DETERMINANTS OF UTILIZATION OF HOSPITAL DELIVERY AMONG POST-NATAL MOTHERS IN THIKA AND KANGUNDO HOSPITALS, KENYA

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I97/11067 /08

A THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN THE SCHOOL OF PUBLIC HEALTH OF KENYATTA UNIVERSITY

OCTOBER 2014
DECLARATION

This Thesis is my original work and has not been presented for a degree or any other award in any other university

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Signature……………………………………Date……………………………………

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Department of Zoological Sciences
DEDICATION

This thesis is dedicated to my parents Mr. Waweru and the late Mary Wanjiru, my husband Mr. Kabue and our Children Sylvia, Kenneth and Caesar. God bless you all.
ACKNOWLEDGEMENT

Special appreciation goes to my two supervisors Dr. Margaret Keraka and Dr. Jemimah Simbauni of Kenyatta University. I wish to sincerely thank them for their advice, assistance and encouragement given in all stages of the study without whose assistance this work would have been difficult to accomplish.

Lots of thanks go to Dr Michael Otieno and Dr. Muho ho Ng’ethe for the assistance they gave me during the initial stages of the study.

I am also very grateful to all the staffs in Thika and Kangundo hospitals and the community workers in the two districts for their assistance during data collection. I cannot also forget my two research assistance Judy and Wilson who devotedly assisted me with data collection. Also Mr. Muniu for his great contribution in data analysis he literally taught me how to do it myself. God bless you all.

I am very grateful to Kenyatta University for the enormous contribution towards this study in terms of sponsorship and time off to collect the data.

Finally I appreciate all those who contributed towards completion of this work in one way or another especially my family members and colleagues who spurred a lot of confidence in me.

Finally I thank all those mothers who spared their time and contributed to the study for the sake of reducing maternal mortality in future generation. God bless you all.
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<table>
<thead>
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<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>Antenatal Care</strong></td>
<td>Assistance given to a mother during pregnancy.</td>
</tr>
<tr>
<td><strong>Health Behavior</strong></td>
<td>The action a mother takes to promote health during pregnancy, intrapartal and postnatal.</td>
</tr>
<tr>
<td><strong>Immediate Postnatal Care</strong></td>
<td>Services given to the mother immediately after delivery and up to 48 hours after delivery.</td>
</tr>
<tr>
<td><strong>Maternal Death</strong></td>
<td>Death of a woman while pregnant, during delivery or within 42 days of birth or termination of her pregnancy from any cause related to or aggravated by the pregnancy or its management.</td>
</tr>
<tr>
<td><strong>Maternity Facility</strong></td>
<td>A hospital where mothers are taken care of during pregnancy, delivery and up to six weeks after delivery.</td>
</tr>
<tr>
<td><strong>Postnatal Mother</strong></td>
<td>A mother who has delivered</td>
</tr>
<tr>
<td><strong>Safe Motherhood Care</strong></td>
<td>Service care given to a mother during pregnancy intrapartal and postnatal.</td>
</tr>
<tr>
<td><strong>Skilled Health Worker</strong></td>
<td>This is a person who has undergone prescribed training such as doctors, midwife and clinical officers and has been certified to attend to women during delivery</td>
</tr>
<tr>
<td><strong>Maternal Mortality Rate</strong></td>
<td>This is the number of maternal deaths per 1000 live birth</td>
</tr>
<tr>
<td><strong>Hospital Delivery</strong></td>
<td>Giving birth within the hospital</td>
</tr>
<tr>
<td><strong>Home delivery</strong></td>
<td>Giving birth at home</td>
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ACRONYMS

APHRC  African Population and Health Research Centre

KDHS  Kenya Demographic Health Survey

MCHC  Maternal and Child Health Clinic

MHCS  Maternal Health Care Services

MMR  Maternal Mortality Rate

NCAPD  National Coordinating Agency for Population and Development

SOWM  State of the World’s Mothers

UNFPA  United Nations Fund For Population Activities


WHA  White Ribbon Alliance

WHO  World Health Organization

WIDNet  Women Information for Development Network
Abstract

Maternal mortality rate due to pregnancy-related complications remains high at 488 per 100,000 live births in Kenya. If mothers are treated appropriately and in a timely manner, in a hospital almost all women who develop pregnancy-related complications can be saved from death and disability. The purpose of study was to assess why hospital deliveries in Kenya have remained low despite government strategies on improving health system and human resources. The objective of the study was to assess the determinants of utilization of hospital delivery and the rating of the health care services among postnatal mothers in Thika and Kangundo District Hospitals which are in Kiambu and Machakos Counties respectively. In view of this a cross-sectional study was conducted with an aim of establishing the factors that determine utilization of hospital during delivery. The study population was composed of eight hundred postnatal mothers from Thika and Kangundo Districts attending Maternal Child Health Clinics who had delivered less than one year ago. Structured questionnaires and interviews were used to collect the data. In addition, Focus Group Discussions were conducted in each District and Key informants interviewed. Quantitative data was analyzed using SPSS for windows version 16 and data presented in form of tables and bar charts. The qualitative data from the focus group and Key informants was transcribed and a summary written. From the study Client oriented factors that were found to be associated with hospital delivery in both Kangundo and Thika included occupation (p = 0.028, p = 0.007), having money to go to the hospital (p = 0.000, p = 0.00), short distance from the health facility (p = 0.001, p = 0.029), and client having delivered in the hospital before (p = 0.000, p = 0.000) respectively among others. On binary regression Client oriented factors that predicted place of delivery in Kangundo were education level, previous delivery in a hospital and number of antenatal clinic attendance while in Thika they included client view of health worker, previous delivery in a hospital and economic factors. Health facility oriented factors that were associated with hospital delivery in Kangundo were lack of privacy (p = 0.000) while in Thika the manner in which the mother was handled by the health care worker (p = 0.001) and whether the mother received expected care (p =0.017). Rating of the health care services in terms of acceptability was average with only half of respondents feeling that the services were acceptable in both hospitals. In terms of accessibility 74% could access the hospital through matatus. In terms of availability time taken to be attended was rated above average while availability of health facilities and services required was below average in both districts. Quality of care during delivery was rated high in both districts with 72% of the respondents being assisted during head delivery but in terms of infection control this was above average. The research concludes that mothers do not utilize the health facility for delivery in both areas because of cost of the services, distance from the hospital, negative attitude of the health workers, lack of privacy and poor quality of care. Information generated by this study will be recommended to the policy makers in the Ministries of Health for use in addressing the challenges facing hospital delivery therefore promoting it leading to reduction in maternal morbidity and mortality.
CHAPTER ONE: INTRODUCTION

1.1 Background Information

Complications associated with pregnancy and childbirth is the leading cause of death and disability among women of reproductive age in developing countries. The leading causes of maternal death are attributed to hemorrhage, puerperal sepsis, unsafe abortion, prolonged or obstructed labor and hypertensive disorders (WRA, 2002., WHO, 2005., UNICEF, 2008).

An International Conference was held in Nairobi, Kenya in 1987 to launch global Safe Motherhood Initiative (SMI) (WRA, 2008). The aim of (SMI) was to draw attention to disparities and consequences of poor maternal and child health especially in developing countries and to initiate action to address high rates of death and disability arising from complications of pregnancy and childbirth. The primary goal of this initiative was to reduce maternal and infant morbidity and mortality, two of the most important indicators in assessing a country's Safe Motherhood performance. Many developing countries accepted the action and put strategies in place to improve women's health specifically to reduce maternal and infant morbidity and mortality in their countries. However, it seems these strategies have made little impact since maternal and infant morbidity and mortality rates continue to rise unabated in many countries, including Kenya (WRA, 2008).

A woman faces the risk of death or disability every time she becomes pregnant due to pregnancy-related complications. However, if treated appropriately and in a timely manner, almost all women who develop pregnancy-related complications can be saved
from death and disability (UNICEF, 2008). All pregnant women should have access to quality services before, during and after pregnancy and childbirth. These services must include facilities that offer emergency obstetric care for women who develop complications. At the same time, women must always be able to make free and informed decisions about their health (MOH, 2004). High mother and infant death rates are not explained by poverty alone: political will and effective strategies can save the lives of mothers and their newborns despite limited financial resources, as is evidenced in countries like Indonesia, Vietnam, Eritrea and Nicaragua (SOWM, 2006).

Reducing maternal mortality requires a sustained, long-term commitment and the involvement of a range of partners. Ninety eight per cent of maternal deaths occur in developing countries, with the highest rates in Africa and South Asia (UNFPA, 2005). The most effective interventions to prevent high-risk pregnancies include female education on importance of hospital delivery, improved nutrition and family planning (Singh et al., 2004). Half of pregnant women in Africa deliver without the presence of a trained health worker (Ahuka et al., 2004). A total of 11-17% of maternal deaths occurs during childbirth itself, 50-71% occurs in the post-partum period. The time spent in labour and giving birth is a critical moment when a joyful event can suddenly turn into an unforeseen crisis. Therefore, there is need for more attention during this time as well as during the often-neglected post-partum period. These periods account for the high burden of post-partum maternal deaths (WHO, 2007).
1.2 Global burden of maternal mortality

Sub-Saharan Africa suffers from the highest Maternal Mortality Rate (MMR) at 500 maternal deaths per 100,000 live births, followed by South Asia, with MMR of 220. This compares with an MMR of 12 in industrialized countries (WHO et al., 2012). Globally, more than quarter a million women die each year because of complications related to pregnancy and childbirth. Of the estimated 287000 maternal deaths worldwide in 2010, developing countries accounted for more than 99 per cent 284,000. More than half of the maternal deaths 162000 occurred in sub-Saharan Africa alone and around one third took place in South Asia 83000, (WHO et al., 2012). Thus, sub-Saharan Africa and South Asia accounted for 85 per cent of global maternal deaths, with hemorrhage being the leading cause of death in these regions. Sepsis, prolonged or obstructed labour, hypertensive disorders of pregnancy, especially eclampsia, and complications of unsafe abortion, claim further lives (WHO et al., 2012).

