UTILIZATION OF ANTENATAL CARE AND DELIVERY SERVICES IN KENYA

BY

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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:** ...19TH NOV 2007....

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This project has been submitted for examination with our approval as University Supervisors.

Signed: ..... **Date:** 22-11-07

Dr. Lawrence Ikamari

Signed: ..... **Date:** 22/11/2007.....

Dr. Alfred Agwanda

DEDICATION

To my loving Mum Anekeya who taught me the value of education, To my husband Ndombi for his undying support and encouragement, To my children Kenneth, Deborah and Kelvin who had to spend many days without me. Last but not least, "To God is the glory great things He has done".

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ABSTRACT

Kenya as a nation has put its efforts in improving maternal health more so reproductive health. There are free antenatal care services offered to all women though the same cannot be said of delivery care where women pay a small fee. According to KDHS, 2003 eighty six percent of the expectant women seek antenatal care at least once in the duration of their pregnancy, however only fifty four percent of these women deliver at a health facility. This is a major set back in the fulfillment of Millennium Development Goal number 5 of reducing maternal mortality ratio by three-quarters by 2015. The Kenya Demographic Health Survey, 2003 data was used to examine the utilization of antenatal care and delivery services in Kenya. The sample is made up of 8549 women aged 15-49 who are then subset to get those who had a birth 5 years prior to the survey and these are 3485 women from the Child file. There are socioeconomic, socio cultural and demographic factors. The method of data analysis is Bivariate regression analysis with frequencies and percentages to show the characteristics of the study population. The results from logistic regression models show that generally women who are highly educated, from urban residence, with low parity, in the high wealth bracket, currently married and over 35 years are likely to receive adequate antenatal care during their pregnancy. High educational attainment, urban residence, region of residence, ethnicity and mother's parity is significant in influencing a woman's decision to deliver in a health facility. This will provide policy makers and program administrators with a better understanding of reasons why more effort should be put in achieving better maternal care for women all over the nation. The findings can be used to modify existing service delivery approaches so that the women are encouraged to seek antenatal early in pregnancy and proceed to seek skilled delivery care uniformly in all regions of the nation.

CHAPTER ONE
INTRODUCTION

1.0 Introduction

International conferences over the last decade have recognized women's right to quality reproductive health and reproductive services as an intrinsic component of their basic right to health and well-being. The ICPD Programme of Action in particular urged Governments to use their primary health-care systems to make reproductive health services available to all individuals throughout their reproductive years by 2015. Women's overall health and especially their reproductive health is recognized as being linked to their educational, economic and social status (United Nations, 2000). Care during pregnancy, known as "antenatal care", is essential for diagnosing and treating complications that could endanger the lives of mother and child. Most life-threatening obstetric complications cannot be prevented through antenatal care. However, there is enough evidence that care during pregnancy is an important opportunity to deliver interventions that will improve maternal health and survival during the period immediately preceding and after birth. In addition, if the antenatal period is used to inform women and families about danger signs and symptoms and about the risks of labour and delivery, it may provide the route for ensuring that pregnant women deliver with the assistance of a skilled health care provider. Antenatal care is a potentially important way to connect a woman with the health system which, if functioning will be critical for saving her life in the event of a complication (WHO and UNICEF, 2000).

Complications related to pregnancy and childbirth are among the leading causes of mortality among women of reproductive age in most less developed countries, Kenya included. The lifetime risk of a woman in a developing countries dying in pregnancy or pregnancy related illness is 1 in 25 while in the developed world it is 1 in 40. The use of maternal and child health services, such as antenatal care and professionally assisted delivery improves the health and well being of women and children. Therefore the importance of adequate antenatal care and delivery assistance needs to be well established (United Nations, 1995). In the 2002 estimates there were 414 maternal deaths per 100,000 live births representing 1 in 25 lifetime risk of dying from a maternal related death. Current estimates indicate that 71 percent of women in the developing world are attended at to at least once during pregnancy by skilled health personnel (doctor, nurse

or midwife) according to AbouZahr and Wardlaw (2002). With reference to the 2003 KDHS report, 18 percent of women sought antenatal care from doctors while 70 percent of them sought care from nurses and midwives (NCPD, CBS & MII, 1999 & 2003).

Disparities in access to antenatal care are significant. Urban women are twice as likely as rural women to report four or more antenatal visits. Overall, women with secondary education are twice as likely to have antenatal care as women with no education. Wealth distribution is also a major determinant of antenatal care. In all regions, the poorest of the population are far less likely to have antenatal care than the richest. Wealth disparities are generally widest in Asia, in some countries of Northern Africa, and smaller in Southern and Eastern Africa, and in Latin America. The antenatal period also offers opportunities for delivering health information and services that can significantly enhance the well-being of women and their infants, but this potential has yet to be realized (UNICEF, 2004).

Antenatal visits offer entry points for a range of other programmes – including on nutrition and the prevention of malaria, HIV infection, tetanus and tuberculosis – as well as obstetric care. Whereas women themselves appear to have embraced the concept of care during pregnancy (when such services are available) the care they are offered often falls short. Greater efforts are needed to improve the content and quality of services offered. In addition, increased attention is needed to ensure that particular groups of women, specifically those living in rural areas, the poor and the less educated, have access to antenatal services (UNICEF, 2004).

WHO has developed specific guidelines regarding the timing and content of antenatal care visits. According to these guidelines, antenatal care visits should be a minimum of 4 visits and should include, the measurement of blood pressure, testing of urine for bacteriuria and proteinuria, and blood tests to detect syphilis and severe anemia. Routine weight and height measurement at each visit is considered optional. But evidence-based programming on the optimal number, timing and content of antenatal visits is not yet routine in most settings.Antenatal care is closely linked to maternal mortality. It is important to look at factors leading to maternal mortality which include: Medical factors, Health service factors, and reproductive factors.

Marston & Cleland (2003) found out that increased use of contraception would have a direct effect on the number of maternal deaths by reducing the number of pregnancies. It's been estimated that if all women who say they want no more children were able to stop childbearing, the number of births would be reduced by 17 percent in Africa; maternal mortality would also be expected to fall by at least this proportion. The fall in maternal mortality is likely to be even greater than the fall in the pregnancy rate.

1.1 Problem Statement

Many women lack access to reproductive health services. This situation has been universally recognized as a leading factor in maternal and infant morbidity and mortality. In developing countries, for example, maternal mortality continues to be a leading cause of death for women of reproductive age. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) estimate that a woman's lifetime risk of dying from maternal causes is 1 in 16 in Africa, while a woman's risk is 1 in 1,400 in Europe. Furthermore, millions of women suffer from injuries and disabilities from maternal causes, often for the rest of their lives. In countries where fertility is high, women face this risk many times over a lifetime. This lifetime risk would be considerably reduced if women had access to safe and effective contraceptive services. Once a woman is pregnant, skilled medical care is essential to ensure her safety and that of her infant (WHO and UNICEF, 2000). The maternal mortality ratio for Kenya was estimated to be 414 deaths per 100,000 live births in 2003 (NCPD et al, 2003).

Even though almost all pregnant women in Kenya receive some antenatal care from health personnel, less than half of deliveries in the country take place in a health facility (APHRC, 2002). The irregularity of antenatal visits also limits their effectiveness. According to a survey done in rural western Kenya by Eijk et al., (2006), 64 percent of women first visited the ANC in their third trimester while 80 percent of women delivered outside a health facility. Health facility deliveries are more likely to be attended to by a doctor or nurse/ midwife, whereas home deliveries are likely to be attended to by a traditional birth attendant (TBA), a relative (or other unskilled persons), or no one.

Appropriate delivery care is important for both maternal and perinatal health, particularly in cases where childbirth complications arise. Even though most women do not experience major problems during childbirth, complications that require immediate action could occur. Maternal and perinatal outcomes in such cases are greatly improved when such complications occur in the presence of a trained attendant. It is important that mothers deliver their babies in an appropriate setting, where professional attention and hygienic conditions can reduce the risk of complication and infections that may cause death or serious illness to either the mother or the child. Births that are delivered at home are more likely to occur without the assistance of a medically qualified person (Magadi et al., 2000).

The World Health Report (2005) calls for new momentum to address and improve maternal, neonatal and child health. Meeting the Millennium Development Goal for child survival (MDG 4) requires a two-thirds reduction in death rates for children under the age of 5 by 2015. This target will not be met without substantial reductions in neonatal mortality, since neonatal deaths comprise almost 40 per cent of under-5 child deaths. The MDG 5 targets for maternal health include a three-quarters reduction in the risk of maternal death. However, progress towards this goal is slow. Based on the information above this study is interested in finding out why women in Kenya seek antenatal care services even though late in pregnancy but prefer to deliver outside health facility. This is a dangerous trend that should not be allowed to continue if the MDG 4 and 5 are to be achieved by 2015. This study also seeks to find out the determinants of utilization of antenatal care and delivery care and whether there is a link between seeking antenatal care and the place for delivery.

1.2 Key Research Questions

1. What are the socioeconomic, demographic and socio-cultural determinants of antenatal care?

2. What are the socioeconomic, demographic and socio-cultural determinants of seeking delivery services at a health facility?

