their level of significance are presented. In addition, the overall significance of the model is given. The SPSS computer programme was used to write logistic regression programmes which were run on the computer many times, each time adjustment being made to the variables.

The Table below gives the coefficients of regression as they were after each variable was added into the stepwise logistic regression.

Table 4.10: Logistic Regression Estimates on the Determinants of Contraceptive Non-Use (NUSED) and the selected independent Variables.

VARIABLE	Equations														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
MARRIED B Significance EXP(B)	-0.7593 (0.000) 0.4680	-0.8363 (0.000) 0.4333	-0.9079 (0.000) 0.4034	-0.7289 (0.000) 0.4824	-0.3020 (0.000) 0.7394	-0.0946 (.1655) 0.9097									
CURRWR B Significance EXP(B)		-1.1299 (0.000) 0.3230	-.9584 (0.000) 0.3835	-0.9776 (0.000) 0.3762	-0.9399 (0.000) 0.3934	-0.8842 (0.000) 0.4130	-0.8386 (0.000) 0.4323	-0.8446 (0.000) 0.4297	-0.8023 (0.000) 0.4483	-.7425 (0.000) .4759	-0.7245 (0.000) 0.4846	-.7376 (0.000) .4783	-.7333 (0.000) .4803	-.7304 (0.000) .4817	
SECED B Significance EXP(B)			-0.6447 (0.000) 0.5248	-0.8167 (0.000) 0.4419	-0.9329 (0.000) 0.3907	-0.9818 (0.000) 0.3747	-1.5556 (0.000) 0.2111	-1.5223 (0.000) 0.2182	-1.5653 (0.000) 0.2090	-1.5186 (0.000) 0.2190	-1.5321 (0.000) 0.2161	-1.5094 (0.000) 0.2209	-1.4856 (0.000) 0.2264	-1.4852 (0.000) 0.2265	
CHILD3 B Significance EXP(B)				-0.6504 (0.000) 0.5218	-1.1074 (0.000) 0.2498	-2.1008 (0.000) 0.1224	-2.3959 (0.000) 0.0911	-2.3643 (0.000) 0.0940	-2.3842 (0.000) 0.0922	-2.4143 (0.000) 0.0894	-2.4175 (0.000) 0.0891	-2.4394 (0.000) 0.0872	-2.4529 (0.000) 0.0860	-2.4655 (0.000) 0.0850	
CHILD2 B Significance EXP(B)					-1.3871 (0.000) 0.3304	-1.8038 (0.000) 0.1647	-1.9670 (0.000) 0.1399	-1.9665 (0.000) 0.1399	-1.9703 (0.000) 0.1394	-1.9803 (0.000) 0.1380	-1.9686 (0.000) 0.1396	-1.9790 (0.000) 0.1382	-1.9863 (0.000) 0.1372	-2.0035 (0.000) 0.1349	
CHILD1 B Significance EXP(B)						-1.3859 (0.000) 0.2501	-1.4340 (0.000) 0.2383	-1.4478 (0.000) 0.2351	-1.4483 (0.000) 0.2350	-1.4476 (0.000) 0.2351	-1.4312 (0.000) 0.2390	-1.4349 (0.000) 0.2381	-1.4369 (0.000) 0.2377	-1.4440 (0.000) 0.2360	
PRIED B Significance EXP(B)							0.7459 (0.000) 0.4743	0.7239 (0.000) 0.4849	0.7548 (0.000) 0.4701	0.7466 (0.000) 0.4740	0.7492 (0.000) 0.4728	0.7326 (0.000) 0.4807	0.7124 (0.000) 0.4905	0.7123 (0.000) 0.4905	