Every day 1,440 women die from complications of pregnancy and childbirth (UNFPA, 2005). For every woman who dies due to pregnancy related complications, approximately 20 more suffer from injuries, infection and disabilities in pregnancy and childbirth (UNFPA, 2006). UNICEF reports that more girls and women from developing countries die from childbirth complications than from any other cause. Of the 1,400 women and girls who die each day from delivery complications, 99 percent of them are in less developed countries (UNFPA, 2005). The adult lifetime risk of maternal mortality in women from sub-Saharan Africa was the highest at 1 in 39, in contrast to 1 in 130 in Oceania, 1 in 160 in Southern Asia, 1 in 290 in South-eastern Asia and 1 in 3800 among
women in developed countries (WHO et al., 2012). Postpartum hemorrhage has resulted in at least 25 percent of the all maternal deaths globally (WHO et al., 2005). In some countries, this number reaches up to 60 percent (McConville, 2006). A study of 49 countries found that access to reproductive health services is one of two key indicators for maternal mortality in developing countries (UNFPA, 2005).

1.3 The Maternal Mortality Rate in Kenya

According to the latest Kenya Demographic Health Survey, maternal mortality rate stands at 488 mothers in 100,000 live birth (KNBS, 2010), a deterioration from 414 maternal death recorded in 2003 (CBS, 2004). The maternal mortality rate (MMR) was estimated to be 590 maternal death per 100,000 live birth in1998 (NCPD, 1999). This progress is low in terms of attaining millennium development goals in 2015.

The KDHS report further reveals that only 44 percent of mothers receive assistance from a health professional during delivery and that urban mothers are more than twice (75 percent) as likely as their rural counterparts (37 percent) to receive assistance from a health professional (Table 1.I). This varies according to provinces with Nairobi having the highest number of deliveries conducted by a skilled person 89% and North Eastern the least 17% (KNBS, 2010).
Table 1.1: Maternal Mortality and Utilization of Maternal Health Services in selected Provinces in Kenya

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<tbody>
<tr>
<td>Maternal mortality per 100,000 live births</td>
<td>670</td>
<td>590</td>
<td>414</td>
<td>488</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Antenatal clinic attendance</td>
<td>95%</td>
<td>92%</td>
<td>90%</td>
<td>92%</td>
<td>93%</td>
<td>93%</td>
</tr>
<tr>
<td>Hospital Delivery</td>
<td>44%</td>
<td>42%</td>
<td>40%</td>
<td>43%</td>
<td>73%</td>
<td>43%</td>
</tr>
<tr>
<td>Skilled Birth Attendance</td>
<td>45%</td>
<td>45%</td>
<td>42%</td>
<td>44%</td>
<td>74%</td>
<td>43%</td>
</tr>
</tbody>
</table>


1.4 Problem Statement

Maternal death is inevitable when complications occur during delivery and they cannot be managed. This is attributed to delivery by unskilled attendant outside the hospital. Complications that cause maternal death can be prevented if the mother is attended to by a skilled health worker in a health facility during labour. However, only 44 percent of births in Kenya are attended by a skilled attendant and 43% utilize health facility. Traditional birth attendants continue to play a vital role in delivery of mothers despite the government policy that, they are not recognized as skilled attendant and should refer mothers for the hospital delivery. A research done in Machakos District showed that majority of the TBAs had attended to over 200 pregnant women over a period of 5 years and above (Kaingu et al., 2011).

The government effort to use reproductive health strategy which aims at increasing maternity facilities and ensuring that all deliveries are conducted by skilled health personnel has not been achieved. This has made it impossible to achieve the target of
90% delivery by a skilled health worker by 2010 as per Ministry of Health plan, (MOH 2004).

The problem of home deliveries is not limited to rural areas where communities conform to the tradition but also urban areas where we have cosmopolitan community therefore the need to assess determinants of hospital delivery in both areas.

1.5 Justification

There was need to established why home deliveries persisted in both urban and rural areas despite the strategies used by the government to decrease them. This was done by establishing what determines utilization of hospital delivery in both settings.

The two hospitals were chosen because Thika Hospital is situated in an urban area and serves a cosmopolitan community while Kangundo Hospital is situated in a rural set up and serves a community which conforms more to tradition and is in a county where home deliveries by Traditional Birth Attendants are common (Kaingu et al., 2011). No similar studies have been done in these hospitals, therefore the need for research. The study took place in the hospitals because there was need to assess what discourages mothers from delivering in the hospitals despite the knowledge that the hospital facility exists. For those who delivered in the hospital there was need to establish what they did not like about hospital delivery and what improvement they would recommend.
The study concentrated on delivery and postnatal period because 77% of all maternal death occurs during or shortly after childbirth (within 24 hours) therefore the critical need for good quality care during this period (WHO, 2007).

1. 6 Research Questions

1. What proportions of mothers deliver in Thika and Kangundo hospitals?
2. What are the Socio-Demographic factors that determine utilization of hospital during delivery in Thika and Kangundo hospitals?
3. What are client oriented factors related to health that determine utilization of hospital during delivery in Thika and Kangundo hospitals?
4. What are the factors associated with service delivery that influence utilization of hospital during delivery in Thika and Kangundo hospitals?
5. What is the rating of the health facility services by the mother during delivery in terms of acceptability, accessibility, availability and quality in Thika and Kangundo hospitals?

1.7 Null Hypothesis

Utilization of hospital during delivery is not determined by availability of the health facility, skilled attendant and the rating of the services in Thika and Kangundo hospitals.

1.8 Broad Objectives

To assess the determinants of utilization of hospital during delivery and rating of services during delivery among postnatal mothers in Thika and Kangundo hospitals.
1.9 Specific Objectives

1. To determine the proportion of the mothers who deliver in a hospital
2. To establish the Socio-Demographic factors that determines utilization of hospital during delivery in Thika and Kangundo hospitals.
3. To evaluate client oriented factors about healthy facility that determine utilization of hospital delivery in Thika and Kangundo hospitals
5. To determine the rating of the health facility services by the mothers who delivered in a hospital in terms of acceptability, accessibility, availability and quality of care in Thika and Kangundo hospitals.

1.10 Conceptual Framework on Factors that may determine utilization of hospital delivery.

The Conceptual framework used in this study was adapted and modified from McCarthy (McCarthy et al., 1992). The Framework stipulates the factors that affect utilization of hospital delivery which are related to client, facility, service provider, care given and socio-demographic factors of the client therefore the reason for its use in this study (Figure 1.1).
Source: Adapted and modified from McCarthy et al., 1992

**Figure 1.1: Safe motherhood Conceptual Framework**
1.11 Relationship between conceptual Framework factors and hospital delivery

The factors which may affect hospital delivery were classified into five groups as follows:

**Care provided:** This was important because the quality of care, availability of the care required and acceptability of the care by the client determines whether the client will utilize hospital services for delivery or not. Where quality of care is good and the client knows she will get the care she require she is likely utilize the hospital for delivery.

**Client related:** The client perception of the healthy workers, traditional beliefs, myths and misconceptions, determine place of delivery. People have cultures and beliefs which are very hard to change and if those traditional beliefs go against hospital delivery then the mother is unlikely to deliver in the hospital considering she will have to go back to the community after delivery. Finances, income and control of resources, play an important role in determining whether the client will utilize hospital delivery or will deliver at home with assistance of traditional birth attendant. Most mothers do not have enough income to be able to pay for the services they require so they are unlikely to utilize the services even if they are available due to lack of finances.

**Provider related:** The attitude of the care giver when handling the client, the way he communicates with clients and the work load in terms of how long the client will take to be attended determines whether the client will deliver in the hospital or not. If provider has a negative attitude towards the client and use improper language when addressing them, the clients are discouraged from utilizing the hospital for delivery.

**Facility related:** Accessibility of the hospital in terms of distance and means of transport, affordability and availability of equipments and drugs plays a major role in
clients decision to utilize the hospital for delivery. If the hospital is not accessible to the client during labour due to distance and lack of means of transport and the client cannot afford to hire a car to the hospital then she cannot utilize the hospital for delivery.

**Socio-demographic Characteristics:** The mother requires at least basic education in order to know the importance of hospital delivery. Married mothers are more likely to deliver in the hospital because of the family support and also finances. Mothers who are employed are more likely to utilize hospital delivery as compared to those not employed because they are able to pay for the services. Young mothers who do not have children are likely to utilize the hospital due to fear of unknown compared to older ones who have experience in delivery.
CHAPTER TWO: LITERATURE REVIEW

2.1 Historical Background of Midwifery

Care of pregnant women and delivery is as old as man himself. Delivery procedures were done by shepherds who had experience in delivering sheep. Safe delivery procedures were recorded in Egypt as early as 5000BC where archeologist evidence of a woman squatting in child birth supported by another woman from behind demonstrates the existence (Annamma, 2008).

In the Old Testament there are references to midwives, (Genesis 35:17) and it came to pass when she was in hard labour that the midwives said unto her “fear not Rachael it is another boy”. In Exodus 1:15 it is recorded that the king of Egypt spoke to Shiprah and Puah the two midwives who helped Hebrew women when they gave birth. Those two Hebrew midwives were the first midwives found in literature, (Annamma, 2008).

Hippocrates (460BC), the father of scientific medicine organized trained and supervised midwives. In 1513 the first book of midwifery was printed in Germany and during this period Doctors who were men were not allowed to enter labour wards and midwives assisted women in labour. Ambroise Pare (1510 -1590) laid foundation of modern obstetrics. He performed internal podalic versions and delivered women. He was the first to deliver a woman on a stool instead of the birthing-stool (Annamma, 2008).

William Harvey (1578-1657) wrote the first English text book in midwifery. Women remained largely reluctant to be delivered by men during this period. Women did not usually seek medical aid until the labour was hopelessly obstructed as in case of gross
pelvic deformity. This resulted to death of the mother and the baby. In 1756 Dr John Douglas recommended that proper courses for instructions be given to midwives and examination done before they were provided with certificates, (Annamma, 2008). A study conducted in 1906 in New York City on maternal and infant mortality, stated that approximately 3000 incompetent and ignorant midwives attended over forty percent of deliveries. While these midwives were not solely responsible for the high mortality rate at the time they received the brunt of the blame (Annamma, 2008).