1.3 General Objective

To establish the determinants of utilization of antenatal care services and delivery care in Kenya.

1.3.1 Specific Objectives

1. To establish whether socio-economic, demographic and socio-cultural factors influence seeking antenatal care services in Kenya.
2. To establish whether socio-economic, demographic and socio-cultural factors influence seeking of delivery care in Kenya

1.4 Justification of the Research

Even though several studies have been carried out in the area of maternal and child health, it is still not clear why women seek antenatal care it could be late in pregnancy but proceed to deliver out of a health facility with no skilled care at all. What factors influence antenatal Care visits and seeking delivery care among women on Kenya? It is not known why more women seek antenatal care than delivery services in Kenya and this is a very important area in demography as it touches on maternal health which also influences child and maternal mortality. The findings of this study will benefit women in the reproductive age bracket of 15-49 yrs so that they can be encouraged to make adequate antenatal care visits during pregnancy and be made aware of benefits of seeking delivery services from health facilities. The government and policy makers will also benefit from the findings of this study, as they will use them to set up interventions in order to improve maternal health in Kenya. This in turn will help to achieve the goal of safe motherhood MDG 4 and MDG 5 by 2015. This study can also provide baseline data for Kenya against which efforts to improve services on women reproductive health as a whole can be evaluated.

1.5 Scope and Limitations of the Study

The study is limited to secondary data obtained from the KDHS 2003 survey. Qualitative data would have been a useful source of information and would have been collected by asking women why they did or did not seek antenatal care during their pregnancy and deliver or not deliver in a health facility with skilled care. However the study is limited to the use of questions asked in 2003 KDHS survey.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter outlines the literature available that concerns the use of antenatal care and delivery services among women in the world and later narrows it down to Kenyan women.

2.1 The Rest of the World

An estimated 529,000 women died from the complications of pregnancy and childbirth in 2000. For every woman who dies, approximately 20 more are seriously injured or disabled. This means that, every year, close to 9 million women suffer some type of injury from pregnancy or childbirth that can have a profound effect on their lives and that of their families.

These deaths were almost equally divided between Africa and Asia, which both accounted for 95 per cent of the total. Only 4 per cent of all maternal deaths occurred in Latin America and the Caribbean, and less than one per cent in the developed regions.

According to (WHO, 1991) the effectiveness of prenatal care in saving lives depends to a large extent on an efficient referral system to higher levels of care where necessary. For women in rural areas with poor transport systems, the benefits of such care is screening for risk factors and detecting complications. Also another factor that is often ignored is that simple existence of prenatal care tells very little about the quality of that care. Facilities may lack even the most basic resources; drugs, the instruments to measure blood pressure or haemoglobin, or even water electricity, or often routine monitoring is carried out with no follow-up of abnormal findings. The use of maternal and child health services such as prenatal care and professionally assisted delivery improves the health and well being of women and children. The antenatal period presents important opportunities for reaching pregnant women with a number of interventions that may be vital to their health and well being and that of their infants. Better understanding of fetal growth and development and its relationship to the mother's health has resulted in increased attention to the potential of antenatal care as an intervention to improve both maternal and

newborn health. For example, if the antenatal period is used to inform women and families about the danger signs and symptoms and about the risks of labor and delivery, it may provide the route for ensuring that pregnant women do, in practice, deliver with the assistance of a skilled health care provider. The antenatal period also provides an opportunity to supply information on birth spacing, which is recognized as an important factor in improving infant survival. Tetanus immunization during pregnancy can be life saving for both the mother and infant (AbouZahr and Wardlaw, 2006).

Appropriate antenatal care is important in identifying and mitigating the risk factors in pregnancy but many mothers in developing countries do not receive such care. The failure to receive appropriate antenatal care during pregnancy can lead to undesirable pregnancy outcomes such as maternal morbidity, low birth weight or even maternal and perinatal mortality. (Magadi et al, 2000).

Antenatal visits are also helpful for providing essential services such as prevention of anaemia through nutritional education and provision of iron and folic acid tablets. Ideally, antenatal care functions to identify and monitor women at risk of future complications, to detect and treat pre-existing and concurrent illness of pregnancy, to provide preventive care and information to women and their families, and to establish a relationship between providers and women early in pregnancy (WHO, 1994).

The prevention and treatment of malaria among pregnant women and treatment of STIs can significantly improve fetal outcomes and improve maternal health. Adverse outcomes such as low birth weight can be reduced through a combination of interventions to improve women's nutritional status and prevent infections (e.g. malaria and STIs) during pregnancy. More recently, the potential of the antenatal period as an entry point for HIV prevention and care, in particular for the prevention of HIV transmission from mother to child, has led to renewed interest in access to and use of antenatal services (AbouZahr and Wardlaw, 2006).

In an analysis of levels, trends and differentials in antenatal care in developing countries, Abou-Zahr and Wardlaw(2003) found that while women were, in general more likely to present themselves for antenatal care during the first trimester, sub-Saharan Africa was an exception.

Most women were more likely to wait until the second trimester and a substantial proportion presented themselves in the third trimester.

It is believed that high levels of antenatal care use are also associated with the use of safe delivery care (Abou-Zahr & Wardlaw 2003: Bloom, Lippeveld, & Wypij, 1999). According to Abou-Zahr & Wardlaw (2003); Carroli, Rooney, & Villar, (2001), the importance of antenatal care is more apparent for Sub-Saharan Africa given that the region is characterized by high maternal mortality and morbidity and any opportunities for contact with health services are likely to make an impact. There are Medical Factors which can be subdivided into direct and indirect factors. The direct factors are those resulting from the complications of pregnancy, delivery or its management. The indirect factors are those that occur as an aggravation of some existing condition such as hepatitis or heart disease by pregnancy or delivery. There are health service factors which can be caused by; deficient medical treatment of complications i.e. mistaken or inadequate action by medical personnel, lack of essential supplies and personnel, lack of access to maternity services, maternal mortality rates are increased in areas where access to hospital is difficult. Women from such areas are likely to arrive in serious condition and lack of prenatal care. Women who did not receive pre-natal care are more likely to die than women who had. Reproductive Factors include maternal age at birth as when compared, women aged 20-24 are less likely to die at childbirth and 35-39 were most likely to die from a given pregnancy. Parity: Several studies also confirmed the increased risk of death associated with having many children.

In Jamaica, compared to women having their second child, those having their 5th through 9th births were 43% more likely to die. The importance of this data is that the use of FP could prevent a great many deaths of women of unfavorable age or parity. Unwanted pregnancies, which occur at young ages,: Unsafe abortion from unwanted pregnancies causes 25-50 of the unwanted deaths. This is because women do not have access to family planning services they want and need. They have no access to safe procedures or to human and humane treatment for the complications of abortion. Thousands die and millions are disabled permanently i.e. for every death 10-15 are handicapped. The adverse social, cultural, political and economic environment of societies and especially the environment that societies create for women: Women are discriminated against in terms of legal status, access to education, access to financial resources,

access to food and proper nutrition, access to appropriate employment, and access to proper health care including family planning services.

Despite the widespread availability of free antenatal care services, most women in rural South Africa attend their first antenatal clinic late in pregnancy and fail to return for any follow up care, potentially leading to avoidable perinatal and maternal complications. Most women in this setting do not perceive significant health threats during pregnancy, and in turn view more than one antenatal care visit as unnecessary. In contrast, women perceive labour and delivery as a time of significant health risks that require biomedical attention, and most women prefer to give birth in a health facility. This paradox, in which health care is important for childbirth but not during pregnancy, is embodied in most women's primary reason for seeking antenatal care in this setting: to receive an antenatal attendance card that is required to deliver at a health facility (Landon & Abigail, 2003).

Although survey results from different parts of the world have indicated that poor perinatal outcomes are less common among births attended by a traditional birth attendant (TBA) or a midwife, and more common among births taking place in a health facility under the care of a medical doctor it has been pointed out that these results do not indicate a causative relationship but probably reflect self-screening or referral of complicated cases, perhaps after a delay. We should be careful, however, not to assume that the observed negative outcomes in medical deliveries are solely due to self-screening of complicated cases, since poor quality of services in many public health facilities in the developing world may sometimes negate the expected positive aspects of health facility deliveries (World Bank Group, 2007).

Previous studies have observed factors predicting the delivery care to include cultural, socioeconomic, demographic and service accessibility factors. Low maternal or paternal educational attainment, low socioeconomic status, rural residence, young maternal age, and high-order births have been observed to be associated with high probabilities of deliveries outside a health facility. It is important, however, to understand the specific factors that are important in various settings, since these may vary considerably. For example, in India (Basu, 1990) noted that fear and the physical inconvenience of a hospital delivery were the predominant reasons

among Indian mothers for reluctance to have hospital deliveries. A study in Bangladesh found that most of the childbirths occurred at home while most maternal deaths occurred among the mothers who delivered at home (UNICEF, 1993).In an examination of regional differences in mortality levels in India, the level and nature of political awareness was found to explain differential access to, demand for, and utilization of health services, after income differences were controlled for (Nag, 1989). In situations where women are forced to take up market employment, women not only continue to bear the burden of domestic work, but also suffer the consequences of gender based inequalities in the labour market, such as lower wages, less regular employment, and higher level of underemployment than men. In such situations, women's employment may do little, if anything to strengthen their capabilities to implement reproductive preferences (Bruce and Dwyer 1988).In a study of determinants of maternal health care in India, Bhatia and Cleland (1995) confirmed the important role played by socio-economic factors on use of maternal health services. Higher maternal education and higher levels of personal hygiene were observed to be associated with a significantly higher probability of routine antenatal checkup, while women in low caste were observed to have reduced probabilities of routine antenatal checkup, while women in their first pregnancy were more likely to receive routine antenatal checkup.