TRANS2 B Significance EXP(B)								0.4669 (0.000) 0.6270	0.4612 (0.000) 0.6305	0.4945 (0.000) 0.6099	0.4885 (0.000) 0.6135	0.4915 (0.000) 0.6117	0.4864 (0.000) 0.6149	0.4874 (0.000) 0.6142
HIGED B Significance EXP(B)									-2.5179 (0.000) 0.0806	-2.3840 (0.000) 0.0922	-2.4187 (0.000) 0.0890	-2.3868 (0.000) 0.0919	-2.3694 (0.000) 0.0940	-2.3766 (0.000) 0.0929
RURAL B Significance EXP(B)										0.2784 (0.003) 1.3211	0.2721 (0.000) 1.3127	0.2781 (0.004) 1.3206	0.2741 (0.004) 1.3154	0.2739 (0.004) 1.3151
DIVORCED B Significance EXP(B)											-0.5176 (0.000) 0.5960	-0.5012 (0.000) 0.6058	-0.4943 (0.000) 0.6100	-0.4791 (0.000) 0.6194
WIDOWED B Significance EXP(B)												0.5228 (0.000) 1.6867	0.4910 (0.000) 1.6340	0.5087 (0.000) 1.6632
DEAD2 B Significance EXP(B)													0.4102 (0.00611. 5071	0.4012 (0.0074 1.4936
LIVING B Significance EXP(B)														-0.3693 (0.0113 1.4467
CONSTANT	0.9408	1.1287	1.2861	1.4292	1.7995	2.3340	2.9454	3.0372	3.0714	2.8427	2.8603	2.8401	2.8190	2.8161

Table 4.10 shows equations as they were introduced in the regression and these were the variables that were significant. The figures in the parentheses stand for the significance level of the variables listed above. Living in the rural areas, having two children dead and being a widow remain the most significant variables throughout the whole equation and their effect is reflected after every additional variable is included.

4.5 Discussion of the Results

4.5.1 Education:

There was a positive relationship between those women with primary education and contraceptive non use. The correlation coefficient due to this variable is 0.7459. This implies that an increase in the number of women with primary education would lead to an increase in the number of contraceptive non-users. Primary education when added into the stepwise regression increases the odds of being a non user of contraceptives by 0.4943. It continues increasing the odds of one being a non user of contraceptives in every other step when other variables are added into the equation. However, secondary and higher education were found to be negatively related to contraceptive non-use. The correlation coefficient of higher education when added into the equation is -2.5179 which indicates a strong relationship between this variable and non-use of contraceptives. Higher education remains the variable which reduced the odds of being a non contraceptive by the lowest factor of 0.0929 which indicates that this is the category of women with the least impact on contraceptive non use. These results confirm the hypothesis which states that the lower the level of education, the higher the rates of contraceptive non use.

The explanation for this finding could be derived from the fact that the women with primary education are not educated on the importance of modern methods of family planning. A rumour on

the disadvantages of the same and prejudices pertaining to the perceived side effects could also be a major contribution to these results.

These findings confirm findings of an earlier study by Ojaka (1986) who found that a decrease in the number of years spent in school could increase the level of contraceptive non-use. The KDHS of 1989 and KCPS of 1983-84 found that the percentage of women not using modern contraceptives decreases with the increase in the woman's level of education.

4.5.2 Place of Residence

The woman's region of residence was found to be positively related to contraceptive non use in cases where the woman was reported to be living in the rural areas at the time of the interview. The coefficient of regression was 0.2784 when this variable is added into the stepwise regression. This implies that a woman living in the rural areas increased the odds of her being a non user of contraceptives by 1.3211 when the variable is introduced in the equation and continues being significantly influential in increasing the odds of one not using contraceptives. This variable remains significantly strong throughout the equation and in the final model, it increases the odds of one being a non-user of contraceptives by a factor of 1.3151.

Similar results were found by Ikamari (1985), Onsongo (1990), Ojaka (1986) who found that the wife's place of residence was a major determinant of non use of contraceptives and that those who were living in the rural areas were positively related to contraceptive non use.

This study concludes that this could be because as is the widely held view, most women in the rural areas are illiterate and hence less informed on the importance of modern contraceptives. They attach a lot of value in large families as a source of prestige and power. Being mainly agricultural in their source of livelihood, they are more likely to be non users of contraceptives and

have many children who will eventually be a source of labour in the farms.

Child marriages could be said to be more common in the rural areas. These are young women married to old men who attach a lot of value in the number of children they have and they can not comprehend the idea of family planning even if their young wives would wish to.

It can also be noted that cultural beliefs are strongly appreciated in the rural areas and to the authors view, these traditional values tend to discern a lot of new values and more so family planning. This can therefore be considered to be contributing highly to these results.

4.5.3 Working Status:

There exists a negative relationship between those women who reported that they were currently working and contraceptive non use. When fitted into the regression model, a high coefficient of regression of -1.1299 is noted. The odds of being a contraceptive non user if one is currently working are reduced as more variables are introduced into the regression model and in the final equation, the factor is at a low of 0.4817. The coefficient of regression also goes on decreasing as more variables are added into the equation.