2.2 Progress towards safe motherhood

Figures released in October 2007 jointly by UNFPA, WHO, UNICEF and The World Bank reveal that women continue to die due to pregnancy-related causes at a rate of about one every minute. This rate, the first new international estimates in five years, show only limited progress in making motherhood safer, especially in the poorest countries (WHO et al., 2007). The maternal mortality ratio (number of deaths per 100,000 live births) has been declining globally at a rate of less than 1 per cent. The total number of women dying in pregnancy or childbirth has also shown a modest decrease between 1990 and 2005. In 2005, 536,000 women died of maternal causes, compared to 576,000 in 1990 (WHO et al., 2007). An estimated 287,000 maternal deaths occurred in 2010 worldwide, a decline of 47 percent from 1990 (UNDP, 2012., WHO et al, 2012).

Despite the various international efforts that have been initiated to improve maternal health, more than 287,000 women worldwide die each year as a result of complications arising from pregnancy and childbirth (WHO et al., 2012). Most maternal deaths occur during labor, delivery, or the immediate postpartum period, with hemorrhage, sepsis,
eclampsia, obstructed labor and complications from unsafe abortion being the main direct
causes. Indirect causes include malaria, HIV and AIDS, and anemia (Ronsmans et al.,
2006). Many women also suffer long-term obstetric sequels such as fistula (Filippi et al.,
2006).

Almost all these deaths occur in developing countries, with sub-Saharan Africa
accounting for almost 47% of all (WHO, 2004). Many of these deaths could be averted if
women had access to appropriate maternal health care; including antenatal and delivery
care (Ronsmans et al., 2006, Campbell et al., 2006). In Kenya, death among mothers and
newborn infants remains unacceptably high at 488 maternal deaths per 100,000 live births
(KNBS, 2010).

After 10 years of implementation, a review towards reducing maternal mortality noted
that little progress had been made, but recognized that with political commitment,
maternal morbidity and mortality could be reduced with existing knowledge and
technology, particularly attendance of all deliveries by a skilled health professionals
(WHO 2004, Koblinsky et al., 2006). Despite the lack of reliable trend data for
countries with high maternal mortality, recent investigators believe that progress in
achieving improvements in maternal health has been very slow in the developing world,
and in some instances, has reversed (AbouZahr et al., 2001, Starrs, 2006).

In recognition of maternal health as one of the priority development challenges that need
to be addressed, the international community endorsed the reduction of maternal
mortality ratio by three-quarters between 1990 and 2015, as one of the eight Millennium
Development Goals (MDGs) (United Nations, 2000). This commitment arose not only from the overwhelming evidence of the huge burden of maternal deaths, but also from the far reaching ramifications on child survival, the family and community at large (Lawn et al., 2005).

2.3 Hospital Delivery and Attendance by skilled Personnel

Increasing rates of skilled care during childbirth is widely recognized as a priority strategy for reducing maternal mortality, and rates of skilled attendance at childbirth are being used as the target indicator to measure progress toward the 5th Millennium Development Goal of improving maternal health. There is little evidence-based guidance available on how to make skilled care more available and accessible in low-resource setting. In many countries, little or no progress has been made in increasing skilled attendance rates during childbirth. Moreover, in some countries, demographic and health surveys indicate that skilled attendance during childbirth has been decreasing in recent years. (Family care International, 2007).

Insufficient maternal care during pregnancy and delivery is largely responsible for the staggering annual toll of more than half a million maternal deaths and the estimated 4 million newborn deaths that occur within the first month of life. Indeed, roughly three quarters of all maternal deaths occur during delivery and in the immediate post-partum period. The single most critical intervention for safe motherhood is thus to ensure that women receive care during delivery by skilled health personnel – a doctor, nurse or midwife – with the necessary skills to handle normal deliveries safely, to recognize the
onset of complications beyond their capacity and to refer the mother for emergency care as needed (UNICEF, 2009).

All women should have access to basic maternity care through a continuum of services offering quality antenatal care, clean and safe delivery, and post-natal care for mother and infant, with a functioning referral system linking the whole. The quality of care provided by health personnel is crucial. Particularly when complications occur, skilled personnel need access to essential drugs, supplies, equipment and emergency obstetric care which are only available in a health facility (UNICEF, 2009).

Globally, 66 per cent of births are attended by skilled health personnel. There are substantial disparities in delivery care across and within regions. Globally, just over half 53% of all births in rural areas are attended by skilled health personnel compared with 84 per cent in urban areas. Some of the greatest differentials can be seen in some African regions where women in urban areas are almost twice as likely as women in rural areas to deliver with a skilled health professional in attendance 76% and 75 % compared to 40% and 36% in sub-Saharan Africa and Eastern and Southern Africa respectively (UNICEF, 2013).

Sub-Saharan Africa and Eastern and Southern Africa bear the greatest burden of maternal mortality, having the lowest levels of skilled birth attendance. Regional averages range from 49% in sub-Saharan Africa to 44% in Eastern and Southern Africa (UNICEF, 2013). In Kenya 56% of births are attended by unskilled attendance with no skills to recognize occurrence of complications or equipment to manage them. According
to the latest care health survey 28% of the mothers are attended by TBAs, 21% relatives and friends, 7% no assistance, 16% by doctors and 28% midwives (KNBS, 2010).

In the slum areas of Nairobi only 48% deliver in health facilities with at least minimum standards as compared to 78% in Nairobi and 70% in other urban areas of Kenya (Fotso, 2008). A research done in Nyanza province in Kenya in 2007 found out that utilization of hospital delivery was not increased by knowledge about maternal health and obstetric complications (Family care International, 2007).

2. 4 Millennium Development Goals in Kenya

In September 2000, building upon a decade of major United Nations conferences and summits, world leaders came together at United Nations Headquarters in New York to adopt the United Nations Millennium Declaration, committing their nations to a new global partnership to reduce extreme poverty and setting out a series of time-bound targets - with a deadline of 2015 - that have become known as the Millennium Development Goals.

Following the adoption of the United Nations Millennium Declaration all 189 United Nations member states at the time (there are 193 currently) and at least 23 international organizations committed to help achieve the Millennium Development Goals by 2015 (UN, 2000). The MDG campaign was initiated in Kenya in 2002 to raise awareness about the importance of the different dimensions of development included in the eight goals; eighteen targets and the over forty different indicators that constitute the MDG. The fifth MDG was to improve maternal health and the target was to reduce maternal mortality
ratio by three quarters between 1990 and 2015. The indicators to be used to assess improvement of maternal health were maternal mortality rate per 100,000 mothers and proportion of birth attendance by skilled health personnel. In 1990 the maternal mortality rate in Kenya was 590 and was supposed to reduce to 147 by 2015. Proportion of birth attended by skilled personnel was 44% and was supposed to increase to 90% by 2015. An assessment done in 2009 showed that the maternal mortality rate was still high at 488 per 1000,000 live birth and mothers who were attended by skilled personnel was 44% with no progress towards achieving Millennium Development Goal (KNBS, 2010). Utilization of hospital delivery progress was also insufficient and maternal mortality remained high with no hope of attaining millennium development goal in 2015, (UNDP, 2013).

2.5 The Kenya National Reproductive Health Strategy 1997-2010 and 2009-2015

The National Reproductive Health Strategy (NRHS) 1997-2010 was a national response to the Programme of Action of ICPD (1994), which defined the focus and prioritized the Reproductive Health components for implementation by the National Reproductive Health Programme in Kenya (UNFPA, 1995). The Strategy recognized the importance of multi-sectoral approach and collaboration in the implementation of the full range of RH components, even though the health sector had a crucial role to play in the prevention and management of most of the reproductive health problems.

The NRHS (1997-2010) provided a common point of reference for all RH stakeholders in Kenya, thereby focusing efforts and resources towards the achievement of the goal and
objectives of the one Strategy. The strategy, along with other national policy documents, formed the basis for the development of the mandate of the Division of Reproductive Health (DRH) of the Ministry of Public Health and Sanitation, and guided the development and execution of its work programme. In this regard it was observed that most of the components of RH as included in the Strategy had been addressed to varying degrees (MPHS et al., 2009).

Several significant achievements were made which included among others; Maternal and Newborn Health- strengthening of maternal death review by development of guidelines, increased access to obstetric fistula services, and increased access to skilled attendance at delivery through the community midwifery programme. At the same time, the implementation of the NRHS (1997-2010) continued to face numerous serious challenges. The achievement by 2015 of the Millennium Development Goals (MDGs), especially MDG 4 (Reduce child mortality) and MDG 5 (Improve maternal health) were a key challenge, which required strengthening of health systems in order that every pregnancy was wanted; all pregnant women and their infants had access to skilled care; that every woman had access to a functioning health facility to obtain appropriate care when complications arose; and that every newborn had access to appropriate care (MPHS et al., 2009).

The National Reproductive Health Policy (2007) brought about a paradigm shift towards a focus on skilled attendance for all pregnant women, thus necessitating a policy change regarding the TBA as provider of delivery services (MPHS et al., 2009).

A revision of the National Reproductive Health Strategy 1997-2010 was done for 2009-2015 to address several issues and challenges most of which were not factored in during
the time of its development. First and foremost was the need for clear guidance on the implementation of the National Reproductive Health Policy which was launched in 2007. This policy states Kenya’s commitment to the achievement of the ICPD and MDG goals, as well as other international development goals and targets, and identifies priority actions through which the adverse reproductive health outcomes, including those related to the impacts of the HIV and AIDS pandemic, were to be reversed (MPHS et al., 2009).

The Vision 2030 acknowledges the growing concern of reversals in reproductive health gains made in the 1980s and the early part of 1990s. This is reflected in many other national policies and strategies that have been developed to guide response and focus programme efforts to the myriad of current and emerging issues in health and development (MPHS et al., 2009).