According to Thaddeus and Maine (1994), the low value placed on women in many societies limits their autonomy in decision making, limits their access to transportation, leads to discrimination in health care utilization especially where cost is a constraint and leads to neglect of women's health. Cost and distance often go hand in hand as considerations in the decision making process, since longer distance entails higher costs. However quality of care has often been observed to be a more important consideration in the decision to seek care than cost.

In Africa, 36 percent of women are literate as compared with 57 percent of men. In developing countries overall, women account for more than half the food produced, and many rural women work up to eighteen hours a day. Women are increasingly entering the labour force, but most remain in highly segregated, low-paid jobs. These factors influence women's sense of personal security and consequently affect their reproductive decisions. (Ford Foundation, 1991).Looking at unwanted pregnancies, they may involve increased risks for the woman or her unborn child simply because the woman or her family may be less likely to invest time and money in

obtaining prenatal care and skilled help in childbirth for an unwanted child. In their paper (Marston & Cleland, 2003) looked at data from five developing countries to try to determine whether this is in fact the case, and whether "unwanted ness" has a longer-term impact on the health of the child. In fact, the only consistent relationship they found was in relation to antenatal care: unwanted pregnancies were less likely to receive such care before the sixth month.

In a study in Utter Pradesh, India (Bloom et al, 1999) found out that after controlling for relevant socio-demographic and maternity history factors, women with a relatively high level of care (at the 75th percentile of the score) had an estimated odds of using trained assistance at delivery that was almost four times higher than women with a low level of care (at the 25th percentile of the score) (OR=3.97, 95% CI=1.96, 8.10). Similar results were obtained for women delivering in a health facility versus at home. In the Philippines safe motherhood survey of 1993, respondents having their first births, those with college education and those in urban areas most saw a doctor, while those with primary or no education, and in rural areas, more often saw a midwife or a TBA and were more likely to receive fewer components of antenatal care. The less educated were also less likely to receive tetanus toxoid (NSQ and MI, 1993). The resources available both to the family and community determine the access to which women have to antenatal and child health care services. The cultural setup too influences the health care behaviour and utilization of health services the modern healthcare services may be available but if culture prohibits some practices, then women may not make use of them (Abuya, 2002).

2.2 Kenya

Since 1967, the Kenya government has been promoting an integrated MCH/FP programme with to the twin objective of enhancing the welfare of both mothers and children and reducing fertility thus checking rapid population growth (Ikamari, 2004).

Kenya has introduced Focused Antenatal care as recommended by World Health Organization (WHO). This is quality of care of birth planning and potential complications, detection of existing diseases (e.g Malaria in pregnancy and STIs) and counseling on post partum care. (Birungi et al, 2006). Focused ANC guidelines recommend that a pregnant woman should have four comprehensive, personalized ANC visits that include a package of quality services

specifically tailored to the timing of each visit (MOH 2002; MOH-DOH/DOMC/JHPIEGO 2002). Socio-economic status is also important in the pattern of utilization of antenatal care; those from high socio-economic households receive care earlier in the pregnancy and thus make more visits compared to those from low socio-economic households. Access to health services is important; those living more than 10 km or one hour walking distance from a clinic are the least likely to receive adequate antenatal care. Ever use of family planning was associated with use of antenatal services. More than one-third of the women in the sample had used modern methods of family planning previously. Such women were more likely to visit antenatal clinics earlier in the pregnancy and to make regular visits.

Magadi (1999) concurs with the view that distance and accessibility of services exert a dual influence in antenatal health care utilization. Long distance or inaccessibility of services can be an actual obstacle to reaching a health facility or can be a disincentive to even trying to seek care. The issue of access is an acute problem for rural inhabitants in most developing countries. Poor quality of health and family planning services discourage people from using them particularly if providers do not treat clients with respect, supplies are lacking, or access for teenagers is limited.

The Safe Motherhood Initiative promotes antenatal care, and skilled assistance (defined as a midwife, nurse trained as midwife, or a doctor) during childbirth. Safe motherhood strategies promote counseling of clients on danger signs and the development of an individual birth plan; pregnant women and their relatives are encouraged to arrange transport, money and a companion before onset of labor (Hanneke M. Bles et al, 2006).The objective of providing safe delivery care is to protect the life and health of the mother and her child. An important component of efforts to reduce the health risk to mothers and children is to increase the proportion of babies delivered under supervision of health professionals. Proper medical attention under hygienic conditions during delivery can reduce the risk of complications and infections that may cause death or serious illness either to the mother, baby or both (NCPD et al, 2003).

According to KDHS, 2003 two out of five births (40 percent) in Kenya are delivered in a health facility, while 59 percent are delivered at home. Births to older women and births of women of

higher parity are more likely to occur at home. Similarly children born whose mothers had more antenatal care visits during pregnancy are less likely to deliver at home. In Kenya, the risk of poor birth outcomes is highest for a woman's first child (Hollander, 2001). This is confirmed by (Magadi et al, 2000) in their study on frequency and timing of antenatal care in Kenya that some women who attended antenatal care regularly for other pregnancies changed their attendance pattern if a pregnancy was mistimed. Other studies also show that the majority of non-abortion maternal deaths are due to direct obstetric causes such as haemorrhage, especially sepsis (NCPD, 1999).In a study on antenatal care and delivery service use among women in Western Kenya by (Van Eijk et al., 2006), it was concluded that in this rural area, usage of antenatal care was high, but this opportunity to deliver important health services was not fully utilized. Use of professional delivery services was low, and almost 1 out of 5 women delivered unassisted. There is an urgent need to improve this dangerous situation. The type of assistance a woman receives during birth has important health consequences for both the mother and the child. A study carried out in Busia in Kenya in the early 1980's indicates that in spite of existence of modern health facilities, the majority of births in the district took place at home without professional assistance.

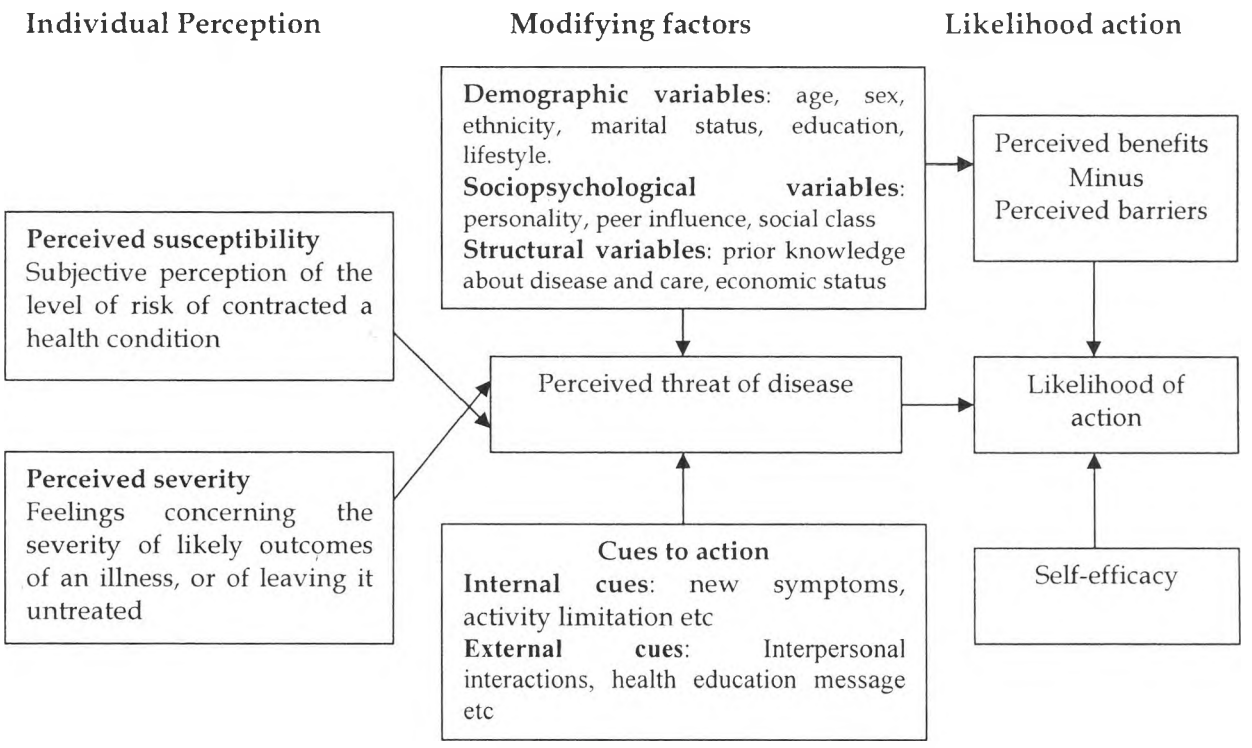
According to the 2003 KDHS report 42 percent of births in Kenya are delivered under the supervision of a health professional, mainly a nurse or midwife. Traditional birth attendants continue to play a vital role in delivery, assisting with 28 percent of births. Relatives and friends assist in 22 percent of births. Maternal age and child's birth order were associated with the type of assistance at delivery. Births to older women and those of higher birth order were more likely to occur with no assistance, compared to births to younger women and those of lower birth order (NCPD et al, 2003). Slightly over half (52%) of all women make fewer or more visits. 36% of mothers make fewer than 4 visits.

