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UTILIZATION OF MATERNAL HEALTH SERVICES
AMONG WOMEN FROM POOR AND NON-POOR
HOUSEHOLDS IN KENYA

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**A PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE AWARD OF MASTER OF
SCIENCE DEGREE IN POPULATION STUDIES
UNIVERSITY OF NAIROBI**

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DECLARATION

I hereby declare that this project is my original work and has not been submitted for a degree in any other university.

Signed: _____ Date: 1

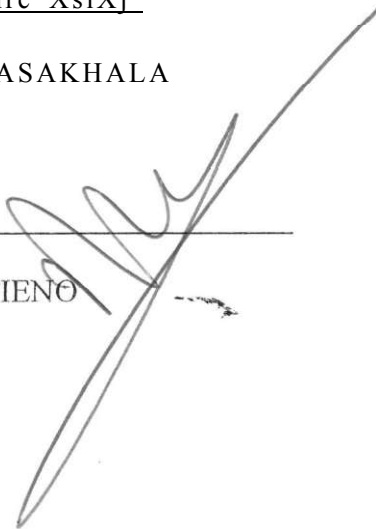
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ABSTRACT

Improvement in maternal health is one of the Millennium Development Goals (MDG) with a specific target of reducing by three-quarters between 1990 and 2015, the maternal mortality ratio. Although there has been an overall improvement in maternal health over the years, this has not benefited the entire population equally with studies showing that very low proportions of women from lower wealth quintiles attend antenatal clinics or are delivered under the care of health professionals.

The objective of this study was to examine the patterns and determinants of utilization of maternal health care in Kenya among women from poor and non-poor households using data drawn from the Kenya Demographic and Health Survey of 2003 (KDHS), which was a national representative survey. The study focused on births that took place during the three years prior to the date of the survey and the women were categorized as either poor or non-poor.

A composite index was derived to categorize utilization of maternal health services as either adequate or not adequate. The study made use of simple percentages to show the distribution of the respondents by the selected background variables and bivariate analysis to show the association: between the dependent variables and the independent variable. Logistic regression was used to show the effect of the various factors on adequate utilization of health services for women from poor and non poor households.

The study established that, whereas poverty is a factor in determining whether a woman will utilize maternal health services adequately, there are still a number of women from non-poor households who do not utilize maternal health services adequately. Education was found to be a significant factor in determining whether a woman will adequately utilize maternal health services whether they were poor or non-poor. Education however had a higher positive effect for women from non-poor households compared to those from poor households.

Region of residence had an effect in the chance that a woman adequately utilized maternal health services whether they were from poor or non-poor households. Urban residence increased the likelihood of adequate utilization of maternal health services but it had a higher positive effect for women from non-poor households relative to their counterparts from poor households.

The order of birth was an important determinant for the adequate utilization of maternal health services for women both from poor and non-poor households. Higher order births decreased the likelihood of using the services adequately.

While the current working status of a woman did not show any significant effect on adequate utilization for women from poor households, a woman's current working status had significant positive effect on adequate utilization of maternal health services for those from non-poor households.

Whereas the study did not establish a significant relationship between age, marital status and autonomy in decision making on matters to do with the health of the women, with adequate utilization of maternal health services among women from poor households; there was a weak relationship between the dependent variable and autonomy in decision making on matters to do with the health of the women for those from non-poor households.

The results of this study are consistent with earlier studies on determinants of utilization of maternal health care. The effects of various factors however, have varied impacts on adequate utilization of maternal health services for women from poor and non-poor households. It is therefore recommended that there should be specific interventions targeting women from poor households to encourage them to use all the components of maternal health care, that is, early timing of antenatal care, at least four visits and delivery under the care of a health professional. At the same time, all women should be sensitized on the importance of adequate utilization of maternal health services, preferably through media, to minimize effects of obstetric complications and reduce maternal mortality.

CHAPTER ONE: GENERAL INTRODUCTION

1.1 Introduction

Complications related to pregnancy and childbirth are among the leading causes of mortality among women of reproductive age in many parts of the developing world. It has been estimated that between a quarter to a third of deaths of women of reproductive age in developing world are due to maternal causes (Graham and Murray, 1997). For each maternal death, there are, in addition, several cases of maternal morbidity (WHO, 1994). An estimated 88 percent to 98 percent of these deaths are preventable with modest levels of health care.

The low socio-economic status of women has a negative impact on safe motherhood through poor health and nutritional status before, during and after pregnancy; limited knowledge and awareness of health; lack of decision making power and lack of resources for seeking health care; weak negotiating power in terms of sexual and reproductive rights; heavy physical workload regardless of pregnancy status; and exposure to injury through violence (Graham and Murray, 1997). Collective resources and wealth of a local community are also important dimensions of socio-economic status that are likely to have an influence on health of community members (McCarthy and Maine, 1992).

Over the past few decades, countries have experienced socio-economic, political and demographic changes that have had a marked impact on the health and quality of life of women and their children. Many of these changes have exacerbated already existing inequalities between different social groups within the countries, specifically women from poor households (McCulloch A., 2003). Kenya is one of the countries where women from poor households still face the challenges of accessing health services. Social consequences of the distribution of the costs and benefits of socio-economic development are a matter of concern. An equitable distribution of income and wealth among individuals and households in a given country is being recognized as central to that country's social and economic welfare goals. Also, good health is considered a pre-requisite to the socio-economic development of any country, since a healthy population is capable of participating in economic, social and political development.

Health problems associated with pregnancy not only affect the health and quality of life of the mother, but also of the newborn, the family, and the wider community, as they are an important cause of maternal and child morbidity and mortality. Indeed, improvement in maternal health and reduction in child mortality are some of the Millennium Development Goals (MDG). Specifically, Goal 4 states that countries shall reduce by two-thirds, between 1990 and 2015, the under-five mortality rate and Goal 5 states that states shall improve maternal health with the target being to reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio. Some of the key indicators for these targets are: maternal mortality ratio; proportion of births attended by skilled health personnel; and antenatal care coverage (at least one visit and at least four visits). If Kenya is to achieve these goals, then there is a need to employ specific policies that target women from poor households in order to bridge the gap in the utilization of maternal health services between the poor and non-poor (about 20 per cent of women in the lowest wealth quintile did not receive antenatal care), thus the need to understand the determinants of utilization of maternal health services by this group.

Although there has been an overall improvement in maternal health over the years, this has not benefited the entire population equally. High income groups, because of their relatively higher income and relatively lower fertility, can afford to purchase high quality (private) services. Poorer women, who are also likely to have low education, are less likely to seek appropriate medical care during pregnancy and at delivery and not understand and practice behaviours conducive to good health throughout their lives. Inequality in health could be a result of voluntary decisions or as a result of constraints that limit individual choices (including lack of knowledge and motivation). The relative costs of travel may well be greater for the poor, and women with children and domestic responsibilities may find their daily routines largely confined to local neighborhoods (McCulloch 2003; Panel on Urban Population Dynamics 2003).

1.2 Problem Statement

Analysis of trends in maternal mortality related indicators, such as antenatal care coverage, delivery in health facilities, and medical assistance at delivery, by wealth status shows that the uptake of these services has remained low for women in the lower wealth quintiles; 20 percent of the women in the lowest quintile did not receive any antenatal care during their latest birth prior to the KDHS 2003, while 4.2 percent received care from Traditional Birth Attendants (TBAs).

The extent of access and utilization of high quality maternal health care services is the single most important proximate determinant of maternal health and child survival, that is, poor antenatal care is a risk factor for adverse pregnancy outcomes for both the mother and the baby. The Programme of Action of the International Conference on Population and Development (ICPD) of 1994 recognized the above facts and states that; "All countries must expand the provision of maternal health services. . . . Women from poor households face greater challenges in accessing quality care during pregnancy and delivery, which exposes them to risks of ill health or even death while exposing their children to risks of low birth weights and eventual morbidity or even death. Indeed poverty has been singled out as one of the determinants of poor maternity and infant outcomes besides cultural factors that limit the utilization of such services (Magadi, 1999).

Health care research has provided convincing evidence that timely prenatal care is important for maternal and child health. Nevertheless, many women, particularly the poor, those who are young, less educated or single, receive prenatal care late or not at all. Also, attendance at delivery for most of these women is by persons who are not professionals and this exposes them to risks of maternal morbidity or even mortality due to inadequate facilitation and lack of proper referral systems. The common factor underlying the various characteristics associated with inadequate prenatal care is poverty, and because women from poor households are at high risk of pregnancy-related complications and poor birth outcomes, it is important to identify and overcome barriers that impede their access to adequate maternal health care services (such as prenatal care services and professional attendance at delivery).

1.3 Key Research Questions

The study, examined utilization of maternal health care services with a view to answering the following questions:

- i. What are the differentials in the utilization of maternal health services among women from poor and non-poor households in Kenya?

- ii. What are the socio-economic, demographic and exposure factors associated with adequate utilization of maternal health care services among women from poor and non-poor households in the country?

1.4 Study Objectives

1.4.1 General Objective

The main objective of the study was to examine the factors associated with the utilization of maternal health services among women from poor households in the country in comparison with those from non-poor households.

1.4.2 Specific Objectives

The specific objectives of this study were to:

- i. Establish differentials in the utilization of maternal health services (specifically, adequate attendance of antenatal clinics and professional assistance during delivery) between women from poor and non-poor households;
- ii. Establish the factors associated with utilization of maternal health services in the poor and non-poor households in the country;

1.5 Justification of the Study

Improvement in maternal- health and reduction in child mortality are some of the Millenium Development Goals. Specifically, the targets are that countries shall reduce by two-thirds, between 1990 and 2015, the under-five mortality rate and reduce by three quarters, between 1990 and 2015 the maternal mortality ratio. Indeed reduction in maternal mortality ratio is one of the Reproductive Health Policy Goals for Kenya. According to the findings of the KDHS 2003, Kenya had an estimated maternal mortality ratio of 414 deaths per 100,000 live births while the target for the National Reproductive Health Strategy 1997-2010 for Kenya is 170 deaths per 100,000 live births by the year 2010. Kenya's progress in achieving these goals may be slow and is hampered by the poverty levels of majority of the households in the country. Household living standards have a substantial influence on attendance of antenatal care for expectant mothers, attendance of a trained provider at child birth, and delivery at a well equipped facility.