The revised Strategy 2009-2015 seeks to ensure that the inter-linkages between reproductive health and all other sectors of development are properly identified and effectively addressed through a multi-sectoral approach. The overall goal of this strategy is to facilitate the operationalization of the National Reproductive Health Policy through a national multisectoral approach.

The goal echoes the overall goal of the National Reproductive Health Policy that is: “To enhance the reproductive health status of all Kenyans by increasing equitable access to reproductive health services; improving quality, efficiency and effectiveness of service delivery at all levels; and improving responsiveness to the client needs” The Road Map for accelerating the attainment of the MDGs related to Maternal and Newborn Health in Kenya has adopted six pillars of maternal and newborn Health that include pre-
conceptual care and family planning; focused antenatal care; essential obstetric care; essential newborn care; targeted post-partum care; and post-abortion care.

The foundation on which these pillars stand consists of: Skilled attendants and enabling environment to provide quality (skilled) care; supportive health systems that involve effective systems of referral, management, procurement, training, supervision, and health management information system; community action, partnerships and male involvement and grounded on the principle of equity for all and respect for reproductive rights. Increased Access to Skilled Attendance for all Women during Pregnancy, Delivery and Postpartum Periods and for the Newborn is also addressed in the strategy (MPHS et al., 2009).

2.6 Strategies for specific Reproductive Health components in Kenya

The Kenya reproductive health policy has prioritized the following components of reproductive health based on both magnitude and significance of the problem: maternal and newborn health, family planning, adolescent/youth sexual and reproductive health, gender issues/sexual and reproductive health, HIV/AIDS, Reproductive Tract Infection (RTI), cancers of reproductive organs and reproductive health for the elderly. The implementations of intervention targeting those components are guided by the goal of National Reproductive Health Programmes (MOH, 1997).
Maternal and child health leads in both magnitude and significant of the problems in reproductive health and is addressed in Millennium Development Goal four and five. The road map for accelerating the attainment of the MDGs related to maternal and Newborn Health in Kenya has adopted six pillars of maternal and newborn health. The pillars include preconception care and family planning, focuses ante natal care, essential obstetric care, essential newborn care, post partum care and post abortion care. The foundation on which these pillars stand consist of skilled attendants, enabling environment to provide quality (skilled) care, supportive health systems, community action, partnerships and male involvement and respect for reproductive rights.

It is generally recognized that at least 15 percent of all pregnant women are at risk of a serious obstetric complication that usually cannot be predicted or prevented in advance. The implication for this is that all pregnant women require access to skilled care throughout the continuum of pregnancy, delivery and post natal period. In addition, rapid access to quality basic comprehensive emergency obstetric care is necessary for women who experience an obstetric complication.

The strategies for implementation of maternal and Child health as outlined by National Reproductive Health strategy 2009-2015 by Ministry of Medical Services Kenya includes:

- Strengthening systems and building Capacity at all levels for efficient and Effective delivery of maternal and Neonatal health Services; Studies has shown that the higher the proportion of deliveries with a skilled attendant in a country the
lower the countries maternal mortality ratio. Maternal mortality has been increased by inadequate responses to the health needs of women and newborns, mainly due to inadequate skilled attendants; lack of needed equipment, drugs and supplies; and poor referral systems.

- Improve Responsiveness to Clients need Equitable Access; Participation in support for service charters for health service delivery at ministerial and facility levels and client satisfaction tool at the facility level should be done. Services should be availability for populations with special needs and special training of staff on how to handle these clients should be done.

- Increase availability of integrated maternal and neonatal health services at all levels; Integrate maternal and neonatal health services at all levels. Strengthen provision of Post-Abortion Care (PAC) as an integral component of comprehensive reproductive health services and opening of new facilities (e.g. CDF projects), outreach services and improved communication (mobile phones, radio, etc).

- Increase community Engagement in promotion and delivery of maternal and neonatal health services (demand creation, birth preparedness early referral); Increase community awareness of maternal and neonatal health issues through the implementation of reproductive health communication strategy. Engage Community Health Workers in demand creation activities, support birth
preparedness, and early referrals and also provide technical support to institutional bodies such as village health committee.

- Improve quality of integrated maternal and neonatal health services; Identify training needs and provide update training in integrated maternal and neonatal health services, focused antenatal care, skilled labour delivery and post natal care. There should also be a functional referral systems for all the above services and post-abortion care (PAC).

- Support and facilitate maternal and neonatal mortality review mechanism; Implementation of an effective Maternal Death Audit and Review of Maternal Death Rate (MDR) as a key strategy for improvement of the quality of maternal Health services and lowering of both maternal and perinatal mortality. Maternal Death Rate permits timely qualitative in-depth investigation of causes and circumstances surrounding maternal deaths which can form the basis for formulation of relevant standards and protocols, towards improved quality of maternal care. This is an important step in implementing maternal death audit and reviews of advocacy towards making maternal death a legally notifiable event (MPHS et al., 2009).

- Increase access to skilled attendant for all women during pregnancy, delivery and postpartum periods and for the newborn; This strategy focuses on activities towards increased access to skilled attendance for all women during pregnancy,
delivery and postpartum periods and for the newborn and on availability of prompt efficient management including referral) of complications of pregnancy, delivery and newborn (MPHS et al., 2009).

Key activities in this strategy include scaling up provision of basic emergencies obstetric care at health centers and sub-districts and comprehensive emergency obstetric care at district hospitals. Scaling up community midwife recruitment, update training, support and policy change regarding the TBA as provider for delivery services.

This research is based on this last strategy to increase hospital delivery. It’s mostly concerned in finding out why hospital delivery has remained low despite increased hospitals, skilled attendant and the policy change regarding delivery by traditional birth attendant as a provider for delivery services. The research first seeks to find out what determines hospital delivery in both rural and urban area and seeks to find solutions that would increase hospital delivery in both settings.
CHAPTER THREE: MATERIALS AND METHODS

3.1 Study Design

The study was a cross sectional survey with descriptive components. This design was chosen because it gives accurate measurements of population, characteristics and attributes. It is also relevant to provide facts and opinions of individuals. Descriptive cross-sectional design gives a representative subset of the entire population under study. The study utilized both qualitative and quantitative research techniques. Structured questionnaire, Focus Group Discussions Guide and Key Informants Guide were used to collect qualitative and quantitative data.

3.2 Study Areas

The study was carried out in Thika and Kangundo District Hospitals. Thika hospital is in Thika town which is a market town in Kiambu County, Kenya (Appendix V). It is situated 40 km North-East of Nairobi, and on the Thika River. Thika has a population of 454,166 (KBS 2009 census) and is growing rapidly, as is the entire greater Nairobi area. The elevation of Thika is 1531 meters (5026 feet) in altitude. The town is the headquarters of Thika West District following the splitting of the larger Thika district. The district is the prime pineapple-growing region in Kenya. It was formerly a center for light industry, but the focus has shifted to the Athi River.

Kangundo District hospital is in Kangundo district which has a population of 248,011 thousand (KBS 2009 census). It is situated in Machakos County in Kenya and boarders
Yatta District to the north, Thika District to the northwest and Nairobi City to the west. It lies between latitudes 00 45’ south and 10 31’ and longitudes 360 45’ East and 37045’ East and covers a total area of 812.5Km$^2$. The base attitude for Kangundo District is generally 1500m above sea level. The annual average rainfall is between 500mm and 1300mm, but it is mostly unreliable. The main occupation in the district is crop farming despite erratic and inadequate rainfall.

3.3 Study Population

The study population included all postnatal mothers attending MCHC in Thika and Kangundo District hospitals who delivered less than one year prior to the study irrespective of whether they delivered at home or in hospital. Mother participated either in structured questionnaire or focus group discussion but not both. Key informants were recruited from the hospital staff and the community leaders within hospital catchment area.

3.3.1 Inclusion Criteria

All postnatal mothers attending MCHC in any of the two hospitals and had delivered less than one year ago irrespective of the place of delivery. The rating of the hospital was only done by those mothers who had delivered in the hospital. Key informants from the hospitals, who had worked for at least two years in the study hospital. Those from the community were natives of the same community and lived within the community.
3.3.2 Exclusion Criteria

All postnatal mothers in inclusion criteria, who did not consent to participate in the study and those who were unwell or had sick babies. Key Informants who did not consent to the study or did not live within hospital catchment area.

3.4 Sampling Procedures

A sample of 400 respondents were recruited and interviewed in each hospital namely Thika situated in Kiambu County and represents a cosmopolitan community and Kangundo in Machakos County representing a community which conforms to tradition. A total of 800 respondents were interviewed. This sample was calculated using the national figures 43% hospital delivery because the specific figures for the Counties were not available since the Counties were newly created, again this was important in order to get good representative figure for the two counties.

The hospitals (Thika and Kangundo District) were chosen purposively since they were the District referral hospitals for each District and they were situated in urban and rural areas respectively. The first mother was chosen randomly using random number then the rest were chosen systematically. In MCHC, post natal mothers bringing their children for immunization and growth monitoring were used for the study. Clients usually wait on a line depending on the time they arrived. Numbers one to ten were written, mixed and put in box. The first client was requested to pick any number from the box. After picking, the number was noted and then folded and returned to the box and mixed again before the second client could select. This ensured that any time each client was picking the number
there were ten numbers in the box. The client who picked number one the first time was the first to participate after consenting. If number one was not picked the whole process was repeated. Starting with number one systematic sampling method was used whereby every 4th mother was interviewed after giving the consent, unless in the exclusion criteria. If the mother did not satisfy the criteria, the researcher moved to the next client as per systematic number.