Delivery care in Kenya is determined by a wide range of factors: socioeconomic and cultural factors associated with the individual woman or her household, her demographic status or reproductive behavior relating to a specific birth, as well as availability and accessibility of health services within her community. In addition, a significant variation in delivery care behavior is observed between women and between communities. The woman/family effect on delivery care is particularly strong, implying that women are fairly consistent in delivery care

behaviour for different births. This effect varies by distance to the nearest delivery care facility (Magadi et al., 2000). According to a study carried out in rural western Kenya by (lindblade et al, 2006) found out that despite the fact that 90% of the women reported attending antenatal care, fewer than 2 in 10 gave birth in a health facility. Observed contributing factors for a home delivery included the fast progression of labor, distance, difficulty of (night) travel, and cost. Distance was a barrier for facility delivery but not for ANC attendance.

In conclusion and based on the information given by various authors and scholars I find it important to carry out this study so as to fill in the gap in information on whether there is a link between antenatal care and the place of delivery care. It is of significance to note that in Kenya even though over 80 percent of expectant women attend at least one antenatal care visit but when it comes to delivery only about 50 percent deliver in hospital. The study will also emphasize the significance of linking family planning, maternal health, child survival with antenatal care visit and place for delivery care. May be our health care system should design its services in a way that the cultural beliefs of Kenyans are put into consideration in order to make them accessible and acceptable.

Figure 2.1: Health Belief Model



Food for the Hungry, 2004

Health Belief Model

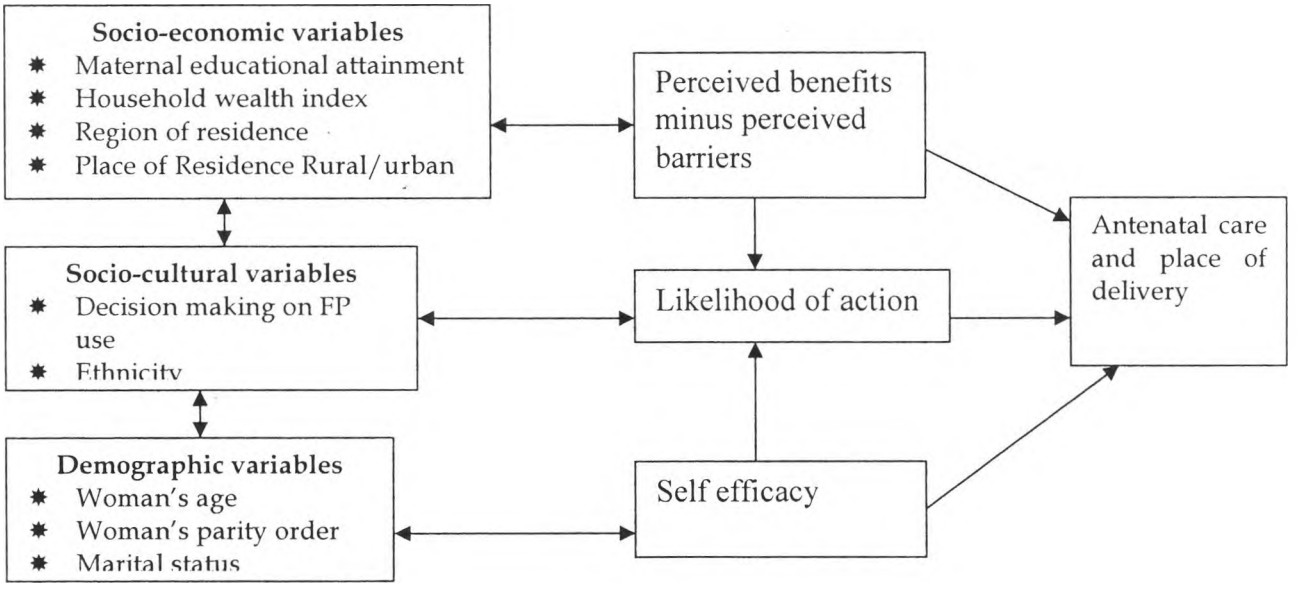
In this study the health belief model has been used to explain the Kenyan situation and this can help us to understand how people's beliefs and attitudes affect the way they think and act. The Health Belief Model is a psychological model that attempts to explain and predict health behaviour which is done by focusing on the attitudes and beliefs of individuals. The Health Belief Model has been applied to a broad range of health behaviours and subject populations (Conner and Norman, 1996). In this study I will use the Health Belief Model to illustrate clinic use, which in this case is Antenatal care and skilled delivery care. The Health Belief model is based on the core assumptions that a person will take a health related action for example the use of Antenatal care if that person.

i) Feels that a negative health condition can be avoided.

ii) The person has a positive expectation that by taking a recommended action, he will avoid a negative health condition. For example antenatal care will prevent risky pregnancy outcomes.
iii) The person believes that he /she can successfully take a recommended health action comfortably and with confidence.

This model is used to explain the Kenyan women's situation in the seeking of antenatal care and skilled delivery care. Even though women may be aware that they need to go for antenatal check up there are many other factors that may hinder them from seeking this care. It could be their cultural beliefs and even what the society has taught and expects of them. It also because of the benefits they think they will get if they went for this care. Some may feel is not beneficial at all hence decide to go late in pregnancy just to get a card which acts as an insurance incase of pregnancy complications. In the case of delivery care many communities in Kenya take pregnancy to be a normal occurrence and therefore there is no cause for alarm therefore going to deliver in the hospital is for those women who are weak. In some communities one is not supposed to expose their pregnancy early to protect it from evil eyes. Therefore basing on these statements this belief model applies to the Kenyan situation.

Figure2. 2: Operational Framework



Adopted and modified from Kroeger, 1983

The use of antenatal care and skilled delivery care is directly affected, promoted and/or modified by socioeconomic and socio-cultural factors that prevail in a given society/household.

Operational Hypotheses

1) Women with higher educational attainment are likely to attend antenatal care compared to those with low education.

2) The region and place of residence will influence whether a woman will seek delivery care from a health facility or not depending on the perceived barriers.

3) The decision making on contraceptive use, ethnicity and maternal age influence a woman's decision on utilization of antenatal care and delivery services if she considers it achievable.

4) The parity order of a woman has a negative influence on her seeking delivery care from a health facility.

CHAPTER THREE
DATA AND METHODOLODY

3.0 Introduction

This chapter outlines the data to be used in this study as well as the methodology to be used for analysis. It also contains the data's characteristics and quality.

3.1 Data

The data for this study will be drawn from 2003 Kenya Demographic and Health Survey. The sample consists of women aged between 15 and 49 years. This data is appropriate for this study because women aged 15 to 49 years are the ones in the reproductive age bracket. These women were asked questions about their reproductive history 5 years prior to the survey and this will be the data that will be subset and made appropriate to carry out the analysis. Specifically the data will point out whether a woman sought antenatal care for her last pregnancy and the number of this care then whether or not she went on to deliver in a health facility.

Description of Variables

3.1.1 Dependent Variable(s)

The dependent variables will be whether or not a woman seeks antenatal care measured by the number of visits during the duration of her pregnancy and whether she delivered in a health facility. Less than four visits will be referred to as inadequate while four visits and above will be referred to as adequate. This will be recoded after running the frequencies so that the variable can be dichotomous for purposes of analysis. To determine place of delivery used will also be dichotomous that is whether the woman delivered at a health facility or anywhere else.

3.1.2 Independent Variables

Socioeconomic Variables

a) Maternal educational attainment to be categorized as no education which is the reference category, primary complete, Primary incomplete and secondary and above.

b) Wealth index to be categorized as low as the reference category with the others being medium and high index.

c) Region of residence to be grouped as Nairobi as the reference, Central, Coast, Eastern, Western, Nyanza, Rift Valley and North Eastern Province being the other categories.

d) Type of place of residence to be grouped as urban or rural with urban as reference.

Women seeking antenatal care on time and skilled delivery care are expected to increase with educational attainment; the same as for wealth index, with women in the high wealth index being expected to seek skilled care the most. Considering the region of residence, women located in Nairobi and Central Provinces are expected to seek this skilled care the most while those in urban areas are expected to seek this care more than those in rural areas due mostly to the easier accessibility and availability of these services.