The explanation for this finding is that most women who are currently working would constitute a low percentage of contraceptive non users to prevent pregnancies which would interfere with their careers. These are also women who are presumably educated and have the information of the benefits of the use of modern contraceptives unlike their counterparts who are not working.

4.5.4 Mode of Transport to Source of Contraceptives

A positive relationship was found to exist between those women who reported that they use transport to get to the source of contraceptive and non use of the same. When fitted into the

regression model, a coefficient of regression of 0.4669 is obtained. The odds of one being a non contraceptive if they are using some form of transport to the service delivery point keeps on fluctuating between 0.6270 and 0.6142 when other variables are added into the regression model. These results show that the more there are women using some form of transport to the source of obtaining contraceptives, the more they are likely not to be using contraceptives.

Mungai (1986) found similar results that those women who reported to use transport to source are the least likely to use these sources for family planning services. It is expensive in terms of money where one has to use either private or public transport to get to a service delivery point.

Similar findings are not confined to Kenya only and other scholars have had related findings. In a study carried out in Guatemala, Chen et al., (1983) found out that other factors held constant, accessibility to contraceptives has a strong effect on contraceptive non use.

4.5.5 Number of Living Children

A negative relationship was found to exist between those women who reported that they had one, two and three living children and contraceptive non use. The regression coefficient due to these variables are -1.3859, -1.3871 and -0.6504 respectively. This implies that an increase in the number of children a woman reported that they were living, the less likely she would be a contraceptive non user. Where a woman reported that she had three living children, this reduced the odds of her being a contraceptive non user by a factor of 0.5218 and in the final equation, the odds were reduced by a factor of 0.0850 as compared to those who reported that they had two living children which reduced the odds of one being a non contraceptive by 0.3304. The odds of being a contraceptive non user are reduced with subsequent variables being added into the regression.

These results confirm the hypothesis which states that family size is negatively related to

contraceptive use. Women with few or no living children are more likely to be contraceptive non users than those with many living children.

4.5.6 Marital Status:

A negative relation exists between those women who reported that they were married, those who were living/cohabiting together with male partners and those who were divorced and contraceptive non use. The coefficient of regression for those who were married was -0.7593. The odds of being a contraceptive non user for those who reported married reduces as other variables are fitted into the equation. It however ceases to be significant when the primary education variable is included in the equation. For those who reported to be living together and the divorced, the odds of being a non user of contraceptives are significantly high with an increase of a factor of 1.4467 and 0.6194 respectively when the last variable is fitted into the equation.

There exists a positive relation between those women who reported that they were widowed with a regression coefficient of 0.5228. It remains the most important predictor of contraceptive non use. It significantly increases the odds of one being a non contraceptive by a high factor of 1.6867. The explanation for these findings is that most widows may not be sexually active after they have lost their husbands and so constitute a great majority of non users. They could also be in their menopause after losing their husbands in old age.

4.5.7 Number of Children Dead

A positive relation between those women who reported that they had two children dead and contraceptive non use was found to obtain. When this variable is fitted in the regression model, a coefficient of regression of 0.4102 is obtained.

The odds of being a non user of contraceptives when one has lost two children through death is increased by a factor of 1.5071. It is consistently significant and it remains so even in the final equation with the odds of being a non contraceptive are increased by a factor of 1.4936. It is among one of the most significant predictors of contraceptive non use.

The explanation for these results can be obtained from the fact that if a woman has lost two children and is still in the child bearing brackets, she would wish to replace the dead. This therefore means that she will not be using any form of contraceptives.

The equation that was finally obtained from the logistic regression is as shown below:

$$\begin{aligned} \text{Probability of Contraceptive non-use} = & 2.861 + 0.3693(\text{LIVING}) + 0.5087(\text{WIDOWED}) - \\ & 0.4791(\text{DIVORCED}) + 0.2739(\text{RURAL}) + 0.7123(\text{PRIED}) - 1.4852(\text{SECED}) - \\ & 2.3766(\text{HIGED}) - 0.7304(\text{CURRWOR}) - 1.4440(\text{CHILD1}) - 2.0035(\text{CHILD2}) - \\ & 2.4655(\text{CHILD3}) + 0.4012(\text{DEAD2}) + 0.4874(\text{TRANS2}). \end{aligned}$$

From the above equation, it is evident that those women who reported that they were living together with their spouses, women who were living in the rural areas, those with primary level of education, women with primary level of education, those with two children dead and those using some form of transport to the source of contraceptives are positively related to the non-use of contraceptives. This means that an increase of women in any of these categories will lead to an increase in the number of non-users of contraceptives.