In Focus group discussion mothers who had not participated in structured questionnaire were used. Mothers were sampled to reflect population variations that were of particular relevance to the topic and shared common characteristics. Key informants from the hospital were selected purposely from community leaders and professionals who had firsthand knowledge about the community they included Medical Superintendent, District Public Health Nurse, Nursing officer in-charge of MCH and Community Health Extension Worker. Those from the community were selected with the assistance of community health extension worker and they included retired teacher, women group leader, community health worker, church elder.
3.5 Sample Size Determination

The study size was calculated according to the formula as used by Fisher since the population was more than ten thousand as shown below (Fisher et al., 1998). In this case the sample size was derived from relationship

\[
N = \frac{Z^2 \times pq}{D^2} 
\]

N= Sample Size

P = proportion of target population estimated to have a particular characteristic, hence was equal to 57% or 0.57 mothers who were not utilizing maternity facility for delivery in Kenya (KNBS, 2010).

Q =1- 0.57 and was derived from the relationship \((1.0 – 0.57)\) which was equal to 0.43.

Z is the standard normal deviation set at 1.96 to correspond to 95% confidence limit.

Consequently D represents the degree of accuracy and is set at 5%

\[
\text{Hence } (1.96)^2 (0.57)(0.43) = 3.84 \times 0.245 = 0.9412 = 376 \\
(0.05)^2 
\]

Therefore the minimum study sample was 376 respondents per hospital.

In case of respondent drop out of the study a 10% non-response was considered and hence the sample size was equal to 376+ \((376+10\%)\) \(\approx\)376+38\(\approx\)414 respondents.

However the number was rounded up to four hundred respondents in each hospital.
3.6 Study Variables

Study variables considered in assessing the objectives and testing the hypothesis are discussed below.

3.6.1 Independent Variables

1. Socio economic factors that determine hospital delivery

The socioeconomic factors that influenced hospital deliveries were assessed as per questionnaire (Appendix II Part I). The independent variables which were used to calculate their influence on hospital delivery included Age, religion, level of education, occupation of the mother, domicile, and age at first pregnancy. The factors were analyzed using inferential statistics and binary regression to assess how they influence hospital delivery.

2. Clients- oriented factors that determine maternal health services during delivery

The respondents were asked questions related to herself that may determine hospital delivery. They included Attitude towards health worker, hospital being a comfortable place to deliver, traditional beliefs, knowledge on importance of hospital delivery, control of resources, accessibility of the hospital, having money to pay for the services and previous delivery in the hospital (Appendix II Part II). The factors mentioned by the respondents were calculated as a percentage and analyzed using inferential statistics and binary regression.
3. Service delivery factors that determine utilization of maternal health services

The respondents were requested to mention giving reasons, factors associated with service delivery that influenced utilization of maternal health services during delivery (Appendix II Part III). They included handling of the client by the health worker, quality of care and cleanliness of the hospital. The information was coded to find out the most recurrent factor and calculated as a percentage of the respondents. For those who delivered at home they were asked why they choose to deliver at home.

4. Rating of the health facilities services by the mother

The respondents were requested to rate health facility in relation to quality of care, attitude of care giver, accessibility, acceptability and availability, (Appendix II Part IV). The information was coded to find out the factor which was rated highly as the best.

5. Factors that address utilization of maternal health services during delivery

The respondents was asked questions which answered to factors that determined utilization of maternal health services during delivery depending on where they delivered. The factors mentioned were used to enhance a model to improve hospital delivery (Appendix II Part V). Focus group discussion and Key informant interviews were also carried out to determine the factors leading to utilization.

3.6.2 Dependant variables

1. Hospital delivery

Hospital delivery was assessed by asking the mother where she delivered. All the mothers who delivered in the hospital compound whether on bed or delivery couch were
considered to have delivered in the hospital. The number of those mothers who delivered in the hospital was taken as a percentage of all the respondents.

2. **Home delivery**
Home delivery was assessed by asking the mother the place of delivery. All those mothers who delivered outside the hospital compound were considered to have delivered at home. The number of mothers who delivered at home was taken as a percentage of all the respondents.

3.7 **Research Instruments**

Data was collected using structured interviews, which was carried out using a questionnaire that afforded quantitative analysis (Appendix II). The questionnaire featured both closed and open-ended questions. A combination of qualitative and quantitative data collection was used in order to obtain determinants of utilization of maternal health services during delivery. Quantitative data collection were used in order to obtain facts and opinion of individuals, give most accurate and realistic picture of knowledge on importance of hospital delivery and challenges encountered by the mothers during hospital delivery. Focus group discussions were done to explore beliefs, attitudes and opinions towards hospital delivery. A focus group discussion guide was used as outlined in (Appendix III). Key Informants Interviews were conducted because these experts had particular knowledge and understanding of the study group and provided
insight on the nature of the problem and gave recommendations for solution. A Key Informants guide was used as outlined in (Appendix IV).

3.8 Pre-testing

The questionnaire was pre-tested in Kirwara hospital which is in a similar area to the study area to test for clarity, validity and reliability of the questions after which the tool was revised accordingly and finalized for use. In addition, interviews were used along with the questionnaire to enhance respondents understanding the questions and instructions. The interviewers who were trained health worker explained to the client exactly what was being asked this was important in order to get the required information. If the question was not answered well the researcher rephrased the question.

3.9 Data collection Procedure

Familiarization with the study area was done. The District Officer, Medical Superintendent and Nursing Officer in charge of the hospital, Community Health Workers, Sub-chief and Village elders were met and briefed on the study to ensure support. Data was collected using three methods structured questionnaire, Focus Group Discussions and Key Informants. To ensure that the participants understood the questions and answered them usefully interviews were used when answering the questionnaire to enhance respondents understanding the questionnaire and instructions. Focus group discussion was conducted in such a way that each group had eight to ten respondents. The discussion group was carried out in a private room to ensure confidentiality. During the discussion proceeding were tape recorded with one of the investigator acting as an
observer for body language. The discussion for Key Informants was held privately in the hospitals and for the community leaders in familiar open areas. The data collection was carried out by the researcher and two trained health workers for a period of four months.

3.10 Data Analysis

Data was analyzed by using of SPSS version 16 for windows. Descriptive Statistics were used initially to check the typical characteristics of the data, those of interest was age of respondents, level of education, place of delivery, knowledge of possible complications etc. Inferential statistics were done and chi-square determined to assess association between variables. Binary regression was also carried out to determine the effect of each independent variable that predict the outcome of the dependent variable while controlling for the confounding factor. The qualitative data from the focus group was transcribed, analyzed thematically and a summary written. The results from FGDS and Key informants were collaborated with the results from structured questionnaire. Similarities and disparities were described.

3.11 Logistics and Ethical Consideration

Permission was sought from National Council for Science and Technology and Medical officer of Health in Thika and Kangundo districts hospital and District Commissioner of the two districts. The Nursing Officer In-charge of each Maternal Child Health Clinic was also informed. Clearance was sought from Kenyatta University graduate school. The purpose of the study was explained clearly to all potential participants who were recruited voluntarily after signing the consent form (Appendix I). The Participants were assured
that their identity would be kept confidential, no names were entered on the questionnaire and the information was used for study purposes only. In order to enhance response the participants were assured that the interview was not a test of intelligence but a study and therefore they should answer the question without fear. To ensure privacy interviews were conducted on a one-to-one basis and information given was treated confidentially. The FGDs were held in a private room to maintain confidentiality where participants felt free to express their views. Key informants interview were held privately to maintain confidentiality.
CHAPTER FOUR: RESULTS

4.1 Socio-economic and demographic Characteristics

Socio-economic and demographic Characteristics of the two districts were analyzed as shown (Table 4.1). Most respondents in Kangundo 196 (49%) were aged between 25 -34 years compared to Thika where majority 273 (68.3%) were aged below 24 years. Considering religion majority of the respondents in Kangundo were Protestants and Catholics almost in equal percentage 192 (48%) and 195 (48.8%) respectively while in Thika majority were Protestants 249 (62.3%) followed by Catholics 127 (31.8%).

When level of education was considered in Kangundo those who had attained secondary education and above were 190 (47.5%) compared to Thika 230 (57.6%) and those who had primary level education and below 210 (52.5%) and 170 (42.5%) respectively. On occupation of the respondent in Kangundo 218 (54.3%) were housewives compared to 247 (61.5%) in Thika. Majority of the respondents were married in both Kangundo and Thika 332 (83%) and 350 (87.5%) respectively.

Considering the size of the house majority respondents in Kangundo 219 (54.5%) were living in more than three rooms compared to Thika where majority 219 (54.5%) were in single rooms. Majority of the respondents got pregnant between 20 and 24 years in both hospitals. On Decision making majority of the mothers in Kangundo 87% and Thika 80% could make decision to go to the hospital.
Table 4.1: Socio-economic and Demographic Characteristics of Kangundo and Thika Hospital

<table>
<thead>
<tr>
<th></th>
<th>Kangundo</th>
<th>Thika</th>
<th>Total</th>
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<tbody>
<tr>
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<td>&lt;24</td>
<td>166</td>
<td>273</td>
<td>439</td>
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<td>25-34</td>
<td>196</td>
<td>119</td>
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<tr>
<td>Above 35</td>
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<td><strong>Religion Affiliation</strong></td>
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<tr>
<td>Protestants</td>
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<td>249</td>
<td>444</td>
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<tr>
<td>Catholics</td>
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<td>127</td>
<td>319</td>
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<tr>
<td>Muslims</td>
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<tr>
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<tr>
<td><strong>Level of education</strong></td>
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<td>Primary and below</td>
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<tr>
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<td>41</td>
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<tr>
<td><strong>Occupation</strong></td>
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<tr>
<td>House wife</td>
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<td>Self employed</td>
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<td>58</td>
<td>68</td>
</tr>
<tr>
<td>Others</td>
<td>98</td>
<td>3.0</td>
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<tr>
<td><strong>Marital status</strong></td>
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<tr>
<td>Single</td>
<td>62</td>
<td>50</td>
<td>112</td>
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<td>Married</td>
<td>332</td>
<td>350</td>
<td>682</td>
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<tr>
<td>Windowed</td>
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<td>0.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Separated</td>
<td>3.0</td>
<td>0.0</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Domicile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single room</td>
<td>45</td>
<td>219</td>
<td>264</td>
</tr>
<tr>
<td>Two rooms</td>
<td>123</td>
<td>109</td>
<td>232</td>
</tr>
<tr>
<td>Self contained</td>
<td>12</td>
<td>27</td>
<td>39</td>
</tr>
<tr>
<td>Others</td>
<td>219</td>
<td>45</td>
<td>264</td>
</tr>
<tr>
<td><strong>Age at 1st pregnancy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 20</td>
<td>124</td>
<td>145</td>
<td>269</td>
</tr>
<tr>
<td>20-24</td>
<td>213</td>
<td>216</td>
<td>429</td>
</tr>
<tr>
<td>25-29</td>
<td>58</td>
<td>26</td>
<td>84</td>
</tr>
<tr>
<td>30-35</td>
<td>5.0</td>
<td>1.3</td>
<td>18</td>
</tr>
</tbody>
</table>
4.2 Proportion of the Mothers who delivered in the Hospital

Proportion of the mothers who delivered in the hospital refers to mothers whose actual delivery occurred in the hospital premises whether they were assisted by the health workers or not since they had access to emergency facility in-case of a problem. Proportion of the mothers who delivered in the hospital was assessed through obstetric history as outlined in appendix II part 1B.