Socio-Cultural Variables

a) Decision making on family planning use will be categorized woman's decision, which will be used as a reference then husband's decision, joint decision and others' decision.
b) Ethnic group to be grouped as Kikuyu/Embu/Meru is the reference, Luo, Luhya, Kalenjin and other ethnic groups.

It is expected that women who make the decision to use family planning jointly with their husbands will have higher incidences of seeking antenatal and skilled delivery care than if the decision is made by either of them or by other people. For the ethnic groups, women who are in

the Kikuyu/Meru/Embu category are expected to seek skilled care the most compared to the other ethnicities.

Demographic Variables

a) Mother's age, which will be grouped as less than 20 years, is the reference category while, 20-34 years and 35 years and above are the other categories.

b) Mother's parity order, which will be categorized as first and which is also the reference category, 2-3 births and 4 births and more as the other categories.

c) Marital status, to be grouped as never married which is the reference, currently or formerly being the other categories.

Women who are aged less than 20 years are expected to seek antenatal care and delivery care the least compared to older women of at least 35 years or more. Utilization of antenatal care is expected to decrease with parity while women who have never been married being expected to seek this care the least compared to those who are currently/formerly married.

3.2 Data Analysis

Bivariate Regression Analysis

Descriptive statistics and frequencies were used to measure the relationship between the dependent variable(s) and each of the independent variables.

Binary logistic regression which is a deterministic model was used to identify predictors of an event and the relative importance of predictors' variables. Binary logistic regression is applied to assess the effect of factors that are theoretically said to be associated with the number of Antenatal care visits and the use of skilled delivery care. This method helped in explaining the relationship between the independent variables and the dependent variable(s). Logistic regression was chosen because the dependent variable(s) are dichotomous. Logistic regression is an efficient way to institute necessary control when the dependent variable(s) is recorded on a

dichotomous scale. Logistic regression is derived from the principle of Odds Ratio. That is the ratio of the probability that an event will occur (p), to the probability that will occur (1-p) is called odds. Thus logistic regression is often expressed in the form:

Logit P =In (P/1-P) = $\alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \text{-----} \beta_n X_n + E$

Where:

P- Is the probability that the event will occur

In- Is the natural logarithm

(1-P)- Is the probability that the event will not occur

α – Is the constant

β_s – Are the logistic co-efficient

X_S- are the explanatory variables

E – Is the error term

CHAPTER FOUR

CHARACTERISTICS OF STUDY POPULATION

4.0 Introduction

This chapter outlines the variables under study by their background characteristics, giving their frequencies and percentages. Out of the 8195 women in the reproductive ages of (15-49) in the KDHS, 2003, this study will focus on 3485 found to have had a birth 5 years prior to the survey after sub-setting the child file.

4.1 Characteristics of Respondents

Looking at table 4.1 and taking into consideration maternal education, majority of women have attained incomplete primary education (31.9 percent) while those who have no education are the least (13.3percent). The data on wealth index shows that 44.5 percent of women are in the high, 36.4 percent are in the low and 19.1 percent are in the medium wealth index.

Looking at the type of place of residence, majority of women (70.6 percent) live in the rural areas with just 29.4 percent of them residing in the urban areas. Data on region of residence shows that 19.4 percent of women (the majority) are from Rift valley Province while 2.6 percent (the least) are from the North Eastern Province. Decision making on family planning being done by others, apart from husband and wife, takes 0.1 percent while husbands make this decision at 3.4 percent. Joint decision stands at 20.2 percent hence being the highest in this category. On ethnicity, the Kikuyu/Embu/Meru category is 26.5 percent while the Kalenjin women are 9.8 percent with the other category being the most at 35.5 percent.

Women who are 20-34 years at the last birth are the majority at 68.8 percent while those aged between 15 and 19 are at 13.0 percent while those who are 35 years or above are the least at 12.9%. Women having their 4^{th} or later child are 38.7 percent according to this data and the most while those having their first child are 25.7 percent, the least with the rest being 35.7 percent. Currently married mothers in this sample of women are the majority at 82.6 percent while those never married (8.1 percent) are the least with the formerly married at 9.3 percent.

Table 4.1: The socio-economic, socio-cultural and demographic characteristics of the Study population

Variable	Frequency	Percentage (%)
Maternal Education		
No education	465	13.3
Primary incomplete	1111	31.9
Primary complete	971	27.9
Secondary and higher education	938	26.9
Wealth Index		
Low	1269	36.4
Medium	664	19.1
High	1552	44.5
Type of Place of residence		
Urban	2459	70.6
Rural	1026	29.4
Region of Residence		
Nairobi	398	11.4
Central	519	14.9
Coast	413	11.9
Eastern	444	12.7
Nyanza	469	13.5
Rift valley	675	19.4
Western	478	13.7
North Eastern	89	2.6
Decision Making on FP Use		
Woman's decision	315	9.0
Husband's decision	120	3.4
Joint decision	705	20.2
Other	3	0.1
Ethnicity		
Kikuyu/Embu/Meru	923	26.5
Luo	404	11.6
Luhya	578	16.6
Kalenjin	343	9.8
Other	1237	35.5
Maternal Age at Birth(years)		
<20	452	13.0
20-34	2397	68.8
35+	449	12.9
Mother's Parity Order		
First	894	25.7
2-3	1243	35.7
4+	1348	38.7
Marital Status		
Never married	284	8.1
Currently married	2878	82.6
Formerly married	323	9.3
TOTAL	3485	100

TABLE 4.2 Levels of utilization of antenatal care and delivery services in Kenya.

Variables	Antenatal Care		Place of Delivery	
	No	Ever use	Non-Facility Delivery	Facility Delivery
Maternal Education				
No Education	222	243	367	98
Primary Incomplete	517	594	719	392
Primary complete	340	631	438	533
Secondary and Higher	240	698	230	707
Wealth Index				
Low	593	676	923	346
Medium	270	394	382	282
High	456	1096	449	1102
Type of place of Residence				
Urban	276	758	272	753
Rural	1043	1416	1482	977
Region of Residence				
Nairobi	89	309	69	329
Central	151	368	148	371
Coast	154	259	255	157
Eastern	213	231	239	205
Nyanza	211	258	261	208
Rift Valley	259	416	409	266
Western	193	285	308	170
North Eastern	49	40	65	24
Decision Making on FP use				
Woman's decision	106	209	133	181
Husband's decision	39	81	49	71
Joint decision	188	517	228	477
Other	0	3	1	2
Ethnicity				
Kikuyu/Embu/Meru	292	631	288	695
Luo	169	235	197	207
Luhya	220	358	349	229
Kalenjin	119	224	215	128
Other	519	718	765	471
Maternal Age at Birth				
<20	203	249	196	255
20-34	852	1545	1188	1209
35+	177	272	278	171
Mother's parity order				
First	298	596	269	625
2-3	445	798	605	637
4+	576	772	880	468
Marital status				
Never married	126	158	102	182
Currently married	1060	1818	1483	1394
Formerly married	133	190	169	154

Table 5.2 shows that those who have no education utilize the least both antenatal care at 243 and 98 for delivery services in Kenya. Those in the high wealth category seek for antenatal care at 1096 when compared to those in the low wealth index is at 676. For type of place of residence those in the urban areas have high levels of seeking for antenatal and delivery care as compared to their rural counterparts. The region of residence also comes into focus here with those in North Eastern region receiving antenatal care and delivery services the least as compared to other regions in Kenya. A woman whose reproductive health decisions are made by others is the one least likely to receive antenatal care at 0 and facility delivery at 1. Table 5.2 shows that those who are 35+ years receive both antenatal and delivery care the least while those who are 20-34 receive this care the most. Those who have never been married compared to those who are married receive both antenatal care and utilize delivery services the least. The women with higher parity utilize antenatal care and delivery services the least as compared to those having their first child.

CHAPTER FIVE

Factors Determining Utilization of Antenatal Care and Delivery Services

5.0 Introduction

This chapter looks at the analysis of the data on factors that determine use of antenatal care and delivery services as well as the interpretation and discussion of the analysis results. I have run four logistic regression models to help me with the interpretation of analysis results. The first model consists of the socio economic factors against number of antenatal care visits to help me to explain their effect on the dependent variable. Model II consists of the socio economic and socio cultural factors against number of antenatal care visits to see what effect the two have on the dependent variable. Model III consists of socio economic and demographic factors against the ever use of antenatal care. Model IV consists of all the three factors which include the socio economic, socio cultural and demographic factors.

5.1 Factors influencing antenatal care visits and place of delivery

Model I shows that the higher the educational attainment, the more visits women make to seek antenatal care which is referred to as adequate. Women with secondary education and beyond are 2.1 times more likely to make more antenatal care visits than those with no education. Education helps women to realize the importance of seeking adequate antenatal care for their sake and that of their unborn babies. Educated women are more conscious of their health and that of their unborn baby. Education also gives them vital information on signs to watch out for as well as the diet to observe in order to have successful births leading to higher survival chances for their infants. This they can do through reading of magazines, counseling sessions and even the internet because they are open to new ideas.