Although low socio-income status has been linked to poor pregnancy outcomes for the mother, it is likely that the influence is through lack of appropriate maternal health care and poor nutritional status (Magadi et al., 2004). Existing literature and programs on maternal health care utilization have tended to treat women as a homogeneous group and little effort has been made to explore difference in the reproductive health contexts and needs of women from different demographic backgrounds and particularly with respect to socio-economic status. Previous studies examining the extent to which poor women in the country access and use maternal healthcare services have focused on the urban poor, specifically Nairobi slums; little is known about the rural areas or the country as a whole and whatever regional differentials may exist if any.

This study therefore uses the nationally representative survey data to assess the determinants of socio-economic inequalities in reproductive health service utilization among women in Kenya. It specifically examines utilization of maternal health care services among women from poor households in comparison to those from non-poor households in Kenya (excluding Nairobi), based on the KDHS 2003 and investigates the effects of some of these factors in determining utilization of maternal health care services among women from poor and non-poor households.

1.6 Scope and Limitations of Study

The Kenya Demographic and Health Survey (KDHS) 2003 gathered no information on household incomes or expenditures as such, measures of poverty based on this survey are limited to what can be fashioned from a few proxy variables, including ownership of consumer durables and crude assessments of the quality of housing. This study therefore used the wealth quintiles, which have been arrived at using the assets approach for distilling the proxies into a single living standards index, which will enable the study population to be categorized as poor or non-poor. Also, household poverty status is based on the data collected during the interview and may not necessarily pertain to the living standards of the women at the time of the pregnancy of the index child, which may have been three years before the study. Assumption is made here that the status remains the same.

Another limitation to this study is that previous studies have shown that even where maternal health care is free; there are still women who do not utilize maternal health services. This may indicate that there may be other factors influencing utilization of maternal health services that may not come out clearly from this study.

Further, according to the World Health Organization (WHO), components of maternal health include, health education; counseling; antenatal care; intra-partum care; and post-partum care (immediately after delivery, six hours after delivery and six to eight weeks after delivery). Adequate utilization of maternal health services should therefore include at least four antenatal visits, with the first visit being in the first trimester of the pregnancy, at least two tetanus toxoid injections, attendance of a professional health care provider at delivery and postnatal care utilization within two days of the delivery. However, this study excludes the component of postnatal care utilization as part of the adequate utilization of maternal health services. This is based on the assumption that if there is professional attendance at delivery, then it is likely that the women will be reviewed after delivery. Also, the tetanus component is assumed to be covered if the woman attends the four antenatal visits.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter presents an overview of the situation of maternal mortality in the world. This is followed with a review of the literature on factors that have been identified to be associated with utilization of maternal health care. Studies have shown that proper care during pregnancy and delivery are important for the health of both the mother and the baby

2.1 Overview of Maternal Mortality Situation

More than 500,000 prospective mothers in developing countries die annually in childbirth or of complications from pregnancy. According to the Millennium Development Goals Report 2008, childbirth care for mothers and newborns continues to face problems: in 33 countries, less than half of all births each year are attended by skilled health personnel, with coverage in one country as low as 6 per cent. Sub-Saharan Africa is also the only region in the world where access to qualified providers at childbirth is not progressing (Koblinsky M. et al., 2006). In Kenya, the proportion of births attended by skilled health workers was still at a low of 42 per cent according to the Kenya Demographic and Health Survey, 2003 while the MDG target is 90 per cent by 2015. The 1994 International Conference on Population and Development (ICPD) endorsed the World Health Organization's definition of health as "not merely the absence of disease or infirmity" but "a state of complete physical, mental and social well-being", and agreed that the human right to health includes reproductive health.

The United Nations Population Fund's (UNFPA) report on the State of the World Population, (2002), pointed out that health differentials between rich and poor are the widest in any sphere of life. One of the differences is that better-off people know about and can use health systems in general and reproductive, maternal and child health services in particular. Reproductive health is a vital component of overall health. More than one fifth of the burden of disease among women of reproductive age is connected with sex and reproduction. In sub-Saharan Africa, the figure is 40 per cent, with a woman's risk of dying from treatable or preventable complications of pregnancy or childbirth over the course of her lifetime being 1 in 22 compared to 1 in 7,300 in developed regions (UNFPA, 2002).

2.2 Poverty

The differences between developed and developing countries in maternal mortality ratios are immense while the differences between income groups within countries are also notable. Data from developing and developed countries settings show that poor women are likely to die in childbirth than non-poor women (Graham et al., 2004). The ICPD Programme of Action recognized the interactions of development with the health aspects of population and recommended improvements in the overall conditions as well as reproductive health of disadvantaged groups. Special attention was given to improving socio-economic conditions of * poor women both in developed and developing countries.

Studies to measure the extent of inequity in health among populations in various countries have been undertaken especially in the area of infant and child mortality (Indepth Network, 2005). Improving the health of the poor and reducing health inequalities have become the central goals of many development programs. Studies reveal that poverty and ill health are intertwined (Wagstaff, 2002) and that poverty and marginalization are the underlying causes of inequities in health (Evans et al., 2001). On the other hand, according to Abdullahel and Showkat (2005), although the poor faces the worst reproductive health outcome than others, poverty is not an insurmountable barrier to health if appropriate investment in health is made.

In Kenya, for example, the increase in Government revenue and increased proportionate allocation to education and health has led to considerable increase in spending in the social sectors (GOK, 2003). Further, reforms in the health sector have led to improved access to quality health care by the poor. Findings of the survey on well-being in Kenya show that the degree of inequality, as measured by the Gini coefficient, has not registered significant change in the last decade (KNBS, 2007). This calls for policies that spread the benefits of economic growth to most Kenyans, including improved targeting and utilization of devolved funds and measures to boost the human capital of the poor through increased access to quality health and education. The need to establish the factors that determine the low utilization of maternal health services among the women from poor households thus becomes an important area of study.

2.3 Factors Influencing Utilization of Maternal Health Care Services

A number of factors influence the utilization of maternal health care services and we will analyze a few of them.

2.3.1 Socio-economic Factors

Studies in Bangladesh found that participation in programmes that combine maternal and child health and family planning with poverty alleviation produce greater reduction in child mortality, particularly among girls, in the poorest groups compared to the richest groups. According to Ayesha De Costa et al. (2009), one of the common reasons why many women still deliver at home (and do not move to an institution raising their risk of maternal morbidity/mortality) is a lack of readily available financial resources for families to draw upon at the time of delivery, particularly to move the woman to an institution. Asset ownership by households is an indication of their wealth status and they can be used to acquire funds for use in health care.

A study of patterns and determinants of maternal health care utilization in Jordan found that there are a large number of socioeconomic variables that are associated with the utilization of maternal health services, and together they define substantial inequalities in access to and the quality of maternal care (Obermeyer and Potter, 1991). The utilization patterns for the poor are, as McKinlay (1975) has pointed out, greatly influenced by their hierarchy of needs, which would give maternal health services a lower priority than other activities.

Maternal Education

Studies in Africa have found a strong positive relationship between maternal education and use of antenatal care. Women with no education are six times as likely as women with some secondary education to have received no antenatal care (CBS et. al, 2004). In a study of maternal health care utilization in Jordan, Obermeyer and Potter (1991) observed that the mother's level of education, the average level of education in the household, the place of residence, the standard of living and the number of children in the household had a significant effect on antenatal care. It has been suggested, for example, that educating women alters the traditional balance of power within the family leading to changes in decision making and allocation of resources within the household (Caldwell, 1979; Caldwell et al., 1983); that education modifies women's beliefs about disease causation and cure and thus influences both domestic child care practices and the use of modern health care services (Caldwell, 1979; Caldwell et al., 1983); that schooling

enhances the woman's knowledge of modern health care facilities, improves her ability to communicate with modern health care providers and, by increasing the value she places on good health, results in heightened demand for modern health care services (Caldwell, 1979; Schultz, 1984; Caldwell and Caldwell, 1988); and that maternal schooling reflects a higher standard of living and access to financial and other resources, because of increased earnings (Schultz, 1984).

Place of Residence

Place of residence has been included in the analysis to capture the degree of availability and accessibility to health care facilities. Residence in an urban area implies both great exposure to the urban culture, greater incentives and more pressure to behave in ways perceived to be more "modern," and a wider availability of formal health care. However, levels of household economic status may hinder mothers from accessing health care facilities especially if they have a cost attached to them and if there are cheaper alternatives. Women in many parts of the developing world may be prevented from receiving appropriate or adequate health services by costs related to distance and poor roads. Poor roads and bad weather make a long trip to the hospital difficult, particularly for a woman who is hemorrhaging or having convulsions (Family Health International, 1994) and this is worse for the rural poor. Poor women living in urban informal settlements deliver at home in spite of the fact that the facilities are within reach as these facilities are 'inaccessible' to them as they cannot afford the cost of the services (Buor, 2004).

Women's Working Status

Women's autonomy and well being are enhanced by income earned from work outside the home, thereby reducing their social dependence on a male partner. However, economic pressures on women's nutritional status and health may be diminished by the long hours and heavy work (Doyal, 1995). In Nepal, for example, the low social status of women has been identified as a hindrance to progress towards national health and population policy targets (Furuta and Salway, 2006). Although it seems reasonable to assume that greater equality within the household leads to higher use of maternal and child health services, this factor has not been explored in Kenya, we know little about how intra household relations constrain or facilitate access to health care, or about the dimensions of women's position that are most critical for achieving increased use. More so, we seek to establish whether these factors have the same influence among women from poor and non-poor households.