Majority of the mothers delivered in the hospital 635 (79.6%) while 165 (20.6%) delivered at home. Considering the two hospitals 281 (70.2%) mothers in Kangundo delivered in the hospital and 119 (29.8%) delivered at home while in Thika 354 (88.5%) delivered in the hospital and 46 (11.5%) delivered at home. More women delivered in the hospital in Thika than Kangundo and this was statistically significant

\[ \chi^2 = 40.68, \text{df} = 1, \ p = 0.000 \].

Assistance during delivery was mostly given by skilled health personnel 631 (78.9%) traditional birth attendant 122 (15.3%) and others who were mostly relatives 47 (5.9%). Considering the two hospitals, 278 (69.5%) of mothers in Kangundo were assisted by health workers, TBA assisted 85 (21.3%) and 37(9.3%) were assisted by relatives while in Thika where 353 (88.3%) were assisted by health workers 37 (9.3) TBAs and 10 (2.5%) by relatives. In Thika more women were assisted by the health worker during delivery than in Kangundo and this was statistically significant

\[ \chi^2 = 43.1, \text{df} = 2, \ p = 0.000 \].
Most mothers (663) 83.4% attended antenatal clinic three or more times during the pregnancy. In Kangundo 107 (26.8 %) attended three times and 233 (58.4 %) attended four times while in Thika (91) 23 % and 232 (58.6%) respectively. Statistically there was a no significant difference between the two hospitals ($\chi^2 = 3.55$, df = 4; p = 0.46).

Majority of the mothers 396 (50.3%) attended antenatal clinic when the gestation was between 16-24 weeks 212 (26.9%) and between 28 to 32 weeks. In Kangundo 241 (61.2%) mothers attended clinic between 16 to 24 weeks 69 (17.5%) between 24-32 weeks. In Thika most mothers 155 (39.3%) attended antenatal clinic between 16-24 weeks, 143 (36.3%) between 24-32 weeks. Statistically there was a significant difference between the two hospitals with more mothers in Kangundo attending the clinic during early pregnancy ($\chi^2 = 45.4$, df = 3; p = 0.00).

Overall time of arrival to the hospital after labour pain began majority 265 (42%) arrived immediately. In Kangundo 133 (47.7%) arrived immediately, 35 (12.5%) after 2 hours and 23 (8.3%) after 4 hours and 88 (31.5%) later while in Thika 132 (37.4%) arrived immediately 86 (24.4%) after two hours, 46 (13%) after 4 hours and 89 (25.2 %) later. More mothers in Kangundo arrived immediately after labour than Thika this was statistically significant ($\chi^2 = 20.6$, df =3; p = 0.001).

Most mothers 661 (82.9%) did not report any problem during present and past pregnancies. Overall 661 (82.9%) had no problem while 136 (17.1%) had problems. In the two districts, Kangundo 357 (89.3%) had no problem compared to Thika 304 (76.6%) and 93 (23.4%) respectively (Table 4.2). Statistically there was a significant difference
between the two districts with Kangundo respondents having fewer problems compared to Thika, \( \chi^2 = 22.6 : df = 1, \ p = 0.001 \).

The FGDs mothers said that they do not usually deliver in the hospital due to distance especially at night “if labour starts at night you cannot reach the hospital because they are no matatus to take you there” (Kangundo FGD client). Others did not see the difference between hospital delivery and home delivery “Why should i go to the hospital if i do not have a problem just to pay money and be harassed” (Kangundo FGD client). Key informants mentioned that mothers will only come to the hospital for delivery when they get complications. They also mentioned that TBAs are highly regarded and recognized in the community for their good treatment during pregnancy and labour “They like them because they stay together and are neighbors they seek information from them immediately they get pregnant and therefore it becomes very hard for them not to go to them during delivery” (Kangundo KII). They agreed that mothers usually go for antenatal clinic so that complications can be ruled out and they can be comfortable to deliver at home. In case of complications during delivery and there is need to go to the hospital they will have acquired hospital card as it was mentioned by the key informer “Mothers only go to the hospital to get a card so that incase of complications they can be accepted in the hospital without problem” (Kangundo KII).
Table 4.2: Proportion of Mothers who delivered in the hospital and Obstetric history

<table>
<thead>
<tr>
<th>Place of delivery</th>
<th>Kangundo</th>
<th>Hospital</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Hospital delivery</td>
<td>281</td>
<td>70.2</td>
<td>354</td>
</tr>
<tr>
<td>Home delivery</td>
<td>119</td>
<td>29.8</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(χ² = 40.68, df = 1: p = 0.000).</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Assistance during delivery</th>
<th>Kangundo</th>
<th>Hospital</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled personnel</td>
<td>278</td>
<td>69.5</td>
<td>353</td>
</tr>
<tr>
<td>TBA</td>
<td>85</td>
<td>21.3</td>
<td>37</td>
</tr>
<tr>
<td>Good Samaritan/relatives</td>
<td>37</td>
<td>9.3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(χ² = 43.1, df = 2: p = 0.000).</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>ANC clinic attended</th>
<th>Kangundo</th>
<th>Hospital</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once</td>
<td>16</td>
<td>4.0</td>
<td>20</td>
</tr>
<tr>
<td>Twice</td>
<td>40</td>
<td>10</td>
<td>53</td>
</tr>
<tr>
<td>Thrice</td>
<td>107</td>
<td>26.8</td>
<td>91</td>
</tr>
<tr>
<td>&gt; fourth</td>
<td>233</td>
<td>58.4</td>
<td>232</td>
</tr>
<tr>
<td>None</td>
<td>4.0</td>
<td>1.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(χ² = 3.55, df = 4: p = 0.46).</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gestation at attendance of antenatal clinic</th>
<th>Kangundo</th>
<th>Hospital</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;16 weeks</td>
<td>74</td>
<td>18.5</td>
<td>83</td>
</tr>
<tr>
<td>16-24 weeks</td>
<td>241</td>
<td>61.2</td>
<td>155</td>
</tr>
<tr>
<td>24-32 weeks</td>
<td>69</td>
<td>17.5</td>
<td>143</td>
</tr>
<tr>
<td>&gt; 36 weeks</td>
<td>16</td>
<td>4.0</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(χ² = 45.4, df = 3: p = 0.00).</td>
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</table>

<table>
<thead>
<tr>
<th>Time taken to report to hospital after labour started</th>
<th>Kangundo</th>
<th>Hospital</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately</td>
<td>133</td>
<td>47.7</td>
<td>132</td>
</tr>
<tr>
<td>2hours</td>
<td>35</td>
<td>12.5</td>
<td>86</td>
</tr>
<tr>
<td>4hours</td>
<td>23</td>
<td>8.2</td>
<td>46</td>
</tr>
<tr>
<td>Others</td>
<td>88</td>
<td>31.5</td>
<td>89</td>
</tr>
<tr>
<td>χ² = 20.79, df = 3: p = 0.000.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Had Problem during this or other pregnancy</th>
<th>Kangundo</th>
<th>Hospital</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>43</td>
<td>10.8</td>
<td>93</td>
</tr>
<tr>
<td>No</td>
<td>357</td>
<td>89.3</td>
<td>304</td>
</tr>
<tr>
<td>χ² = 22.6, df = 1: p = 0.000.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.3: Client Socio-demographic Factors determining utilization of hospital delivery

Client Oriented factors are those factors that are related to the client that would hinder or promote hospital delivery. They include socio-demographic Characteristics and clinic attendance. Client Oriented factors determining utilization of hospital during delivery were assessed as outlined in appendix II Part IA and I B. Place of delivery was compressed and cross tabulating with the factors that were thought to determine the utilization.

Study results indicate that education level was statistically associated with utilization of hospital delivery in Kangundo ($\chi^2 =16.8$, df=2: $p < 0.001$). However it was not significant in Thika where majority of the respondents utilized the services during delivery irrespective of level of education.

Occupation was statistically associated with hospital delivery in Kangundo ($\chi^2 = 9.0$ df = 3: $p = 0.028$), and Thika ($\chi^2 = 9.8$, df=2: $p = 0.007$). In Kangundo utilization of the hospital delivery was lowest in housewives 146 (67%) and those with no specific job 65 (66.3%) and increases with self employment 54 (81.8%) and formal employment 16 (88.9%) while in Thika housewives 222 (89.9%) and self employed 81 (92%) has the highest percentage of hospital utilization.