It can also be noted that divorce and the achievement of education help to reduce the non-use of contraceptives. As has been noted in this study, education has an impact on the non-use of contraceptives from being positively related to the dependent variable for those with primary education to being negatively related to those with secondary and higher levels of education.

The number of children a woman reported to be having and who were living at the time of the study were found to be strongly significant to the non-use of contraceptives. Those with one, two and three living children are negatively related to the non-use of contraceptives which indicates that an increase in the number of children a woman has would lead to a decrease in the number of women not using contraceptives.

Working status of the woman is negatively related to the non-use of contraceptives (-.7304) for those who reported that they were working at the time of the survey. Those who were not working do not appear to be significant in the final regression equation.

There exists a strong positive relation between those women who had two children dead (.4012) and those who reported that they used some form of transport to the source of contraceptives (.4874). This indicates that an increase in the number of women in these two categories will lead to an increase in the number of non-contraceptors.

This chapter has presented the results of the determinants of contraceptive non-use using both cross tabulations and logistic regression. It was clear from the results that demographic factors have more influence on non-use of contraceptives when compared to the socio-economic ones. Living in the rural areas, being a widower, having two children dead and those women who reported that they had primary level of education have been found to be strongly related to non-use of contraceptives. The final model has indicated that the variables fitted in it are significant.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary and Conclusion

The main objective of this study was to determine by testing several hypotheses the socio-economic and demographic factors that influence contraceptive non-use using data from the Kenya Demographic and Health Survey (1989). In order to achieve this objective, a theoretical framework was developed and applied to determine the variables which should be included in the analysis as discussed in chapter four. The analysis was undertaken at two levels. The first was, the relationship between each of the independent variables and the dependent variable was undertaken. This was achieved using the cross tabulation tables. The important variables influencing contraceptive non-use was undertaken at the second level of analysis using the logistic regression. In this chapter, the main findings of the study are reviewed. These findings are in turn used to discuss the main conclusions which can be drawn from these findings. These are presented in section 5.2 below Section 5.3 discusses the recommendations arising from the findings as well as their policy implications.

5.2 Summary of the Findings and Conclusions

The various determinants which were taken into account were the socio-economic and demographic variables. Under the socio-economic variable different categories of the same were considered, these being, Education, place of residence and working status, travel time to source and mode of transport used to get to the source. For Demographic variables, there was Age, children dead, number of living children and Marital status.

The findings discussed in this section are based on the results of the cross tabulation and logistic regression methods of data analysis which were used to test the hypotheses of the study. The results showed that there are wide variations in contraceptive non-use by socio-economic and demographic factors.

Eight hypothesis derived from the literature review and the theoretical framework were tested as discussed in chapter four. The first hypothesis was that there is a negative relationship between the wife's working status and contraceptive non-use. According to this hypothesis, those women who are not currently working are expected to be more likely to be contraceptive non-users than their working counterparts. The results of the cross tabulation and logistic regression analysis confirmed this hypothesis. As shown from the cross tabulation table, the percentage of the current contraceptive non-users and those women who were reported not to be currently working was about 64 percent compared with about 39 percent for those who were reported to be working. This finding was supported further by the results from the regression analysis. The odds of one being a non user of contraceptives are reduced significantly when the variable of currently working was fitted into the regression model.

Another hypothesis of the study was that the probability of one being a non-user of contraceptives by living in the rural areas is significantly higher as opposed to their urban counterparts. The hypothesis was confirmed. According to the results of the cross tabulation the percentage of women living in the rural areas was 63 percent which was significantly higher than for those in the urban areas which was about 55 percent. These results confirmed the hypothesis that the type of residence has an impact on contraceptive non-use with those women living in the rural areas having a higher level of non-use. This finding was further confirmed by the logistic regression. According to these results, living in the rural areas was one of the significant variables explaining

non-use of contraceptives.

The findings of the study supported the hypothesis that the higher the level of the woman's educational attainment, the lower the level of contraceptive non-use. The cross tabulation of non-use by education showed that those women who reported to have primary education had the highest percentage of non-use (71 percent) followed by those with no education with 69 percent. These were followed by those with secondary education with a percentage of 48 and the lowest was among those reporting to have higher education with a reading of 20 percent. The regression results also showed that education was a significant variable in determining non use of contraceptives.