Table 5.1: Socioeconomic, socio-cultural and demographic factors that determine Utilization of Antenatal care

VARIABLES	MODEL I Exp β	MODEL II Exp β	MODEL III Exp β	MODEL IV Exp β
Maternal Education				
No Education[a]	1.000	1.000	1.000	1.000
Primary Incomplete	1.080	.711	1.088	.798
Primary Complete	1.523**	.973	1.478**	.959
Secondary & Higher	1.156***	1.428	1.977***	1.313
Wealth Index				
Low[a]	1.000	1.000	1.000	1.000
Medium	1.055	1.262	1.045	1.300
High	1.156	1.486*	1.130	1.469*
Type of Residence				
Urban[a]	1.000	1.000	1.000	1.000
Rural	.738**	.581*	.700**	.603*
Type of place of residence				
Nairobi[a]	1.000	1.000	1.000	1.000
Central	1.057	1.300	1.106	1.518
Coast	.737*	1.129	.801	.911
Eastern	.543**	.956	.587**	.880
Nyanza	.556**	.883	.614**	.666
Rift Valley	.779	.659	.824	.725
Western	.770	1.355	.877	1.488
North Eastern	.503*	85.176	.499*	75.727
Decision Maker on FP Use				
Woman's Decision[a]		1.000		1.000
Husband/Partner's decision		1.121		1.141
Joint Decision		1.178		1.130
Other		125.94		115.8
Ethnicity				
Kikuyu/Embu/Meru[a]		1.000		1.000
Luo		.606		.853
Luhya		1.071		1.441
Kalenjin		2.355*		2.569**
Other		.781		1.051
Mother's Parity Order				
First[a]			1.000	1.000
2-3			.762*	.738*
4+			.675**	.613**
Maternal Age at Birth				
<20[a]			1.000	1.000
20-34			1.483**	.661*
35+			.1.602**	.469**
Marital Status				
Never Married[a]			1.000	1.000
Currently Married			1.771***	1.771
Formerly Married			1.357*	1.357

[a] – Reference category

Significance: ***<0.000, ** <0.050, *<0.100

Concerning the wealth index, those within the medium and high wealth indices are more likely to seek antenatal care and make more than four visits hence receiving adequate care than those in the low wealth index. Those in the high wealth index were 1.2 times more likely to make more antenatal care visits as compared to those in the low wealth index. Although wealth index does not necessarily reflect the present economic situation of a family it is still likely to affect the number of antenatal care visits for many women. Whether they have money to travel to the hospital as many times as required is what the real issue is. A woman may be aware that it is good for her to have adequate antenatal care by making at least four visits but her financial situation may not allow her.

Women residing in the rural areas are 0.2 times less likely to seek antenatal care early in pregnancy than those residing in the urban areas. Health facilities in the urban areas in Kenya are easier to access than in the rural areas and this could partly explain this situation. Women in the urban areas could also be better educated and informed on the importance of seeking adequate antenatal care in the course of their pregnancy as compare to their rural counterparts. Compared to women in Nairobi, those in North Eastern and Eastern are 0.5 times less likely to receive adequate antenatal care in the course of their pregnancy. Those in Rift valley and Western Kenya are 0.2 times less likely to receive adequate antenatal care compared to those in Nairobi. The coast province follows closely with 0.3 times less likely to receive adequate care compared to those in Nairobi. This is a dismal picture and shows how badly women in North Eastern are doing in terms of having knowledge on how to take care of their health and accessing health facilities.

In **Model II** it is clear that a similar situation where making adequate number of antenatal care visits by women increases with increase in education. Compared to no education, women with secondary plus education are 1.4 times more likely to receive adequate antenatal care. Those in the high wealth index receive adequate antenatal care during pregnancy compared to those in the low and medium wealth indexes. Those women living in the rural areas are 0.4 times less likely to make four or more visits compared to their urban counterparts. Women in Western Province, Coast and Central are more likely to have made four or more visits compared to those from Nairobi. Those in North Eastern are 0.0 times less likely to seek this care compared to those from

Nairobi painting a grim picture indeed. When the decision on use of family planning is made jointly with her husband the woman is 1.2 times more likely to receive adequate antenatal care compared to when the decision is the woman's alone. When it is made by the husband alone, the woman is 1.1 times more likely to make four or more antenatal care visits than when she makes the decision alone. When it is the decision of others the woman is less likely to receive adequate antenatal care. Compared to the Kikuyu/Embu/Meru, the Luhya are 1.2 times more likely to seek antenatal care early and the Kalenjin are 2.4 times more likely to go for four or more antenatal care visits. Other ethnicities are 0.2 times less likely to receive adequate care compared to the Kikuyu/Embu and Meru.

As evident in **Model III,** women with higher education show a higher incidence of receiving adequate antenatal care compared to those with no education. Those with secondary plus education are 2.0 times more likely to go for four or more antenatal visits compared to those with no education. Those with primary complete are also more likely to receive adequate antenatal care than those with primary incomplete. Those in the medium and high wealth index are also likely to make four or more antenatal care visits compared to those with no education. Rural women are 0.3 times less likely to go for four or more antenatal care visits than those women residing in the urban areas.

Looking at the region of residence, women in Eastern are 0.4 times less likely to receive adequate antenatal care compared to those in Nairobi. Those in Coast and Rift Valley are 0.2 times less likely while Western is 0.1 times less likely to make four or more antenatal care visits. In all the regions in Kenya, women residing in North Eastern are 0.5 times less likely to receive adequate antenatal care hence being the least in Kenya. Women in Central are the ones 1.1 times more likely to receive adequate antenatal care compared to those in Nairobi.

Women aged between 20 and 34 years are 1.5 times more likely to seek antenatal care four or more times compared to those aged less than 20 years. Those aged 35+ are 1.6 times more likely to seek antenatal care four or more times compared to those who are less than 20 years. Parity order shows that the more children a woman has the less she is likely to receive adequate antenatal care during her pregnancy. Those having their 2^{nd} or 3^{rd} child and those having their 4^{th}

r later child are 0.2 and 0.3 times less likely to receive adequate antenatal care compared to ıose having their 1st child. Women who are currently married and those formerly married are .8 and 1.4 times respectively more likely to make four or more antenatal care visits pregnancy ompared to those who have never been married.

Iodel IV confirms that higher education is associated with higher incidences of women making our or more antenatal care visits at 1.3 times more which translates to adequate antenatal care as ompared to those with no education. However in this model education is significant showing milarity with model ii. Those in the high wealth index are 1.5 times more likely to have dequate care than those in the low wealth index. Higher wealth index is the only category gnificant on this variable while being in the middle wealth index is not. This is also the case for omen residing in the rural areas who are 0.4 times less likely to make four or more antenatal are visits compared to those residing in the urban areas.

ompared to women in Nairobi, women in Western Province and Central are 1.5 times more kely to receive adequate antenatal care while those in North Eastern are 0.0 times less likely to eceive adequate care. Those at the Coast and Eastern are 0.1 times less likely while Rift Valley nd Nyanza are 0.3 times less likely to receive this care. However according to this model region f residence is not significant. Decision making on family planning use made by others makes a oman the least likely to make four or more antenatal care visits at 0.0 times compared to the ecision being made by the woman alone. When the decision is made jointly and when it is the usband's decision then the woman is 1.1 times more likely to make four or more antenatal care isits but decision making on FP use is not significant here.

n ethnicity, Luhya women are 1.4 times while Kalenjin women are 2.6 times more likely to eceive adequate antenatal care during pregnancy as compared to Kikuyu/Meru/Embu women nd other ethnicities are 1.0 times more likely to receive this care adequately. Being in the alenjin ethnic group is significant in seeking adequate antenatal care and use of skilled delivery ervices. The Luo women are 0.1 times less likely to receive adequate antenatal care. Women ged 20-34 years, compared to those aged <20 are 0.2 times more likely to seek antenatal care arly in pregnancy.

Higher parity also reduces instances of women receiving adequate antenatal care for their pregnancy. Women who were having their 4th or later child were 1.5 times while those having their second to third child are 0.3.times less likely to receive adequate antenatal care compared to those having their 1st child. The maternal age at birth also influences positively the woman receiving adequate antenatal care at 2.6 times more likely for those who are 35+ years and 2.2 times more likely for those who are 20-34 years compared to those who are <20years. Similarly, compared to women who have never been married, those who are currently married and those formerly married are 1.7 times and 1.3 times more likely to make four or more antenatal care visits which is considered as adequate care during pregnancy.

Place of Delivery

For place of delivery I also used four models to determine the influence of the socio economic, socio cultural and demographic factors on the choice of place of delivery. The first model consists of socio economic factors against place of delivery. Model II consists of socio economic and socio cultural factors against place of delivery. I wanted to see if there is any difference between this model and the first model in the effect on the dependent variable. Model III consists of socio economic factors and the demographic factors against the dependent variable which is the place of delivery. Model IV consists of all the three factors to find out what effect the three factors have on the dependent variable when run together.