Size of the house was statistically associated with hospital delivery in Thika ($\chi^2 = 14.8$, df = 3: $p = 0.002$). Although it was not significant in Kangundo those with self contained
houses utilize the services more as per frequencies. The number of times the mother attended clinic was significant in the two districts. In Kangundo \( \chi^2 = 23.1, \text{df} = 3: p < 0.001 \) while in Thika \( \chi^2 = 9.25, \text{df} = 3: p = 0.026 \). Clinic attendance was associated with hospital delivery. Overall those who had attended antenatal clinic four times and above (386) 83% delivered in the hospital compared to (20) 36.9% of those who had attended clinic once or none. The gestation at which clinic was started was statistically significant in Kangundo \( \chi^2 = 10.6, \text{df} = 5: p = 0.014 \), meaning that there was an association between gestation and hospital delivery (Table 4.3 and 4.4).

KII mentioned knowledge as one of the main barrier to hospital delivery “The mothers do not see any difference between hospital and home delivery as long as there are no complications. They do not see the need to waste money on transport and hospital bills yet home delivery is safe (KII from Kangundo hospital)
Table 4.3: Client Socio-Demographic factors influencing Place of delivery in Kangundo hospital

<table>
<thead>
<tr>
<th>Socio-demographic factors</th>
<th>Place of delivery</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>(\chi^2)</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hospital</td>
<td>Home</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level of education</strong></td>
<td>(n)</td>
<td>(n)</td>
<td>%</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>129</td>
<td>81</td>
<td>61.4</td>
<td>38.6</td>
<td>(\chi^2 = 16.8) : df =2</td>
<td>p = 0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>125</td>
<td>33</td>
<td>79.1</td>
<td>20.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>27</td>
<td>5</td>
<td>84.4</td>
<td>15.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Occupation of Mother</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>146</td>
<td>72</td>
<td>67</td>
<td>33</td>
<td>(\chi^2 = 9.0) : df =3</td>
<td>p = 0.028</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>54</td>
<td>12</td>
<td>81.8</td>
<td>18.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal employment</td>
<td>16</td>
<td>2</td>
<td>88.9</td>
<td>11.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>65</td>
<td>33</td>
<td>66.3</td>
<td>33.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Size of house</strong></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>One room</td>
<td>37</td>
<td>9</td>
<td>80.4</td>
<td>19.6</td>
<td>(\chi^2 = 6.53) : df =3</td>
<td>p = 0.62</td>
<td></td>
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</tr>
<tr>
<td>Two rooms</td>
<td>80</td>
<td>43</td>
<td>65</td>
<td>35</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self contained</td>
<td>11</td>
<td>1</td>
<td>91.7</td>
<td>8.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>153</td>
<td>66</td>
<td>69.9</td>
<td>30.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gestation at 1st Clinic</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 16 weeks</td>
<td>54</td>
<td>14</td>
<td>79.4</td>
<td>20.6</td>
<td>(\chi^2 = 10.6) : df =3</td>
<td>p = 0.014</td>
<td></td>
<td></td>
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<tr>
<td>16-24</td>
<td>174</td>
<td>67</td>
<td>72.2</td>
<td>27.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28-32</td>
<td>43</td>
<td>26</td>
<td>62.3</td>
<td>37.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 36</td>
<td>7.0</td>
<td>9.0</td>
<td>43.8</td>
<td>50.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Clinic attendance</strong></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None or once</td>
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<td>13</td>
<td>31.6</td>
<td>68.4</td>
<td>(\chi^2 = 23.1) : df =3</td>
<td>p = 0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twice</td>
<td>25</td>
<td>16</td>
<td>61.1</td>
<td>39.1</td>
<td></td>
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<tr>
<td>Three</td>
<td>89</td>
<td>38</td>
<td>64.5</td>
<td>35.5</td>
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<td>Four and above</td>
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Table 4.4: Client Socio-Demographic factors influencing Place of delivery in Thika hospital

<table>
<thead>
<tr>
<th>Socio-demographic Factors</th>
<th>Place of delivery</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Hospital (n)</td>
<td>%</td>
<td>Home (n)</td>
<td>%</td>
</tr>
<tr>
<td><strong>Level of education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>145</td>
<td>85.3</td>
<td>25</td>
<td>14.7</td>
</tr>
<tr>
<td>Secondary</td>
<td>168</td>
<td>88.9</td>
<td>21</td>
<td>11.1</td>
</tr>
<tr>
<td>Tertiary</td>
<td>40</td>
<td>97.6</td>
<td>1</td>
<td>2.4</td>
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</tr>
<tr>
<td>Housewife</td>
<td>222</td>
<td>89.9</td>
<td>25</td>
<td>10.1</td>
</tr>
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<td>Employed</td>
<td>81</td>
<td>92</td>
<td>7</td>
<td>8.0</td>
</tr>
<tr>
<td>Formal employment</td>
<td>50</td>
<td>76.9</td>
<td>15</td>
<td>23.1</td>
</tr>
<tr>
<td><strong>Size of house</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One room</td>
<td>189</td>
<td>86.3</td>
<td>30</td>
<td>13.7</td>
</tr>
<tr>
<td>Two rooms</td>
<td>104</td>
<td>95.4</td>
<td>5.0</td>
<td>4.6</td>
</tr>
<tr>
<td>Self contained</td>
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<tr>
<td>Others</td>
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<td>75.6</td>
<td>11</td>
<td>24.4</td>
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<td><strong>Gestation at 1st Clinic</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>&lt; 16 weeks</td>
<td>65</td>
<td>84.4</td>
<td>12</td>
<td>15.6</td>
</tr>
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<td>16-24</td>
<td>139</td>
<td>89.7</td>
<td>16</td>
<td>10.3</td>
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<tr>
<td>28 -32</td>
<td>131</td>
<td>91.6</td>
<td>12</td>
<td>8.4</td>
</tr>
<tr>
<td>&gt; 36</td>
<td>16</td>
<td>84.2</td>
<td>3.0</td>
<td>15.8</td>
</tr>
<tr>
<td><strong>Clinic attendance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None or once</td>
<td>15</td>
<td>71.4</td>
<td>6.0</td>
<td>28.6</td>
</tr>
<tr>
<td>Twice</td>
<td>52</td>
<td>96.3</td>
<td>2.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Three</td>
<td>81</td>
<td>88</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Four and above</td>
<td>208</td>
<td>88.4</td>
<td>27</td>
<td>11.6</td>
</tr>
</tbody>
</table>
4.4 Client oriented factors about healthy facility that determine hospital delivery

Client oriented factors about healthy facility that determine hospital delivery are those factors associated with health facility that will hinder or promote hospital delivery. They include the way the client views health workers, the way they feel about hospital delivery, whether they have the money to go to the hospital and the distance to the health facility.

The way the health worker was viewed by the mothers was statistically significant in Kangundo hospital only ($\chi^2 = 14.3$, df = 4: $p = 0.006$). Utilization of health facility was associated with the way the mothers viewed the health worker in terms of being friendly or harsh.

A hospital being seen as a comfortable place to deliver was significant in Kangundo only ($\chi^2 = 96.8$, df = 1: $p = 0.000$). In Kangundo utilization of hospital delivery was associated with the feeling of the mother whether hospital was a comfortable place for delivery or not.

Having money to go to the hospital and pay for services was statistically associated with hospital delivery in Kangundo ($\chi^2 = 80.6$, df=1 $p = 0.000$) and Thika ($\chi^2 = 10.4$, df=1: $p = 0.001$). Utilization of hospital for delivery was associated with whether the mother had money to pay for the services or not in both hospitals.

Distance from the health facility was found to be statistically significant in Kangundo ($\chi^2 = 15.9$, df=3: $p = 0.001$) and Thika ($\chi^2 = 9.0$, df=3: $p = 0.029$). Utilizing the hospital for
delivery services in Kangundo was associated with the distance from the mothers’ home to the hospital.

Previous hospital delivery was statistically significant with present hospital delivery. Utilizing the hospital for delivery was associated with the mother having delivered in a hospital earlier in both Thika and Kangundo respectively ($\chi^2 = 238.3$, df=1 : $p = 0.00$) District hospital ($\chi^2 = 13.3$, df=1: $p = 0.00$) (Table 4.5).

In FGDs client oriented factors that determined utilization were long distance to the hospital where mother has to hire a taxi, high cost of health services, poverty due to low economic status in the area and lack of knowledge believing that there is no difference between hospital and home delivery.

KII recruited from the hospital staff mentioned poverty, cost, ignorance, lack of decision making and lack of knowledge on importance of hospital delivery as the main cause “they do not seem to know the complications that may arise during home deliveries they assume they will deliver normally with TBAs” (Kangundo KII). The KII from community added that “If they do not have Jik and cotton wool they go to TBAs who do not ask for those things. Mothers fear health workers who are rude and ignore patients they also fear being operated and being chased away due to lack of essential package therefore they do not go to the hospital” (KII from Kangundo Community). In Kangundo mothers are encouraged by TBAs to deliver at home because it is cheap “TBAs encourage mothers to deliver at home and that is why they follow them when they notice they are pregnant and befriend them and discourage them from hospital delivery” (KII from Kangundo Community).
Table 4.5: Client oriented factors on health facility that determine hospital delivery