2.3.2 Demographic Factors

Maternal Age

In a study of determinants of maternal health care in India, Bhatia and Cleland (1995) observed that demographic factors played an important role in the use of maternal health care services. Mothers aged below 18 years were less likely to have routine antenatal care check up, while women in their first pregnancy were more likely to receive routine antenatal check up. It is well recognized that women's current age plays an important role in the utilization of medical services (Fiedler, 1981; Elo, 1992; Fosu, 1994). Mother's age may sometimes serve as a proxy for the women's accumulated knowledge of health care services, which may have a positive influence on the use of health services. On the other hand, because of development of modern medicine and improvement in educational opportunities for women in recent years, younger women might have an enhanced knowledge of modern health services and place more value upon modern medicine.

Order of Pregnancy

It is generally believed that care during delivery would be higher for first order births and is expected to decline as order of birth increases (Elo, 1992; Bhatia and Cleland, 1995). If a woman ever had a still birth in a previous pregnancy, the use of maternal care services would be higher because of known risk factor (Bhatia and Cleland, 1995). Magadi (1999) in the study of maternal health care factors during-pregnancy showed that the place of death of pregnant women is dependent on antenatal care given any of the predisposing risk factors. Those who attended antenatal care were less likely to have died outside a health facility. Also, the importance of desirability of pregnancy seems to be strongly associated with antenatal care. Decisions about prenatal care and delivery assistance are likely to depend on whether women experience complications during the pregnancy, on their assessment of the likelihood of complications in the pregnancy, on their own health status, and on previous experience and knowledge (Pebley et. al, 1996). Although no information is available from the survey on pregnancy or delivery complications, the order of pregnancy is included in this analysis, as an indication of previous experience with pregnancy.

Also, decisions about prenatal care and delivery assistance are likely to depend on whether women experience complications during pregnancy, on their assessment of the likelihood of

complications later in the pregnancy, on their own health status, and on previous experience and knowledge about pregnancy (Pebley, Goldman & Rodriguez, 1996).

Birth Order

Studies have shown that demographic factors played an important role in the use of maternal health care services. Mothers aged below 18 years were less likely to have routine antenatal care check up, while women in their first pregnancy were more likely to receive routine antenatal check up. A study of utilization of maternal health care services in India found that the order of birth was an important predictor of receiving antenatal care (Navaneetham and Dharmalingam, 2000). This study therefore seeks to establish whether these factors influence utilization of health services in the same way among women from poor and non-poor households.

2.3.3 Exposure Factors

For women to be able to use health care services, they need to be informed about the available services, which should be affordable and accessible. Exposure to electronic or print media is an important source of information regarding the beneficial impact of the preventive care for maternal and child health (Rao et al., 1998). The electronic media is an important source for information on the availability and importance of maternal health care services. The media could also be used to bring changes in people's attitudes towards the use of modern medical services. According to Valente et al. (1996), mass media are effective in information dissemination, which increases awareness about innovations, and fosters inter-personal communication, which could facilitate behavioural changes allowing for the adoption of new/different behaviours. For this study, frequency in access to radio is included in the analysis since it is the most commonly used form of electronic media in the country and since the analysis is a comparative study between the poor and non poor then it is expected to be relatively available to both groups. Also, the status of women in the family and community can be related to their education level, their occupation, their level of personal income or wealth and their autonomy (McCarthy and Maine, 1992). The risk increases where women do not have access to information and means of fertility regulation. The ever use of modern methods of contraception will be used as a proxy for exposure to modern health services.

According to Fathalla M. F. (1997), the risk of pregnancy and childbirth increases in low resource settings and where women are denied their right status in societies. Ethnicity may also

be associated with different cultural attitudes and practices that encourage or discourage the use of maternity services (Gage, 1998). Cultural and societal values have been shown to have an influence in the utilization of maternal health services. A study among the Hausa of Nigeria, observed that although much of the maternal morbidity and mortality on northern Nigeria is due to inadequate healthcare facilities and unreliable system of transportation, the situation is made vastly worse by the position women occupy in Hausa society (Lewis, 1998)... cut from formal education, undervalued in the eyes of law, exhorted to assume a subordinate and servile position in life by their religion, regarded primarily as vehicles for the production of children, often married without choice at an extremely early age and forced to begin childbearing before they are physically mature enough to do so easily, restricted in their movements by the practice of wife seclusion, devoid of personal autonomy and tightly controlled by a social structure that requires the permission of a male authority figure before action can be taken even in life-threatening circumstances. Autonomy in decision making on matters concerning the health of the women may be used as a measure of exposure.

2.4 Health Services Factors

NCPD et al. (1999) observed that antenatal care can be more effective in avoiding adverse pregnancy outcomes when it is sought early in pregnancy and continues through delivery. Obstetricians generally recommend that antenatal visits be made on monthly basis to the 28th week, fortnightly to the 36th week and then weekly until birth and if the first visit is made in the third month of pregnancy, this optimum schedule translates to a total of at least 12 visits during pregnancy (NCPD et al., 1999). One of the efforts to reduce the health risks of mothers and children is increasing the proportion of babies that are delivered in medical facilities. Proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that can cause death or serious illness of either the mother or the baby (NCPD et al, 1999).

The National Research Council (1997) observes that although prenatal care has been widely available and used in developing countries, the use of medical services for delivery and post partum care lags far behind. In addition, home births remain common, either for cultural reasons or because health facilities are inaccessible or perceived to be of poor quality. It also indicates that prenatal care should be used to improve both maternal and newborn health through

screening and treatment of syphilis and anemia, as well as detection and treatment of pregnancy-induced hypertension. The counseling also provides an opportunity to give women information about appropriate diet and other health behavior and about pregnancy complication and where to go for care.

According to the WHO, the components of maternal health include, health education; counseling; antenatal care; intra-partum care; and post-partum care (immediately after delivery, six hours after delivery and six to eight weeks after delivery). These services are offered during pregnancy, during delivery and after delivery for the purpose of educating the pregnant mothers, counseling them, screening and early recognition, management of risk factors and complications such as anemia, malaria, multiple pregnancies, sexually transmitted infections (STIs), urinary tract infections (UTIs) and hypertension. Also, the mothers are checked for nay complications that may have arisen after the delivery.

2.5 Summary of Literature Review

The literature review shows that improving the health of the poor and reducing health inequalities have become the central goals of many development programs. Studies reveal that poverty and ill health are intertwined (Wagstaff, 2002) and that poverty and marginalization are the underlying causes of inequities in health (Evans et al., 2001). On the other hand, according to Abdullahel and Showkat (2005), although the poor faces the worst reproductive health outcome than others, poverty is not an insurmountable barrier to health if appropriate investment in health is made.

A study of patterns and determinants of maternal health care utilization in Jordan found that there are a large number of socioeconomic variables that are associated with the utilization of maternal health services, and together they define substantial inequalities in access to and the quality of maternal care. (Obermeyer and Potter, 1991). The utilization patterns for the poor are, as McKinlay (1975) has pointed out, greatly influenced by their hierarchy of needs, which would give maternal health services a lower priority than other activities.

Studies have shown that demographic factors played an important role in the use of maternal health care services. Mothers aged below 18 years were less likely to have routine antenatal care check up, while women in their first pregnancy were more likely to receive routine antenatal

check up. This study therefore seeks to establish whether these factors influence utilization of health services in the same way among women from poor and non-poor households.

The low social status of women has been identified as a hindrance to progress towards national health and population policy targets (Furuta and Salway, 2006). Although it seems reasonable to assume that greater equality within the household leads to higher use of maternal and child health services, this factor has not been explored in Kenya, we know little about how intra household relations constrain or facilitate access to health care, or about the dimensions of women's position that are most critical for achieving increased use. It has been observed that the mother's level of education, the average level of education in the household, the place of residence, the standard of living and the number of children in the household had a significant effect on antenatal care while cultural and societal values have been shown to have an influence in the utilization of maternal health services.

Findings of the survey on well-being in Kenya show that the degree of inequality, as measured by the Gini coefficient, has not registered significant change in the last decade and it would therefore be important to determine the differentials in utilization of maternal health care services among the women from poor and non-poor households in the country.

2.6 Conceptual and Operational Frameworks

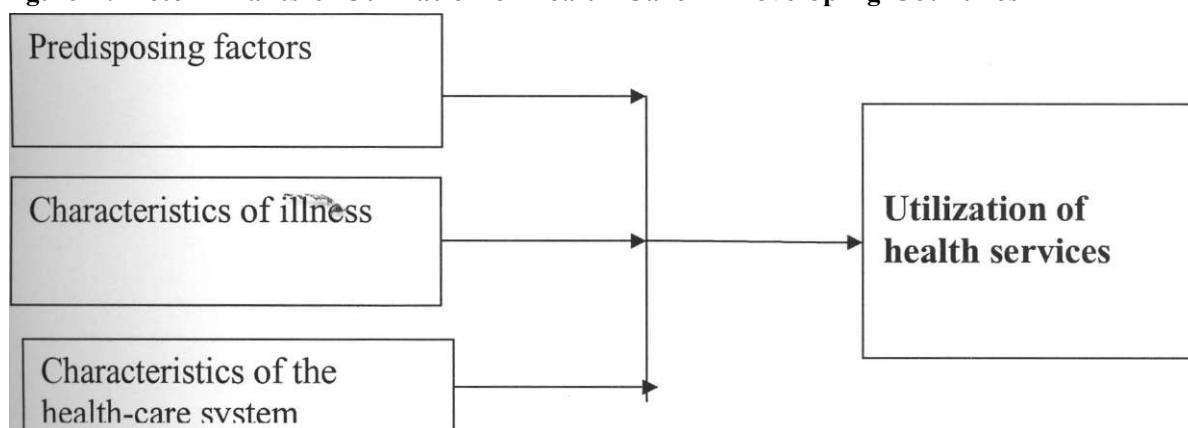
2.6.1 Conceptual Framework.