Model I shows that just as with antenatal care, higher education attainment coincides with higher incidences of seeking skilled delivery care, with women having secondary and above education being 5.6 times more likely to seek this care compared to those with no education. Women in the medium and high wealth index are also more likely to seek skilled antenatal care compared to those in the low wealth index. Those in the high wealth index are 2.4 times more likely to seek skilled delivery compared to those in the low wealth index while those in the medium category are 1.4 times more likely to seek skilled delivery care. For those residing in the rural areas, they are 0.5 times more likely to seek this care compared to those in the urban areas. Looking at region of residence, those in Central Province are 1.6 times more likely to seek skilled delivery care compared to those in Nairobi. Those in Coast, Western and North Eastern are 0.5 and 0.4 times less likely to seek skilled delivery care as compared to those in Nairobi region.

Table 5.2: Socioeconomic, socio-cultural and demographic factors that determine place of delivery in Kenya

VARIABLES	MODEL I Exp β	MODEL II Exp β	MODEL III Exp β	MODEL IV Exp β
Maternal Education				
No Education[a]	1.000	1.000	1.000	1.000
Primary Incomplete	1.722***	1.332	1.599**	1.438
Primary Complete	2.714***	2.500*	2.510***	2.347*
Secondary & Higher	5.604***	4.367***	5.124***	4.247**
Wealth Index				
Low[a]	1.000	1.000	1.000	1.000
Medium	1.348**	1.015	1.290*	1.015
High	2.398***	2.034**	2.176***	1.844**
Type of place of residence				
Urban[a]	1.000	1.000	1.000	1.000
Rural	.452***	.474**	.442***	.471***
Region of Residence				
Nairobi[a]	1.000	1.000	1.000	1.000
Central	1.601*	.492*	1.600*	.457*
Coast	.487***	.332**	.478***	.277**
Eastern	.826	.393*	.843	.346*
Nyanza	.667*	.665	.685*	.617
Rift Valley	.613**	.248***	.625*	.250**
Western	.458***	.268**	.476***	.262**
North Eastern	.590*	28.849	.618	2.31 +08
Decision Making on FP Use				
Woman's decision[a]		1.000		1.000
Husband's decision		1.082		.747
Joint decision		1.152		.726
Other		4.450		.285
Ethnicity				
Kikuyu/Embu/ Meru[a]		1.000		1.000
Luo		.326**		.381*
Luhya		.269***		.265***
Kalenjin		.579		.663
Other		.289***		.313***
Mother's parity order				
First[a]			1.000	1.000
2-3			.419***	.353***
4+			.303***	.227***
Maternal Age at Birth				
<20[a]			1.000	1.000
20-34			1.047	.726
35+			1.086	.884
Marital status				
Never Married[a]			1.000	1.000
Currently Married			1.511	
Formerly Married			1.201	

[a] – Reference category

Significance: ***<0.000, ** <0.050, *<0.100

In **Model II** seeking of delivery services at a health facility is depicted as increasing with education level for these women as seen in this model. Those women with secondary education and beyond are more than 4.3 times more likely to seek delivery care at a health facility compared to those with no education. Those with primary complete are 2.5 times while those with primary incomplete are 1.3 times more likely to deliver at a health facility as compared to those with no education. Women in the medium and high wealth index, compared to those in the low wealth index are 1.0 and 2.0 times more likely to deliver at a facility compared to those in the low wealth index. Those women in the rural areas are 0.5 times less likely to go for facility delivery care than those in the urban areas.

Compared to women in Nairobi, those residing in other regions are less likely to deliver at a health facility. The worst hit region is North Eastern showing 0.0 chance of delivery care from a health facility followed by Western and Coast province at 0.7, Rift valley at 0.8, Eastern at 0.6 at 0.5 times less likely to seek for delivery services at a health facility as compared to Nairobi. For North Eastern this could be because the health facilities are far apart pausing serious challenges in accessibility. The people are also nomadic meaning labour can occur when the family has moved to a different locality far off from a health facility.

Getting decision on family planning use from others compared to it being the woman's decision impacts positively with a woman being 4.5 times more likely to deliver at a health facility than those women who make their own decision. Joint decision increases the chances of the woman going for delivery at a health facility by 1.1times compared to if it is the woman's decision. For the Luo, Luhya and other ethnic groups, compared to the Kikuyu/Embu/Meru, they are less likely to deliver at a health facility 0.7, and 0.4 times respectively.

In **Model III**, it is evident that facility delivery increases as education attainment goes up. Those with secondary and higher education are 5.1 times more likely to deliver care at a health facility compared to those with no education. Those with primary complete are 2.5 times while primary incomplete are 1.6 times more likely compared to those with no education. Those in the medium and high wealth index compared to those in the low one at 2.2 times more likely to deliver at a health facility. Women residing in the rural areas are 0.6 times less likely to deliver at a health

facility compared to those residing in the urban areas. Compared to women in Nairobi region, those in Central region deliver at a health facility 1.6 times more. Those in Coast, Western and North Eastern are less likely to go for facility delivery this care compared to those in Nairobi. Those in western and coastal regions are 0.5 times less likely to deliver at a health facility.

Women aged 20-34 years, compared to those aged less than 20 years are 1.0 times more likely to go for facility delivery while those who are 35+ are 1.1 times more likely to deliver at a facility compared to those less than 20 years. Facility delivery decreases with the number of children had according to model iii. Those having their fourth child and above are 0.7times less likely while those having their second or third child are 0.6 times less likely to deliver at a health facility compared to those having their first child. As for marital status, women who are currently married are 1.5 times more likely to deliver at a health facility compared to those who have never been married while those who were formerly married are 1.2 times more likely to deliver at a health facility as compared to those never married.

In **Model IV,** seeking of delivery services at a health facility increases with increase in education and in wealth. Those with secondary education and higher are 4.2 times more likely to go for facility delivery compared to those with no education. The same is true with the wealth index where those within high category are 1.8 times likely to deliver at a health facility to seek this care compared to those in the low category.

The women in rural areas are also 0.5 times less likely to go for facility delivery compared to those in the urban areas. Women in Coast, Rift Valley and North Eastern are 0.8, 0.8 and 0.0 times less likely to deliver at a health facility compared to women in Nairobi. When the decision on use of family planning is made by others, it reduces chances of delivering at a health facility 0.7 times compared to when the decision is made by the woman alone. When it is a joint by the husband and wife or the husband alone the chances of the woman going for facility delivery care are reduced by 0.3 times.

Looking at ethnicity, compared to the Kikuyu/Embu/Meru women, those from the Luo, Luhya, Kalenjin and other ethnicities are 0.6, 0.7, 0.3 and 0.7 times less likely to seek for delivery

services at a health facility. As was the case in other models, facility delivery shows a decrease with increase in children had, with those having the 2nd or 3rd child and those having the 4th or later child being 0.6 and 0.8 times less likely to deliver at a health facility than those having their first child.

5.2 DISCUSSION

Utilization of Antenatal Care

Maternal Educational Attainment is significant and influences the number of antenatal care visits. The more educated a mother is the more likely it is that she will make adequate antenatal care visits during her pregnancy. Adequate is considered to be four or more visits. This is in agreement with what (Jejeebhoy, 1995) that the impact of education on reproductive behaviour has been observed to be greatest beyond specific threshold levels of education especially when education offers women an expanded role in family decisions and control over resources. An educated woman is likely to consider their overall health which includes antenatal care. Education can also help one to overcome cultural barriers that may stand in the way of seeking antenatal care.

The household economic status measured by the wealth Index showed significance for women receiving adequate antenatal care in all categories. From the literature those women higher on the wealth index are more likely to seek antenatal care from professional personnel such as doctors, clinical officers and nurses than those who are lowest on the wealth index. In the analysis this variable showed that women in the high wealth index are able to receive adequate antenatal care than those in the low bracket. It might be that women on the higher scale of the wealth index may be able to travel long distances to attend antenatal care and even where there is cost sharing, they are able to afford it (Abuya, 2002).

Type of place of residence showed statistical significance for those staying in the urban areas they also make adequate antenatal care visits than those residing in the rural areas. This could be as a result of the health facilities being accessible and available in the urban areas as compared to

the rural areas where they are spread apart and some times the road infrastructure renders them inaccessible. Magadi (1999) had the same observation to make basing on her study on women reproductive health in developing countries.

Region of residence was also found to be significant in this study in influencing the decision for women to make adequate antenatal care visits. As compared to other regions in the country, North Eastern region is the most affected with the fewest number of women receiving adequate antenatal care visits during their pregnancy. This can be associated to the poor infrastructure of both the health facilities and roads. Eastern region has the second fewest followed by Nyanza region for those receiving inadequate antenatal care as compared to central, coast, Rift valley and Nairobi.

Decision making on family planning use is not significant to influencing women on receiving adequate antenatal care. According to the analysis results when this decision is made jointly with the husband instead of being the woman's decision then it impacts positively on utilization of adequate antenatal care with four or more visits during pregnancy. This means that those women who make their own reproductive decisions receive adequate antenatal care. Thaddeus & Maine (1994) observed that a woman's lack of autonomy in reproductive health decision-making leads to among other things neglect of a woman's health.