The regression results showed that travel time taken to the service delivery point was not a significant predictor of contraceptive non use. Thus the hypothesis that travel time to the nearest source of contraceptives is positively related to contraceptive non use was not confirmed as shown in the cross tabulations. Those women who reported that they travelled for three hours to the source had the highest percentage of non users while those women who reported that they took less than one hour had the lowest.

The hypothesis on the relationship between contraceptive non-use and age was also rejected. According to the regression results, age was not one of the significant variables. The cross tabulation results however showed that those women in the age bracket 15-19 had the highest percentages of non-use. The percentages decline markedly for those women in ages 30-34 and 35-39 to 6.4 percent and 8.7 percent respectively. The percentages rise again for those women in ages 40-44 and 45-49 with percentages of 10.3 and 11.4 respectively.

According to the cross tabulation results presented, contraceptive non-use is highest for those women who were never married with a percentage of 56 percent followed by those who were not living together with a percentage of 33 percent. The widowed and the divorced were 3.7 percent and

3.0 percent respectively. The lowest rates of non-use were among those reporting to be living together and the married with percentages of 2.3 and 1.5 respectively. Thus the above findings confirm the hypothesis that the unmarried status varies directly with contraceptive non-use. The regression results showed that the widowed women and those women who reported that they were living together with male partners to be highly significant in relation to contraceptive non use.

The hypothesis that family size is negatively related to contraceptive non use was confirmed from the cross tabulation and regression results. Women who reported that they had more than two children were found to be less likely to be contraceptive non users.

The results of the cross tabulation seem to contradict the stipulated hypothesis that there is a positive relationship between the experience of child mortality and contraceptive non use. Women who have lost many children through death were found to be more likely to be non users of modern contraceptives than their counterparts who had not lost any child through death. The percentage of the non users among those women who reported that they had lost three and four children was 5.4 and 13.1 respectively.

The results of the regression model showed that there exists a positive relationship between those women who reported that they used transport to the service delivery points and contraceptive non use. This finding was found to be consistent with the findings of the cross tabulation.

From the findings of this study, it can be concluded that being widowed and living in the rural areas are major determinants of contraceptive non use. Demographic factors were also found to be more influential in determining contraceptive non use when compared to the socio-economic ones.

5.3 Policy Recommendations

One of the objectives of this study was to make recommendations on how to improve contraceptive use level in Kenya. It is expected that the Kenya Government would use the findings of the study to review, modify and improve its family planning strategies and programmes. This objective has been achieved and as such the study is useful as a tool for policy review. Several policy recommendations emanating from the study results are discussed below.

1) Service Delivery Points: There should be introduction of new ones and extension of the existing ones. These will ease the constraints relating to the supply of contraceptives. It was found in the study that those regions which are less developed and with few delivery points have high levels of contraceptive non-use. With the extension of the same, the motivation to use them will also be high. Travel time to the source was in this study identified as having strong influence in non use of contraceptives and more specifically for those women who reported that they took more than three hours to the service delivery point. Arising from this finding, it is recommended that of more SDP's be established to reduce the high rates of contraceptive non use.

Community based distribution approach might alleviate this problem, but opening up the rural areas is the only long term solution so that the couples can get to their preferred sources within a time that does not depress their motivation to use family planning sources.

2) Education: This should be extended to all women of all ages. This comes in as a recommendation because it was found out that education is inversely related to contraceptive non-use with those women in lower levels of education having high levels of non-use.

3) Population Education: It should be given to all irrespective of their gender status guiding them on the advantages of contraceptive use. The side effects of each method should also be well communicated so that potential users are not discouraged by rumours.

There is need for a more concerted effort on information, education and communication so that those in need of family planning supplies and services can perceive them to be available as well as accessible.

4) As the study found that the unmarried had the highest levels of non-use, efforts should be directed to this group so that they may be motivated to use contraceptives.

Successful family planning is a long term process which requires fundamental changes in attitude and behaviour. It requires that high quality services be provided with care and sensitivity. It also requires that the quality of services be evaluated and that cultural factors be considered in programme development.

5.4 Further Research

A similar study on the determinants of contraceptive non-use should be carried out so as to compare the results. This could be done using any other recent data other than the Kenya Demographic and Health Survey of 1989.

It is also a recommendation of the study that a study on the other determinants of contraceptive non-use be carried out. These could include the socio-cultural characteristics of non-users of contraceptives.

Lastly, an indepth study should also be done on reasons leading women to discontinue the use of contraceptives.

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