An adverse pregnancy outcome is the result of complex interactions between socio-economic and cultural factors; reproductive behaviours, health care utilization, maternal health and other biological factors. A comprehensive framework of the determinants of maternal mortality developed by McCarthy and Maine (1992), shows that socio-economic factors act through a diverse range of reproductive and health care variables to influence maternal morbidity and mortality. The framework follows other models which are based on the premise that the social and economic determinants of mortality (in this case maternal mortality) necessarily operate through a common set of biological mechanisms and proximate determinants to exert an impact on mortality. Health care behavior and use of health services is one of those intermediate determinants and is taken to mean actions that people do or do not take for the sake of their health, such as attending prenatal care, or seeking professional help when complications ensue.

For women to be able to use healthcare services, they need to be informed about the available services, which should be affordable and accessible. In addition to accessibility of services, an important factor in the decision to seek care is the quality of the care. These factors would influence the women's general healthcare behaviour, especially in reproductive health matters, since many societies consider matters of pregnancy as normal and thus not warranting special medical attention.

Determinants of utilization of maternal health services will be examined based on the Kroeger Framework (1983) for the utilization of health services. Based on the extensive review of the anthropological and socio-medical literature of health care, Kroeger (1983) proposed that determinants of utilization of health care in developing countries would be grouped under three broad headings: (1) predisposing factors including age, sex, household composition and size, ethnic group affiliation and education; (2) characteristics of illness, expected benefits from treatment and beliefs about disease causation; and (3) characteristics of the health-care system, including cost and quality of care. This is summarized as shown in the figure below:

Figure 1: Determinants of Utilization of Health Care in Developing Countries



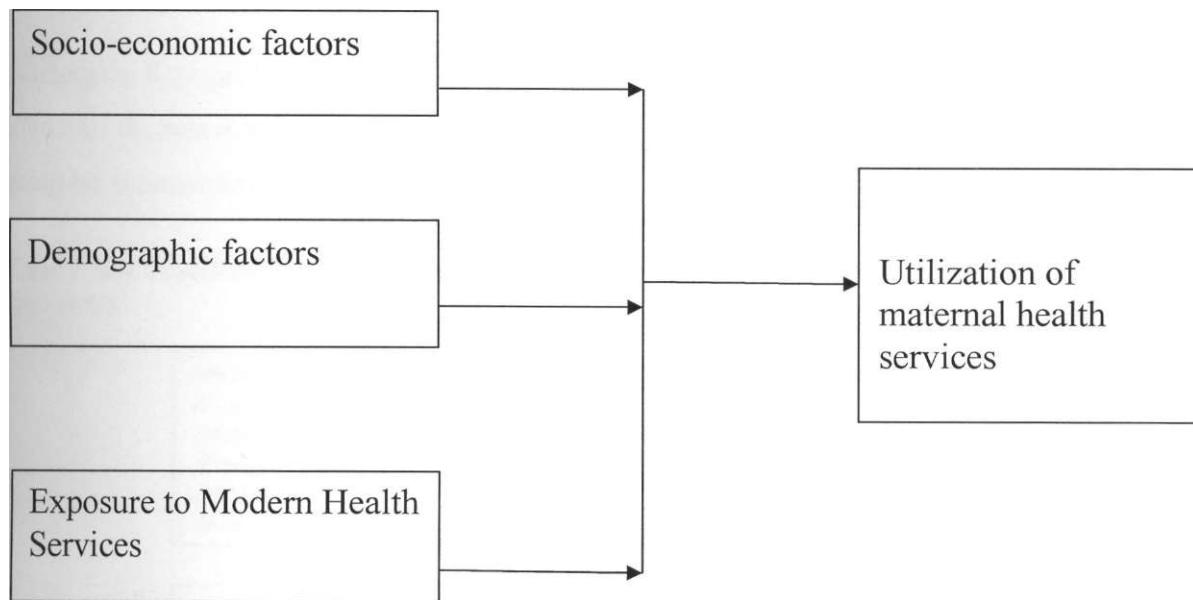
Source: Kroeger (1983)

A range of socio-economic, demographic and exposure factors act with one another to influence the use of maternal health services.

2.6.2 Adopted Conceptual Framework

Since my study will be specifically considering the utilization of maternal health services, I have modified the framework as follows:

Figure 2.2: Modified Framework for the Utilization of Health Care in Developing Countries

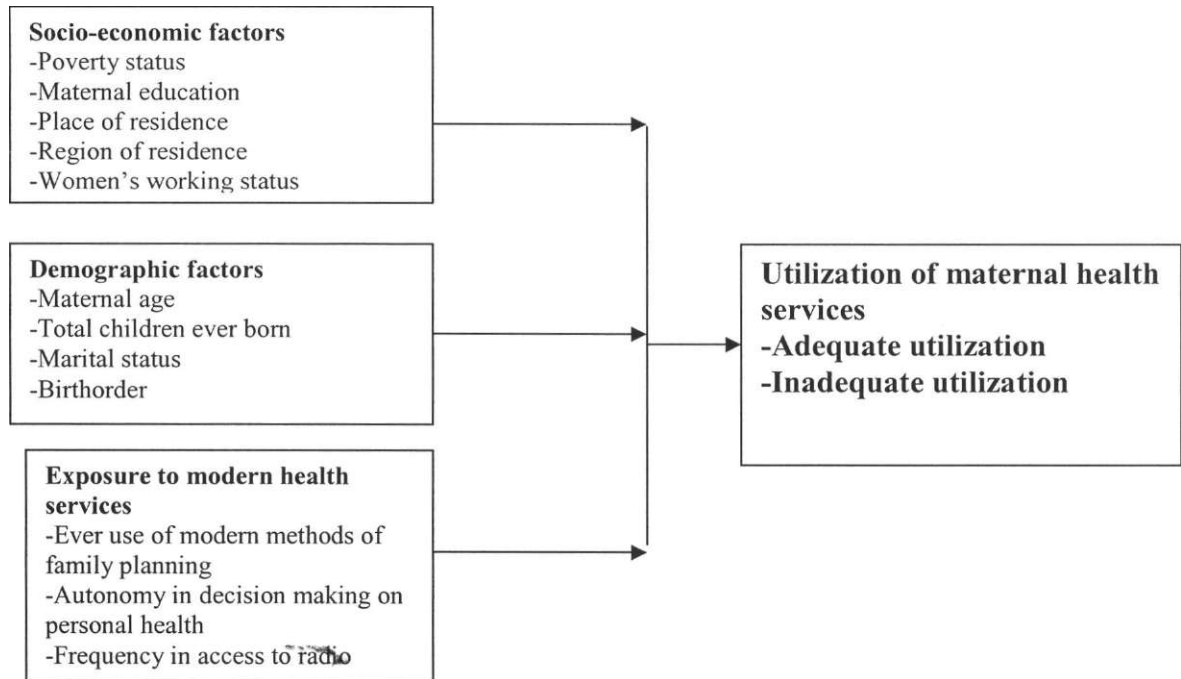


Source: Kroeger (1983)

2.6.3 Operational Framework

In using the Kroeger Framework (1983) for my study, I will separate the women by their poverty status for the initial analysis then combine them at the end. The explanatory variables I will be using are summarised in the figure below:

Figure 2.3: Modified Framework for the Utilization of Health Care in Developing Countries



Adopted from Kroeger Framework

2.6.4 Operational Hypotheses

From the review of literature, and the association of various factors with utilization of maternal health services, the following hypotheses are tested.

1. The higher the level of education of the mother, the higher the utilization of maternal health services.
2. The wealthier the household, the higher the likelihood of utilization of maternal health services.
3. The type of place of residence is associated with utilization of maternal health services.
4. Region of residence has an influence on utilization of maternal health services.
5. The higher the order of birth the lower the utilization of maternal health services.

6. The higher the number of children ever born the lower the utilization of maternal health services.
7. There is a relationship between ever use of modern contraceptives utilization of maternal health services.
8. Frequent access to the media has an influence on utilization of maternal health services.
9. Women's autonomy in decision making on matters concerning their health is associated with utilization of maternal health services.

Table 2.1: Detailed Description of Variables

Variable Name	Description of Categories	Type
Utilization of maternal health care services	0 = not adequate utilization 1 = utilized adequately	Dependent
Wealth Status	0 = poor 1 = non-poor	Independent
Maternal Education	0 = no education (RC) 1 = Primary 2 = Secondary and above	Independent
Maternal current working status	0 = Working (RC) 1 = Not working	Independent
Children ever bom	0 = 1 - 3 children (RC) 1 = 4 children and above	Independent
Birth order	0 = First Bom (RC) 1 = Not first bom	Independent
Marital status	0 = Never Married (RC) 1 = In union 2 = Others (widowed, separated, divorced and others)	Independent
Maternal age	0 = Aged 15-19 years (RC) 1 = Aged 20-34 years	Independent

	2 = Aged 35 years and above	
Contraceptive use	0 = Never used modern contraceptive (RC) 1 = Ever used modern contraceptive	Independent
Type of place of residence	0 = Rural (RC) 1 = Urban	Independent
Region of Residence	1 = Central (RC) 2 = Coast 3 = Eastern 4 = Nyanza 5 = Rift Valley 6 = Western 7 = North Eastern	Independent
Autonomy in decision making on health	1 = Decides or consults (RC) 2 = Other person decides	Independent
Access to radio	0 = Has frequent access (RC) 1 = Does not have frequent access	Independent

2.7 Operational Definition of Variables/Parameters

Adequate utilization of maternal health care services in this study is defined as at least four antenatal care visits during pregnancy with the first visit taking place in the first or second trimester and professional assistance during delivery. It will be measured as a composite index combining timing of antenatal care, the number of visits and assistance during delivery.