Ethnicity of a woman is significant determinant on whether a woman would seek adequate antenatal care during pregnancy especially. According to the analysis results the Luo are the least likely to make four or more antenatal care visits during pregnancy compared to the Kikuyu, Luhya, Kalenjin and others. The Kalenjin ethnic community was found to receive adequate antenatal care the most. This could also be linked to the health belief model because different ethnic communities have different attitudes towards maternal care. Therefore cultural beliefs could be coming into play to cause this disparity.

The Maternal Age at birth of 20-34 years was significant compared to those who are less than 20 years. Those women who are at least 35 years or above according to the analysis results are more likely to have adequate antenatal care in pregnancy compared to those less than 20 years. It

could be that these women are too young to realize the importance of antenatal care or some are experiencing unwanted pregnancies and so are ashamed to even go to the health facilities for care. (Magadi et al, 2000).

Higher parity of 4+ influences negatively the receiving of adequate antenatal care. Thus the higher the parity order the lesser the chance that such a mother would receive adequate antenatal care in the course of her pregnancy. This finding is found in the publications of scholars such as (Magadi et al, 2006) who found the frequency of antenatal care showing more significant differences for those women with more births compared to those with first births. It could be that the mothers with many children have less time to seek antenatal care early, as they have no one to care for the others as they go to seek for care. On the other hand mothers may be fully concerned about the first-born child and hence more likely to use seek antenatal early.

Marital status is highly significant and influences greatly a woman to receiving adequate antenatal care during her pregnancy. Where those who are currently married have received adequate care followed by those ever married as compared to those who have never married. This woman could possibly be a teenage mother who has an unwanted pregnancy. She may want to hide from other people and even hence feel shy to seek for skilled antenatal care early or may even opt for none at all. Teenagers are even more likely to experience pre marital and unwanted births and more likely to receive poorer maternal care (Gage, 1998; Magadi et al., 2000; Marston & Cleland, 2003). The way society also treats pregnant women who are unmarried could also be a contributing factor to this trend.

Use of Delivery Services

According to the findings of this study Educational level of a woman is highly significant in determining whether she would deliver at a health facility even if she had adequate antenatal care. The higher the level of education the more the chances are that she would proceed to seek delivery care at a health facility. For example women with secondary and higher education seek delivery care more than those with none.

The wealth index was found to be highly significant for place of delivery. A woman in the high wealth index is 1.8 more times to deliver in a health facility as compared to one in the low category. This goes to show that if a woman is poor she may not be able to afford to travel to hospital, which may be far away to seek for delivery services. She will be required to pay a small fee for the delivery service and any other extra charges that may be levied against her. This was also observed by scholars Thaddeus & Maine (1994) therefore it is a real challenge. In some cultures of the people of Kenya especially in the western region, delivery is believed to be a normal process for which a woman should be strong hence most of them choosing to deliver at home.

The type of place of residence is also a major determining factor as to whether a woman is able to deliver at a health facility or not. Living in the rural area is highly significant because rural women are less likely to deliver at a health facility as compared to their urban counterparts. This could be an issue of accessibility as is in the case of antenatal care. It could also be because those living in the rural areas have other alternatives to turn to such as TBA'S, relatives and friends. Lindblade et al., (2006) made a similar observation and found out fewer that 2 out of 10 gave women gave birth in a health facility in rural western Kenya.

As for Region of residence women in all the other regions as compared to Nairobi are less likely to deliver at a health facility with the North Eastern region being the worst hit followed by Western region. As I had mentioned earlier north eastern has a problem with infrastructure be it health or otherwise and this could be a major influencing factor in non health facility deliveries as concurred by Magadi (1999) that long distance or inaccessibility of services can be an actual obstacle to reaching a health facility or a disincentive to even trying to seek care.

Ethnicity is significant for women to deliver at a health facility. Compared to the reference category of kikuyu, Embu and Meru, the Luhya are less likely to deliver in a health facility. Basu(1990) noted that fear and the physical inconvenience of a hospital delivery were among predominant reasons among mothers to have hospital deliveries.

Decision making on family planning, maternal age at birth and marital status is not significant on whether a woman of any reproductive age would go to deliver at a health facility. Unlike for adequate antenatal care visits where these factors were significant, for facility delivery they are not.

The higher the parity the less a woman is likely to deliver at a health facility. For a woman who has several children, she might not consider another delivery as anything to worry about because of the experience they have with childbirth. Also poor quality of health services discourages people from using them particularly if providers do not treat clients with respect as noted by Magadi (1999).

CHAPTER SIX

Summary, Conclusions and Recommendations

6.0 Summary

The purpose of this study was to determine the factors that influence the utilization of adequate antenatal care and delivery services in Kenya. This problem stemmed from the fact that even though 88 percent of Kenyan women seek antenatal care, when it comes to delivery care only about 50 percent delivers in health facilities. This is a dangerous situation, which in turn leads to high maternal and infant mortality.

The study had therefore set out to determine what is causing the outlined scenario in Kenya. To achieve this objective the study used secondary data from the Kenya Demographic Health Survey of 2003. A sample of 8195 women in the reproductive age of 15-49 was used. I used the child file and this sample was then subset so as to focus on the women who had a birth 5 years prior to the survey. These were found to be 3485 and this is the sample this survey is based on. The data specifically points out whether a woman sought adequate antenatal care determined by the number of visits and whether she went to deliver in a health facility.

The methodology used to analyze this data was bivariate regression analysis to examine the nature of association between the dependent variables and each independent variable. The basic data characteristics of the study are presented and discussed using frequencies and percentages on the background of study variables.

The major findings of the study are that 62.2 percent of women receive antenatal care while only 49.7 percent proceed to deliver at a health facility. This is not a good outlook on women and to the health of their unborn babies. This is a grim picture because it acts as a hindrance to Kenya meeting the millennium development goals number 4 and goal number 5. This shows that a lot of work needs to be done in order to bridge this gap. The results from the regression can be summarized as follows: Overall lack of education, rural residence, higher order births, low wealth, ethnicity were associated with inadequate antenatal care visits and non facility delivery.

The type of place of residence is statistically significant for a woman's decision to seek antenatal and delivery care in Kenya. The women in the rural areas are less likely to seek both skilled antenatal care and delivery care as compared to their urban counterparts

When compared with Nairobi, North Eastern province as a region of residence is really disadvantaged when it comes to the women seeking antenatal care and delivery care at a health facility. Western Kenya is also at a disadvantage especially when it comes to seeking delivery care at a health facility.

When decision making on family planning use is made by others instead of a joint decision by the husband and wife then the woman is less likely to seek skilled antenatal and delivery care. Ethnicity is a significant factor especially for seeking skilled delivery care. As compared to the Kikuyu/Embu/Meru the Luhya, Luo,Kalenjin and others are less likely to seek delivery care.

The study found out that maternal age at birth and marital status do not at all influence whether a woman will seek skilled antenatal and delivery care. However the parity of a woman has a high significance in woman's decision when it seeks skilled antenatal and delivery care. The higher the parity the less likely it is for a woman to seek these services.

6.1 Conclusion

In this study the results show that 62.2 percent of women receive adequate antenatal care while 49.7 percent proceed to deliver in a health facility. This is a grim picture indeed. The objective of this study was to find out why women in Kenya at least make one antenatal visit but only about half of them deliver in a health facility. The study found out that this is due to socio cultural, socioeconomic and demographic factors which are also shaped by the people's beliefs and attitudes towards maternal health care. A woman's level of education influences positively her decision to seek skilled antenatal and delivery care.

The higher one is on the wealth index scale the more such a woman is likely to receive adequate antenatal care and proceed to deliver in a health facility. The type of place of residence has a

greater influence on receiving adequate antenatal care and facility delivery as those who live in the urban areas seek the above services more than their rural counterparts. The region of residence and mother's parity are the other significant factors that determine women to seek adequate antenatal care visits and facility delivery. However maternal age and marital status were found not to be of any significance to women utilizing skilled antenatal and delivery care.

6.2 Policy Implications

The findings of this study and the issues addressed have important implications for national health policy. The importance of improved maternal health has long been on international agenda since the launch of the global conference on safe motherhood in Nairobi Kenya in 1987.

Therefore it important that Kenya strives to implement relevant programmes of Action aimed at addressing the international maternal health goals so as to improve its own maternal health especially provision of delivery care by encouraging facility delivery.

There is need for National Policy to pay attention to the disadvantaged and vulnerable groups of the population such as those in the rural areas, the poor both urban and rural, the teenagers married and non-married, and those in the arid and semi-arid regions. This study observed that those who are socio-economically disadvantaged seem to have least benefited from improvements in maternal health services. The policy makers should also find out if there is a way they can incorporate culture into reproductive health care in order to reach for ethnic groups in Kenya.

6.3 Recommendations for Further Research

I recommend that the government allocates more funding for reproductive health programs for women and to put up structures to ensure that they are educated on the importance of receiving adequate antenatal care and facility delivery. Further comprehensive research should be carried using primary data from the field to establish the underlying factors that make women to seek antenatal care even if only once during their pregnancy but not deliver in a hospital.

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