Wealth Status is based on wealth quintiles arrived at using the household asset ownership and for this study, the lowest three quintiles are categorized as poor while the rest are categorized as non-poor. Poor or non-poor statuses are assessed on relative terms and are not based on any already defined cut off. However, based on the fact that according to the Welfare Monitoring

Surveys (1997), about 48 percent of the country was considered to be living below the poverty line, for this study, these lowest three quintiles constituted about 49 percent of the households. Given that the sampling frame used is the same then the assumption here is that it will not be off the mark if this categorization is used.

Demographic Characteristics: Number of children ever born to a woman, the order of the birth and the woman's marital status at the time of the survey have been used as explanatory variables.

Age of woman, which is also an important predictor for use of maternal health care services, is treated as a control variable.

Maternal Education

Maternal education refers to the level of formal education attained by the mother and will be categorized into; no education, primary education, and secondary and above.

Type of place of residence

This will be categorized as rural or urban as given in the cluster codes.

Region of residence

This is the geographic regions of the country given as the seven provinces in Kenya and excludes Nairobi.

Access to radio

A woman is considered as having access to the media if she has access to radio at least once a week. Proof of ownership is not a criterion.

CHAPTER THREE: DATA AND RESEARCH METHODS

3.1 Data Source

The data used in this study is from the 2003 Kenya Demographic and Health Survey (KDHS). This was a nationally representative sample survey of 8,195 women aged 15-49 and 3,578 men aged 15-54 selected from clusters throughout Kenya. The information collected include, background characteristics, reproductive history, knowledge and use of family planning methods, fertility preferences, pregnancy, postnatal care and breastfeeding, immunization, health and nutrition of children under age 5, marriage and sexual activity, husband's background and woman's work and awareness of AIDS and other sexually transmitted diseases. This data was collected by use of three kinds of questionnaires (household, male and woman questionnaire).

The aspects of the data that are relevant to this study are those relating to utilization of maternal health services and background characteristics of the households. These include age, type of place of residence (whether urban or rural), region of residence, level of education, wealth status of the household, place of delivery and assistance during delivery, antenatal care (timing of first visit and number of antenatal visits and). The segment of the population involved is that of women who had a birth in the 3 years preceding the survey, which was 2,809 and information pertains to the last live birth, """"V

Nairobi was excluded from this analysis, due to limitations of the data, which gives an indication that there are no poor households in Nairobi. Therefore even the regional analysis looks into all the other regions excluding Nairobi.

3.2 Methods of Analysis

To respond to my study objectives, the first level of analysis involves use of descriptive statistics such as mean and standard deviations in the utilization of maternal healthcare services among women in poor and non-poor households. I also present percent distribution of women who did/did not adequately utilize maternal health care services by various background characteristics. Bivariate analysis was used to examine the association between utilization of maternal health services with the socio-demographic and other characteristics of women who had

a birth in the three years prior to the survey. Chi-square tests were used to identify significant differences between the women from poor and non-poor households, constructed using a household wealth index, in utilization of maternal health care services.

Multivariate analysis was undertaken by use of logistic regression to assess interaction effects between the various explanatory variables and to understand the impact of covariate control variables on the utilization of maternal health services among women in poor and non-poor households. This method of analysis has been found suitable since the dependent variable has been categorized as a dichotomous variable and one is either utilizing the maternal services adequately or not.

The logistic regression equation is as follows:

$$n(x) = \frac{\exp(B_0 + B_1x_1 + \dots + B_kx_k)}{1 + \exp(B_0 + B_1x_1 + \dots + B_kx_k)}$$

Where $II(x)$ = probability of adequate utilization of maternal health care services

B_0 = the constant term

B_k = the coefficients estimated

x = the independent variables

3.3 Interpretation of the coefficients for the logistic regression model

In logistic regression the estimated coefficients for the independent variables represent the rate of change of a function of the dependent variable per unit change in the independent variable(s).

A value greater than one for the odds ratio ($\exp[\beta]$) implies that members in this category are more likely than those in the reference category to utilize maternal health services adequately and a value less than one implies less likely.

CHAPTER FOUR: LEVELS, DIFFERENTIALS AND DETERMINANTS OF UTILIZATION OF MATERNAL HEALTH SERVICES

4.1 Introduction

This chapter presents the results of a comparative study of levels and differentials in adequate utilization of maternal health care services between women from poor and non-poor households. Also presented are the determinants of adequate utilization of these services among these broad categories of women, who had births in the three years preceding the survey. At this level, Nairobi is still included in the analysis but is dropped at the later stages of cross tabulation and regression due to the limitation mentioned before.

The first section presents descriptive data of the study population followed by discussions of the results on the levels, patterns and differentials in adequate utilization of these services. Cross tabulations have been used because they give the overall picture of the relationship between the dependent and independent variables for the two broad categories of poor and non-poor women. The second and final section deals with the logistic regression results of utilization of maternal health care services with socioeconomic and demographic factors.

4.1 Background Characteristics of Study Population

As presented in Table 4.1, about 67.0 percent of the women who had births in the three years preceding the survey are categorized as being poor. Distribution of these women by their educational attainment shows that 20.9 percent of these women had no education while 59.5 percent had at least primary level of education. Slightly less than half of the women (43.6 percent) reported that they were not working at the time of the survey.

Distribution of these women by their region of residence shows that at least one out of five were from Rift Valley Province (22.6 percent), with North Eastern Province having the lowest proportion 8.0 percent. About one out of five women (19.2 percent) who had a birth in the three years preceding the survey period lived in the urban areas.

Table 4.1: Distribution of Study Population by Various Background Characteristics

	Number	Percent		Number	Percent
Poverty Status			Children ever Born		
Poor	1883	67.0	1-3 Children	1615	57.5
Non-poor	926	33.0	4+Children	1194	42.5
Maternal Education level			Birth Order		
No Education	588	20.9	First birth	656	23.4
Primary Level	1672	59.5	Not first birth	2153	76.6
Secondary and Above	549	19.5	Use of Modern Contraceptives		
Region of Residence			Never used	1,559	55.5
Central	396	14.1	Used	1,250	44.5
Coast	367	13.1	Autonomy in Decision Making		
Eastern	372	13.2	Own/consult	1352	48.1
Nyanza	408	14.5	Other	1457	51.9
Rift Valley	634	22.6	Frequency in Access to Radio		
Western	408	14.5	Frequent Access	642	22.9
North Eastern	224	8.0	Infrequent Access	2164	77.1
Type of Place of Residence					
Urban	538	19.2			
Rural	2271	80.8			
Current Working Status*					
Not working	1177	42.0			
Working	1627	58.0			
Maternal Age					
15-19 Years	300	10.7			
20-34 Years	2041	72.6			
35 Years and above	468	16.7			
Current Marital Status					
Never married	219	7.8			
In Union	2366	84.2			
Others	224	8.0			

Totals do not agree with the rest of the variables due to missing cases

Source: Analysis of KDHS 2003

Analysis of the demographic characteristics of these women showed that majority of these women were of the prime age of 20-34 years (72.6 percent) while only one out of ten (10.7 percent) were aged 19 years or less. About 84.2 percent of these women were in union, that is, they reported being married or living with a partner, while the remaining reported either having never been married or being either divorced, separated or widowed in about equal proportions. Almost every three out of five (57.5 percent) women who had a birth in the three years preceding the survey had borne between one and three children while the remainder had borne four or more children. The analysis is also done based on the order of the births, as other studies have shown that women are more likely to seek maternal health care services with the first order births and not for higher order births unless there are complications. One out of every four women (23.4 percent) reported that their births were first order.

In this study, exposure was measured using variables such as ever use of modern methods of contraceptives, frequency of access to radio services (listening to radio at least once a week) and autonomy in decisions about health care for the women. About 46.8 percent of the women reported having ever used modern methods of contraceptives and one out of every two women (49.8 percent) said they decided on their own or consulted about their health care. Only 21.4 percent of the women reported that they listened to radio at least once in a week.

4.3 Differentials in Utilization of Maternal Health Care Services

This section presents the results of the bivariate analysis between various socioeconomic, demographic and exposure factors and the adequate utilization of maternal health services. Chi-square tests were carried out to show the association between the dependent variable and the independent variables. The analysis is done separately for women from poor households and those from non-poor households as this is a comparative study.

As shown in Table 4.2 and Table 4.3, there was a significant relationship between maternal education and adequate utilization of maternal health care services for women from both poor and non-poor households. There was an increase in the proportion of women having adequate use of the services with improvement in education level, that is, women with higher levels of education sought to utilize maternal health care services adequately more than their counterparts with lower education or no education at all. This was true for women from both poor and non-poor households. Whereas only 4.2 percent of the poor women with no education could be

categorised as having adequate utilization, almost one out of every three (28.0 percent) with secondary and above level of education utilized the services adequately. Among the non-poor women, only 16.9 percent of those with no education utilized the services adequately compared with 59.7 percent for those who reported having secondary level and above education.

Table 4.2 Utilization of maternal health care services for women from non-poor households

		Not Adequate Percentage	Adequate Percentage	Number of cases
Total Non-poor		58.3	41.7	926
$X^2 = 253.483$ df=1	Sig .000			
Maternal Education level				
No Education		83.1	16.9	65
Primary		66.7	33.1	526
Secondary +		40.3	59.7	335
$X^2 = 117.054$ df= 2	Sig .000			
Region of Residence				
Central		48.6	51.4	212
Coast		60.4	39.6	139
Eastern		62.4	37.6	117
Nyanza		58.0	42.0	131
Rift Valley		63.7	36.3	204
Western		56.1	43.9	98
North Eastern		76.0	24.0	25
$X^2 = 15.185$ df= 6	Sig .000			
Type of place of residence				
Urban		50.8	49.2	419
Rural		64.5	35.5	507
$X^2 = 17.614$ df= 1	Sig .000			
Current Working Status				
Not working		62.3	37.7	401
Working		55.1	44.9	523
$X^2 = 4.942$ df=	Sig .026			
Maternal Age				
15-19 Years		77.9	22.1	104
20-34 Years		54.3	45.7	709
35 Years and above		65.5	34.5	113
$X^2 = 23.473$ df= 2	Sig .000			
Children ever Born				
1-3 Children		51.7	48.3	664
4+Children		75.2	24.8	262
$X^2 = 42.805$ df= 1	Sig .000			
Birth Order				
First birth		47.2	52.8	301
Not first birth		63.7	36.3	625
$X^2 = 22.764$ df= 1	Sig .000			

Continuation of Table 4.2

	Not Adequate Percentage	Adequate Percentage	Number of cases
Current Marital Status			
Never married	65.3	34.7	95
In Union	55.3	44.7	750
Others	77.8	22.2	81
X ² = 17.252 df= 2			Sig .000
Use of Modern contraceptives			
Never used	69.1	30.9	350
Used	51.7	48.3	576
X ² = 27.137 df= 1			Sig .000
Autonomy in Decision Making			
Own/consult	58.7	41.3	509
Other	57.2	42.8	417
X ² = .085 df= 1			Sig .771
Frequency in Access to Radio			
Less frequent Access	74.7	25.3	87
Frequent Access	56.5	43.5	837
X ² = 10.734 df= 1			Sig .001

Source: Analysis of KDHS 2003

The table above shows that the 42 percent of women from non-poor households adequately utilize maternal health care services. The relationship between the type of place of residence, that is, either urban or rural and adequate utilization of maternal health care was not statistically significant for women from poor households. On the other hand, there was a significant association between type of place of residence and adequate utilization of maternal health services for women from non-poor households. Close to half of the non-poor women in the urban areas (49.2) were categorised as having adequately utilized the services against only 35.5 percent in the rural areas.

According to the analysis by region of residence only 3.5 percent of the women categorised as poor from North Eastern and 8.8 percent of those in Coast Province reported adequate utilization of maternal health care services. On the other hand, for the non-poor women, North Eastern had the lowest proportion of 24.0 percent not having adequate utilization of maternal health care followed by Rift Valley (36.6 percent) and Eastern (37.6 percent). Central Province had the highest proportions having adequate utilization in both categories of women.

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Abom 30 Percent

against 44.9 percent who

Having had adequate

On the other hand, the relationship was significant, the percentage of households on the
 those not working adequately utilizing maternal health care compared to 17.8 percent of those

Maternal health services

Not Adequate

Percentage

Number of cases

Total Poor

$\chi^2 = 253.483$ df=1

Sig. <.001

Maternal Education level

No Education

Primary

Secondary +

$\chi^2 = 80.848$ df= 2

Sig. .000

Region of Residence

Central

Coast

Eastern

Nyanza

Rift Valley

Western

North Eastern

$\chi^2 = 84.801$ df= 6

Sig. <.001

Type of place of residence

Urban

Rural

$\chi^2 = 1.675$ df=1

Sig. .196

Current Working status

Not working

Working

$\chi^2 = 22.561$ df= 1

Sig. .000

Maternal Age

15-19 Years

20-34 Years

35 Years and above

$\chi^2 = 8.962$ df=1

Sig. .011

Children ever Born

1-3 Children

4+ Children

$\chi^2 = 33.909$ df= 1

Sig. .000

Continuation of Table 4.2

	Not Adequate Percentage	Adequate Percentage	Number of cases
Birth Order			
First birth	74.9	25.1	355
Not first birth	87.9	12.1	1525
$X^2 = 38.724$ df= 1			Sig.000
Current Marital Status			
Never married	78.2	21.8	124
In Union	86.1	13.9	1613
Others	83.9	16.1	143
$X^2 = 6.036$ df= 2			Sig .049
Use of Modern contraceptives			
Never used	89.6	10.4	1206
Used	77.9	22.1	674
$X^2 = 47.880$ df= 1			Sig.000
Autonomy in Decision Making			
Own/consult	83.0	17.0	840
Other	87.4	12.6	1040
$X^2 = 7.310$ df=1			Sig .007
Frequency in Access to Radio			
Not frequent Access	94.6	5.4	554
Frequent Access	81.6	18.4	1325
$X^2 = 53.004$ df= 1			Sig .000

Source: Analysis of KDHS 2003

As shown in Table 4.3, 14.6 percent of the women from poor households adequately utilize maternal health care services. The study found that among the women from poor households, a greater proportion of younger women to adequately utilize the maternal health services compared to the older women. Also, the relationship between maternal age and utilization of maternal health care for women from non-poor households was found to be statistically significant with women in the prime ages of 20 to 34 years having the highest proportion of adequate utilization (45.7 percent).

The number of children ever born was found to be statistically significant in influencing a woman's chances of adequately utilizing maternal health care services for women from non-poor households. About 48.3 percent of women with three or less children were found to have adequately utilized the maternal health care services compared with only 24.8 percent for those

with for or more children. The trend was similar with women from poor households as presented in the table.

The study found out that there is a significant relationship between the birth order of the index child and the adequate utilization of maternal health care services for women from both poor and non-poor households. Among the women from non-poor households, more than half of the women (52.8 percent) with first order births received adequate services and only 36.3 for the other order of births. This was similar for the women from poor households.

The relationship between marital status and use of maternal health services was found to be statistically significant. A smaller proportion of women (13.9 percent) from poor households who were in unions utilized maternal health services adequately compared to 21.8 percent who were never married and 16.1 percent in the 'other' category. For the women from, non-poor while their counterparts from non-poor households were less likely to use the services compared to those who were never married or had divorced, separated or widowed.

Autonomy in decision making on matters related to women's health was a significant factor in influencing the use of maternal health services for women from poor households but not those from non-poor households.

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Frequent access to radio was found to have a significant relationship with women's chances of utilizing maternal health care services adequately for women from both poor and non-poor households.

4.4 Determinants of Utilization of Maternal Health Services

This section presents results of models that describe effects of various factors influencing women's utilization of maternal health services. Logistic regression is applied to assess the effect of factors that are theoretically said to be associated with adequate utilization of these services and will therefore explain the relationship between the explanatory variables and the dependent variable. The dependent variable is dichotomous, that is, one has either used the services adequately or not. The odds ratio will give the likelihood of a variable influencing the adequate utilization of maternal health services.

4.4.1 Factors Influencing Utilization for Women from Poor and Non-poor Households

Table 4.4 shows the results for the models of the determinants for women from both poor and non-poor households as presented below.

Table 4.4 Odds ratio of the effect of select background variables on adequate⁺ utilization of maternal health care services among women from poor and non-poor households

	POOR		NON-POOR	
	S.E.	Exp(B)	S.E.	Exp(B)
Constant	.502	.207	.611	.057
Mother no education (RC)				
Mother primary education	.294	2.219***	.419	2.223*
Mother secondary + education	.334	3.549***	.434	5.345***
Central (RC)				
Coast	.313	.356***	.284	.762*
Eastern	.251	.47g***	.263	.735
Nyanza	.252	.432***	.278	.857
Rift Valley	.228	.582**	.230	.788
Western	.251	.328***	.298	.589*
North Eastern	.517	.401*	.625	1.165
Urban (RC)				
Rural	.283	4^5***	.174	.502***
Not Working (RC)				
Currently Working	.163	1.529***	.162	1.332*
15-19 Years (RC)				
20-34 Years	.238	.895	.290	4.147***
35 Years and above	.331	1.235	.397	5.359***
Never Married (RC)				
In Union	.270	1.565*	.277	2.195***
Others	.146	1.354	.393	.784
1 to 3 Children (RC)				
4 or more Children	.192	.590***	.212	.404***
Birth order 1(RC)				
Birth order not 1	.206	.448***	.199	.403***
Never used Modern Contraceptives (RC)				
Ever used Modern Contraceptives	.153	1.650***	.172	1.887***
Own/consults on health (RC)				
Other person decides on health	.153	.917	.165	1.356*
Access to radio infrequent				
Access to radio Frequent	.229	1.902***	.295	1.297

*** P< 0.01; **0.01<P<0.05; *0.05<P<0.1 + Composite index as defined in text (RC) Reference category

Source: Analysis of KDHS 2003

Maternal education was found to be a significant determinant of adequate utilization of maternal health care services for women from both poor and non-poor households. Women with at least primary level of education were 2.2 times more likely to have adequate utilization of maternal health services compared to those with no education for both categories of women. This relationship was, however, weak for women from non-poor and was only significant at 10% significant level. Women with secondary and above level of education were three and a half times more likely to adequately use the services compared to those with no education for women from poor households while for those from non-poor households, they were 5.3 times more likely to adequately utilize maternal health services. These relationships were significant at 1% level ($p < 0.001$).

Region of residence was a significant factor influencing utilization of these services for women from poor households. Women from all the regions were less likely to use these services adequately relative to their counterparts from Central Province. The odds ratios for adequate utilization of maternal health services for women from the other provinces were all less than one with Central Province as the reference category. On the other hand, region of residence was not a significant factor in determining whether a woman from a non-poor household adequately utilized maternal health services. There was only a weak relationship by region of residence for women from non-poor households.

Type of place of residence was significant in determining whether a woman adequately utilized the maternal health services irrespective of whether they were from poor or non-poor households. A woman residing in the rural areas was 0.5 times less likely to utilize these services adequately compared to one in the urban areas for both categories of women. These relationships were all significant at 1% significance level.

Current work status of the women was also found to have a significant relationship with a woman's likelihood of utilizing these services adequately. Women from poor households who were currently working were 1.5 times more likely to use these services adequately relative to those who were no working at the time of the survey. This was significant at 1% level. The relationship between utilization of maternal health care services and a woman's current work status was weak for women from non-poor households. A woman from a non-poor household

who was currently working was 1.3 times more likely to adequately utilize maternal health services. This relationship was significant at 10% significant level.

Maternal age was found to be significant in determining whether a woman from a non-poor household utilized maternal health services adequately. Women aged less than 20 years were less likely to utilize maternal health services relative to those in their prime ages and older women. Women aged 20-34 and 35 years and above were 4.1 times and 5.4 times, respectively, more likely to utilize maternal health services adequately compared to their counterparts aged 15-19. On the other hand, maternal age was not a significant factor in determining whether a woman will adequately utilize the services adequately.

Marital status was found to be a significant factor in determining a woman's chance of utilizing maternal health services adequately for women from both poor and non-poor households. The relationship was strong for women from non-poor households but weak for those from poor households. For women from non-poor households, those in unions were found to be 2.2 times more likely to adequately utilize the maternal health care services compared to those who were never married and the relationship was significant at 1% significance level. On the other hand, for women from poor households, there was a weak chance that women in unions were 1.6 times more likely to adequately utilize the maternal health care services compared to those who were never married. This relationship was significant at 10% significance level.

The number of children ever born had a significant relationship with women's chance of adequately utilizing maternal health services for women from poor and non-poor households.. Women with four or more children were 0.6 times and 0.4 times less likely to adequately utilize the maternal health services compared to those with one to three children for women from poor and non-poor households, respectively.

The birth order of the index child was also a significant factor in determining whether or not a woman would utilize these services adequately. Women from both poor and non-poor households expecting children who were not first order births were 0.4 times less likely to use maternal health services compared to those expecting their first births.

Ever use of modern methods of contraceptives had a significant relationship with a woman's chance of adequate utilization of maternal health care services. Women from poor households who had ever used modern methods of contraception were 1.7 times more likely to adequately utilize maternal health services relative to those who reported that they had never used any. Those from non-poor households who had ever used modern methods of contraception were also 1.9 times more likely to utilize maternal health care services adequately.

There was a weak relationship between adequate utilization of maternal health services and a woman's autonomy in decision making on matters to do with their health for those from non-poor households. No relationship was established for women from poor households.

Women from poor households who had frequent access to the services of a radio were almost two times more likely to adequately utilize maternal health services compared to their counterparts who reported that they accessed services of a radio less than once a week. Their counterparts from non-poor households who had frequent access to radio had a 1.3 higher likelihood to adequately utilize maternal health services.

4.4.2 Factors Influencing Utilization for all Women

Table 4.5 presents the factors associated with utilization of maternal health services for all women who had a birth in the three-ygars preceding the survey. This is an analysis for all women combined irrespective of their wealth status and wealth status is included as one of the explanatory variables. In general, women from non-poor households were 1.7 times more likely to adequately utilize maternal health services relative to their counterparts from poor households. This relationship was significant at 5% level.

Maternal education was found to be a significant determinant of adequate utilization of maternal health care service. Women with at least primary level of education were 2.2 times more likely to have adequate utilization of maternal health services compared to those with no education. Women with secondary and above level of education were 4.4 times more likely to adequately use the services compared to those with no education.

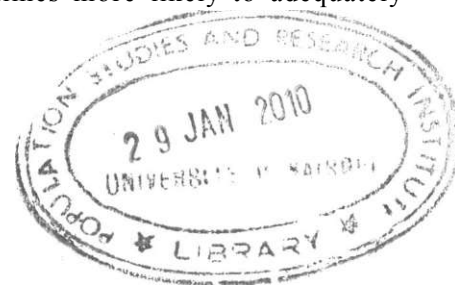


Table 4.5 Odds ratio of the effect of select background variables on adequate⁺ utilization of maternal health care services for all women

	ALL WOMEN	
	S.E	Exp(B)
Constant	.371	.103
Poor (RC)		
Non-poor	.120	1.667***
Mother no education (RC)		
Mother primary education	.238	2.181***
Mother secondary + education	.257	4.380***
Central (RC)		
Coast	.204	.514***
Eastern	.180	.602***
Nyanza	.182	.566***
Rift Valley	.160	.660***
Western	.189	.409***
North Eastern	.388	.563
Urban (RC)		
Rural	.140	.445***
Not Working (RC)		
Currently Working	.112	1.446***
15-19 Years (RC)		
20-34 Years	.182	1.692***
35 Years and above	.251	2.224***
Never Married (RC)		
In Union	.191	1.850***
Others	.260	1.078
1 to 3 Children (RC)		
4 or more Children	.140	.503***
Birth order 1(RC)		
Birth order not 1	.139	.413***
Never used Modern Contraceptives (RC)		
Ever used Modern Contraceptives	.112	1.707***
Own/consults on health (RC)		
Other person decides on health	.111	1.076
Access to radio infrequent		
Access to radio frequent	.178	1.699***

*** P< 0.01; **0.01<P<0.05; *0.05<P<0.1 + Composite index as defined in text (RC) Reference category
 Source: Analysis of KDHS 2003

Region of residence was also a significant factor influencing utilization of these services. Women from all the regions were less likely to use these services adequately relative to their counterparts from Central Province. Type of place of residence was significant in determining whether a woman adequately utilized the maternal health services. A woman residing in the rural

areas was 0.4 times less likely to utilize these services adequately compared to one in the urban areas.

Current work status of the women was found to have a significant relationship with a woman's likelihood of utilizing these services adequately. A working woman was 1.4 times more likely to adequately utilize maternal health services relative to one who was not working during the survey period.

For all women, maternal age was found to be significant in influencing a woman's chance of utilizing maternal health services adequately. Women from non-poor households aged 20-34 years were 1.7 times more likely to adequately utilize maternal health services compared to those aged 15-19 years. Also, women aged 35 years and above were 2.2 times more likely to use these services adequately relative to those aged 15-19 years.

Marital status was a significant factor in influencing a woman's chance of utilizing maternal health services adequately. Women in unions were found to be 1.9 times more likely to adequately utilize the maternal health care services compared to those who were never married.

The number of children ever born had a significant relationship with women's chance of adequately utilizing maternal health services. Women with four or more children were 0.5 times
v
less likely to adequately utilize the maternal health services compared to those with one to three children. The birth order of the index child was also a significant factor in determining whether a woman would utilize these services adequately. Women expecting children who were not first order births were 0.4 times less likely to use maternal health services compared to those expecting their first births.

Ever use of modern methods of contraceptives had a significant relationship with a woman's chance of adequate utilization of maternal health care services. Women who had ever used modern methods of contraception were 1.7 times more likely to adequately utilize maternal health services relative to those who reported that they had never used any.

Women who had frequent access to the services of a radio were 1.7 times more likely to adequately utilize maternal health services compared to their counterparts who reported that they accessed services of a radio less than once a week. This relationship was significant at 5% significant level.

The study did not establish a significant relationship between autonomy in decision making and the chance that a woman would adequately utilize maternal health services.

4.5 Discussions of the Comparative Analysis between the Poor and Non-poor Women

In general, education was found to be a significant factor in determining whether a woman used maternal health services adequately or not, irrespective of their poverty status. Education had a positive effect on the adequate utilization of maternal health services for women from both poor and non-poor households. For both categories of women, the effect of primary education on adequate utilization of maternal health services was about the same, that is, women with at least primary level of education were 2.2 times more likely to have adequate utilization of maternal health services compared to those with no education. For women from poor households, secondary and above level of education improved their chance of adequate utilization by 3.5 times relative to those with no education; while for the non-poor women, they were 5.3 times more likely to adequately use the services compared to those with no education. It is evident from the coefficients that that the non-poor were better off than their poor counterparts with regard to education.

Region of residence had an effect in the chance that a woman adequately utilized maternal health services whether they were from poor or non-poor households. Women from all the other regions included in the analysis were less likely to adequately utilize maternal health services compared to their counterparts from Central Province. Urban residence increased the likelihood of adequate utilization of maternal health services. This could be an indicator of the availability or the distribution of the facilities offering the services and other infrastructure such as roads.

Whereas the current working status of a woman did not show any significant effect on adequate utilization for women from poor households, a woman's current working status had significant

positive effect on adequate utilization of maternal health services for those from non-poor households.

The study established that ever use of modern methods of contraception was a significant factor in determining whether a woman was likely to adequately utilize maternal health services for women from both poor and non-poor households.

Whereas the study did not establish a significant relationship between age, marital status and autonomy in decision making on matters to do with the health of the women, with adequate utilization of maternal health services among women from poor households; there was a relationship between the dependent variable and autonomy in decision making on matters to do with the health of the women for those from non-poor households albeit at 10% significance level.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The overall objective of this study was to examine the factors associated with the utilization of maternal health services among women from poor households in comparison with those from non-poor households. The specific objectives were to:

Establish differentials in the utilization of maternal health services (specifically, timing of first visit, adequate attendance of antenatal clinics and professional assistance during delivery) between women from poor and non-poor households; establish the factors associated with utilization of maternal health services in the poor and non-poor households in the country; and identify the regional variations in the uptake of maternal health services among the women from poor and non-poor households.

5.2 Summary of Findings

The study established that education is a significant factor in determining whether a woman will adequately utilize maternal health services whether they were poor or non-poor. Education however had a higher positive effect for women from non-poor households compared to those from poor households.

Region of residence had an effect in the chance that a woman adequately utilized maternal health services whether they were from poor or non-poor households. Urban residence increased the likelihood of adequate utilization of maternal health services. Urban residence had a higher positive effect for women from non-poor households relative to their counterparts from poor households.

The order of birth was an important determinant for the adequate utilization of maternal health services. Higher order births decreased the likelihood of using the services adequately.

While the current working status of a woman did not show any significant effect on adequate utilization for women from poor households, a woman's current working status had significant

positive effect on adequate utilization of maternal health services for those from non-poor households.

Whereas the study did not establish a significant relationship between age, marital status and autonomy in decision making on matters to do with the health of the women, with adequate utilization of maternal health services among women from poor households; there was a weak relationship between the dependent variable and autonomy in decision making on matters to do with the health of the women for those from non-poor households albeit at 10% significance level.

5.3 Conclusion

This study looked at utilization of maternal health services as a package, that is, timing of first antenatal visit, the number of visits and finally delivery under the care of a health professional. This is because when analysis is done separately for the various aspects of maternal health care, it may fail to give the complete picture in accessing whether a woman will reduce the risk of suffering from injuries or dying due to pregnancy related complications. A woman may get antenatal care but when they do not deliver under the care of a professional, there may be emergencies during delivery that require the attention of a professional, who is capable of handling them or making the right referral. Also the number of visits recommended by the World Health Organization (WHO, 1994) enables the health care workers to counsel the mothers and detect any cases that require special attention.

From the study, it is clear that poverty may not be the only factor that influences a woman's likelihood of utilizing maternal health services because utilization was not universal even for women from non-poor households. We also conclude that the factors that determine utilization of maternal health services follow the same direction for women from poor and non-poor households. There is some variation in the extent of the effect of various factors for the women from poor and non-poor households.

Several reasons have been put forward why educated mothers use more maternal health care services than uneducated mothers in literature. Educated women may have greater decision making power on health related matters and also attach a higher value to their welfare and health.

Clearly, this study demonstrates that illiteracy among women leads to inadequate utilization of maternal health services.

Access to electronic media, in this case radio, had a positive effect on the utilization of maternal health services. The media could also be used to bring about changes in people's attitudes towards the use of modern medical services. The media also promotes health-related behaviour including contraceptive use and reproductive preferences.

Women residing in the urban areas had a higher likelihood of utilizing maternal health services relative to their counterparts in the rural areas. One of the reasons may be the availability and proximity of these services to the residence of these women.

5.4 Recommendation

The study established that there was a significant positive relationship between a woman's education level and their chances of adequately utilizing maternal health services. Use of modern methods of contraceptives also had a positive effect on the dependent variable and exposure to mass media (specifically radio) was found to have significant effect in chances of adequate utilization of maternal health services.

5.4.1 Recommendation for Policy

Following the results of the study?.] would recommend that:

- i. The Government and its partners promote the education of girls especially their transition from primary schools to secondary because secondary and above level of education has been shown to have a relatively high positive effect on adequate utilization of maternal health services. This would in turn improve the utilization of these services and in the long run lower maternal mortality. Although there are guidelines on allowing girls back to school after giving birth, efforts should be made to enforce them.;
- ii. The Government continues in provision of the devolved funds to enable the rural areas to have well equipped facilities closer to the women especially the rural poor. This would also enable the rural areas to have improved roads thus making the health facilities more accessible;
- iii. Due to the fact that women from poor households are less likely to adequately utilize maternal health services compared to their counterparts from non-poor households, the

Government and its partners should identify the very poor women and introduce a voucher system to enable them access the services even when they do not have the financial means. This is being done in some areas but it should be spread to cover more areas. Alternatively, a system of repaying for the services by doing manual labour at the facilities may enable the poor women to afford the services.

5.4.2 Recommendation for Further Research

This study established that the factors that determine adequate utilization of maternal health services have the same directional effect for women from poor and non-poor households. However, there were limitations in the data and therefore the poverty categorization used the wealth quintiles. Recommendations for further research are that:

- i Carry out further research to establish why utilization of maternal health services is not universal even for the non-poor households and whether there are other factors responsible for inadequate utilization;
- ii Integrate a poverty module in the study of utilization of health services including maternal health care. This would be able to bring out a better understanding of the effect of poverty in the utilization of these services.

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APPENDIX I: FULL LOGISTIC REGRESSION FOR TABLE 4.4 FOR POOR WOMEN

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	NO EDUCATION			15.043	2	.001	
	PRIMARY EDUCATION	.797	.294	7.349	1	.007	2.219
	SECONDARY EDUCATION	1.267	.334	14.377	1	.000	3.549
	CENTRAL COAST			24.389		.000	
	EASTERN	-1.033	.313	10.897	1	.001	.356
	NYANZA	-.739	.251	8.633	1	.003	.478
	RIFT VALLEY	-.839	.252	11.078	1	.001	.432
	WESTERN	-.541	.228	5.629	1	.018	.582
	NORTH EASTERN	-1.116	.251	19.754	1	.000	.328
	RURAL	-.913	.517	3.120	1	.077	.401
	CURRENTLY WORKING	-.765	.283	7.340	1	.007	.465
	15-19 YEARS	.424	.163	6.814	1	.009	1.529
	20- 34 YEARS			2.200		.333	
	35 YEARS +	-.111	.238	.216	1	.642	.895
	NEVER MARRIED	.211	.331	.407	1	.523	1.235
	IN UNION			2.842		.241	
	OTHERS	.448	.270	2.761	1	.097	1.565
	40R MORE CHILDREN	.303	.346	.769	1	.381	1.354
	BIRTHORDER NOT FIRST	-.528	.192	7.580	1	.006	.590
	EVER USED MODERN CONTRACEPTIVES	-.803	.206	15.262	1	.000	.448
	OWN DECISION/CONSULTS	.501	.153	10.652	1	.001	1.650
	FREQUENT ACCESS TO RADIO	-.087	.153	.319	1	.572	.917
	CONSTANT	.643	.229	7.895	1	.005	1.902
		-1.576	.502	9.842	1	.002	.207

APPENDIX II: FULL LOGISTIC REGRESSION FOR TABLE 4.4 FOR NON-POOR WOMEN

		B	S.E.	Wald	df	Sig.	Exp(B)
Step	NO EDUCATION			35.137	2	.000	
1(a)	PRIMARY	.799	.419	3.639	1	.056	2.223
	EDUCATION						
	SECONDARY	1.676	.434	14.946	1	.000	5.345
	EDUCATION						
	CENTRAL			4.360		.628	
	COAST	-.271	.284	.917	1	.338	.762
	EASTERN	-.308	.263	1.370	1	.242	.735
	NYANZA	-.154	.278	.310	1	.578	.857
	RIFT VALLEY	-.238	.230	1.072	1	.300	.788
	WESTERN	-.529	.298	3.138	1	.076	.589
	NORTH EASTERN	.153	.625	.060	1	.807	1.165
	RURAL	-.690	.174	15.670	1	.000	.502
	CURRENTLY						
	WORKING	.286	.162	3.125	1	.077	1.332
	15-19 YEARS			24.830		.000	
	20- 34 YEARS	1.422	.290	24.048	1	.000	4.147
	35 YEARS +	1.679	.397	17.863	1	.000	5.359
	NEVER MARRIED			17.836		.000	
	IN UNION	.786	.277	8.031	1	.005	2.195
	OTHERS	-.243	.393	.383	1	.536	.784
	4 OR MORE						
	CHILDREN EVER	-.907	.212	18.276	1	.000	.404
	BORN						
	BIRTHORDER NOT						
	FIRST	-.908	.199	20.893	1	.000	.403
	EVER USED						
	MODERN	.635	.172	13.642	1	.000	1.887
	CONTRACEPTIVES						
	OWN DECISION/						
	CONSULTS	.305	.165	3.394	1	.065	1.356
	FREQUENT						
	ACCESS TO RADIO	.260	.295	.777	1	.378	1.297
	CONSTANT	-2.867	.611	21.986	1	.000	.057

APPENDIX III: FULL LOGISTIC REGRESSION FOR TABLE 4.5

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	NON-POOR	.511	.120	18.051	1	.000	1.667
	NO EDUCATION			48.936		.000	
	PRIMARY	.780	.238	10.719	1	.001	2.181
	EDUCATION						
	SECONDARY	1.477	.257	33.035	1	.000	4.380
	EDUCATION						
	CENTRAL			25.168		.000	
	COAST	-.665	.204	10.670	1	.001	.514
	EASTERN	-.507	.180	7.890	1	.005	.602
	NYANZA	-.570	.182	9.846	1	.002	.566
	RIFT VALLEY	-.415	.160	6.686	1	.010	.660
	WESTERN	-.894	.189	22.345	1	.000	.409
	NORTH EASTERN	-.575	.388	2.199	1	.138	.563
	RURAL	-.810	.140	33.547	1	.000	.445
	CURRENTLY	.369	.112	10.749	1	.001	1.446
	WORKING			10.807		.005	
	15-19 YEARS			8.358	1	.004	1.692
	20- 34 YEARS	.526	.182				
	35 YEARS +	.799	.251	10.101	1	.001	2.224
	NEVER MARRIED			16.033		.000	
	IN UNION	.615	.191	10.401	1	.001	1.850
	OTHERS	.075	.260	.083	1	.773	1.078
	40R MORE	-.688	.140	24.282	1	.000	.503
	CHILDREN						
	BIRTHORDERNOT	-.884	.139	40.321	1	.000	.413
	FIRST						
	EVER USED	.535	.112	22.790	1	.000	1.707
MODERN							
CONTRACEPTIVES	.074	.111	.440	1	.507	1.076	
OWN DECISION/ CONSULTS							
FREQUENT	.530	.178	8.911	1	.003	1.699	
ACCESS TO RADIO							
CONSTANT	-2.272	.371	37.610	1	.000	.103	