<table>
<thead>
<tr>
<th>Client oriented factors</th>
<th>Place of delivery</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hospital</td>
<td>Home</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n)</td>
<td>%</td>
<td>(n)</td>
</tr>
<tr>
<td>View of the health worker by the mother</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kangundo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friendly</td>
<td>36</td>
<td>85.7</td>
<td>6</td>
</tr>
<tr>
<td>Acceptable</td>
<td>217</td>
<td>70.5</td>
<td>91</td>
</tr>
<tr>
<td>Not interested</td>
<td>14</td>
<td>70</td>
<td>6</td>
</tr>
<tr>
<td>Harsh</td>
<td>14</td>
<td>58</td>
<td>10</td>
</tr>
<tr>
<td>Thika</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friendly</td>
<td>64</td>
<td>97</td>
<td>2</td>
</tr>
<tr>
<td>Acceptable</td>
<td>96</td>
<td>93.3</td>
<td>7</td>
</tr>
<tr>
<td>Not interested</td>
<td>65</td>
<td>84.4</td>
<td>12</td>
</tr>
<tr>
<td>Harsh</td>
<td>115</td>
<td>89.8</td>
<td>13</td>
</tr>
<tr>
<td>Hospital delivery being comfortable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kangundo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>270</td>
<td>80.6</td>
<td>65</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
<td>17.2</td>
<td>42</td>
</tr>
<tr>
<td>Thika</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>171</td>
<td>88.6</td>
<td>22</td>
</tr>
<tr>
<td>No</td>
<td>181</td>
<td>89.2</td>
<td>22</td>
</tr>
<tr>
<td>Having money to go to the hospital</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Kangundo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>231</td>
<td>85.6</td>
<td>40</td>
</tr>
<tr>
<td>No</td>
<td>49</td>
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<td>71</td>
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<tr>
<td>Thika</td>
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</tr>
<tr>
<td>Yes</td>
<td>265</td>
<td>92.3</td>
<td>22</td>
</tr>
<tr>
<td>No</td>
<td>85</td>
<td>81</td>
<td>20</td>
</tr>
<tr>
<td>Distance from Health facility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kangundo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Km</td>
<td>60</td>
<td>81.1</td>
<td>14</td>
</tr>
<tr>
<td>Two Km</td>
<td>51</td>
<td>86.4</td>
<td>8.0</td>
</tr>
<tr>
<td>Three Km</td>
<td>37</td>
<td>68.5</td>
<td>17</td>
</tr>
<tr>
<td>&gt;4Km</td>
<td>132</td>
<td>63.8</td>
<td>75</td>
</tr>
<tr>
<td>Thika</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Km</td>
<td>91</td>
<td>92.9</td>
<td>7.0</td>
</tr>
<tr>
<td>Two Km</td>
<td>30</td>
<td>85.7</td>
<td>5.0</td>
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<tr>
<td>Three Km</td>
<td>52</td>
<td>98.1</td>
<td>1.0</td>
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<tr>
<td>&gt;4Km</td>
<td>170</td>
<td>85.4</td>
<td>29</td>
</tr>
<tr>
<td>Previous delivery in a hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kangundo</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>276</td>
<td>89.9</td>
<td>31</td>
</tr>
<tr>
<td>No</td>
<td>4.0</td>
<td>4.7</td>
<td>82</td>
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<tr>
<td>Thika</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>314</td>
<td>91.5</td>
<td>29</td>
</tr>
<tr>
<td>No</td>
<td>18</td>
<td>69.2</td>
<td>8.0</td>
</tr>
</tbody>
</table>
4. 5: Healthy facility oriented factors that influence utilization hospital delivery

Healthy facility oriented factors are those were mostly concerned with the quality of care and could interfere with utilization of hospital delivery. Eight questions were asked to mothers who delivered in a healthy facility to assess healthy facility factors that determined utilization of hospital during delivery as outlined in appendix II Part 111. The mothers were requested to explain the way they were handled during delivery. A total of 652 mothers answered this question. In Kangundo and Thika 49 (17 %) and 83 (22.5%) reported they were handled in a friendly manner, 204 (70.8%) and 91 (25%) in acceptable way 17 (5.9%) and 58 (16.2%) reported the health workers were not interested 17 (5.9%) and 132 (36.3%) again reported they were handled harshly respectively (Figure 4.1). Statistically there was a significant difference between the two hospitals ($\chi^2 = 157.8$, df = 4: p < 0.001).
Figure 4.1: Handling of client by the health care workers during hospital delivery.
In Kangundo and Thika hospital 253 (89.6%) and 100 (27%) mothers reported that they received the care they expected while 29 (10.3%) and 270 (73%) reported they did not respectively. Statistically there was a significant difference between the two hospitals with majority of mothers in Thika not receiving the expected care ($\chi^2 = 263.3$, df=4: $p = 0.001$).

On the cleanliness of the hospital in terms of floor, bed sheets and instruments used 653 mothers answered this question. In Kangundo 279 (98.6%) reported the hospital was clean compared to130 (35.1%) in Thika while 4 (1.4%) and 240 (64.9%) reported it was not respectively. Statistically there was a significant difference between the two hospitals with most mothers in Thika reporting the hospital (labour ward) was not clean enough ($\chi^2 = 275.8$, df=1: $p = 0.000$).

On the state of the health worker 651 mothers answered this question. In Kangundo 87 (30.9%) reported that the health worker looked overworked and tensed compared to Thika where 208(56.4%) reported the same with 195 (69.1 %) and 161 (43.6%) reporting no respectively. Statistically there was a significant difference between the two hospitals with most mothers in Thika feeling that the health workers were overworked ($\chi^2 = 42$, df=1: $p = 0.001$).

On maintenance of privacy 651 mothers answered this question. In Kangundo 68 (24.2 %) reported privacy was maintained compared to 62 (16.8%) in Thika. While 213 (75.8%) reported it was not in Kangundo and 308 (83.2 %) in Thika respectively. Statistically there was a significant difference between the two districts with majority reporting that privacy was not being maintained in Thika ($\chi^2 = 5.5$, df=1: $p = 0.019$).
If the health worker used polite language when addressing the mother 654 mothers responded to this question. In Kangundo 248 (87.6%) mothers reported polite language was used compared to Thika 136 (36.4%) while 35 (12.4%) and 235 (63.3%) reported no respectively. Statistically there was a significant difference between the two hospitals with majority of mothers in Thika reporting that polite language was not used ($\chi^2 = 172, df=1: p = 0.00$).

On prompt handling of any complains raised 653 mothers answered this question. In Kangundo (195) 68.9% reported complained were handled on time compare to Thika 126 (34.1%) while 88 (31.1%) and 244 (65.9%) reported they were not handled on time in Kangundo and Thika respectively. Statistically there was a significant difference between the two hospitals with majority of the mothers reporting that complains were not being handled promptly in Thika ($\chi^2 = 77.9, df=1: p = 0.00$).

On unnecessary procedures being carried on the mothers 651 mothers answered this question. In Kangundo 21 (7.5%) reported unnecessary procedures were performed while 260 (92.5%) reported they were not compared to Thika 106 (28.6%) and 264 (71.4%) respectively (Figure 4.2). Statistically there was a significant difference between the two hospitals with majority in Thika reporting unnecessary procedures were carrying out ($\chi^2 = 46.5, df=1: p = 0.001$).
Figure 4.2: Client assessment of health care services during delivery
In FGD mistreated and negligence by the health workers featured prominently which included slapping, use of very dirty language as one client put it that “I was slapped and told that she was not there when i got pregnant so i should not bother her” (Client from Kangundo FGD). Lack of privacy, and unnecessary repeated vaginal examinations which were done by medical students were also reported. Lack of assistance during delivery (self delivery) was also mentioned as a participant revealed, “I delivered on the floor alone before I got admitted but was still charged the hospital fee” (Client from Thika FGD).

Participants mentioned that mothers are left to sit on the bench for too long and they are not given a chance to express themselves or explain the problems or their feelings “even when you call them and you have a problem no one comes and when you deliver in the wrong place like waiting room you are harassed” (FGD client from Thika).

Mothers also complained of lack of assistance after caesarian/section and delivery “I called the health worker to come and assists me to go to the toilet after operation she did not come so I was helped by another patient who felt sorry for me” (FGD client from Thika). Self delivery was also reported due to few de-motivated nurses. Respondents reported delay before being attended to on arrival to the hospital and privacy not maintained at all as one client put it “all the visitors who come to visit the hospital see you naked as there are no screens even if they are not your visitors” (client from Kangundo FGD). Others which were mentioned included lack of enough beds and beddings where patients were forced to share, inadequate food and drinks supply in the hospital after delivery. Delayed admission in the hospital if they don’t have delivery package ( jik, cotton wool and gloves) as it was explained by a mother in the focus group,
“first I was asked whether I had essential package for delivery I did not have and my neighbor had gone home I had to call her back to bring before I could be admitted” (FGD client from Thika). Patients are not explained the procedures before being performed on them, instructions are not explained and they are not supposed to ask questions. “I was told to go out and walk around the hospital, nobody explained why or when I should come back I went and slept outside where I delivered” (FGD client from Thika). Poor services unwilling health worker who did not respond to patients complain, lack of essentials such as drugs, poor relationship between health seeker and provider was also reported in both hospitals.

The Key Informers from the two hospitals reported hospital delivery being determined by healthy facility oriented factors which included; delivery services being expensive at Ksh.2000 excluding the essential package “here mothers do not have money they are extremely poor and they cannot afford food leave alone 2,000 Kenya shilling,”(key informant from Kangundo). Key informants from the community leaders reported delivering on the bench or on the floor due to delayed assessment and admission to labour ward on arrival, sharing beds and lack of hot drink after delivery. Inadequate observations in the hospital where the mother ends up delivering in the bed alone due to negative attitude of the health workers or staff shortage. Fear of cesarean section and hospital staff, dirty and abusive language in front of others, fear of HIV infection, poor care due to lack professionalism which includes negligence, poor services, and mistreatment. The KII also mentioned that mothers believe that caesarean section is done without a good reason “they say if you go the hospital you must be operated and you are not give time to deliver normally so that their students can learn”(KII from Kangundo).
4.6 Respondents rating of the health care services given to the mother during delivery

Rating of maternal health services in the hospital was assessed only among mothers who had delivered in the hospital because they were likely to describe the care they received in terms of acceptability, accessibility, availability and quality of care.

4.6.1 Influence of acceptability in use of hospital delivery

Influence of acceptability of the care given to the mothers was assessed as outlined in Appendix II Part IV. Acceptability assessed whether the care given was approved by respondents and if having an alternative a mother would use the same services given the reception she received. In Kangundo majority of the mothers (156) 39% reported the care was average and above and 23 (5.8%) reported it was poor while in Thika 242 (60.5%) reported care was average and above while 51 (12.8 %) reported it was very poor. Care was reported to be average and above if the client mentioned that the care was average, good or excellent and was acceptable. Care was reported to be poor when the client felt that it was unacceptable and would discourage her from utilizing the hospital.

Explanation of the procedure before they were carried was done to 98 (34.9%) in Kangundo while 183 (65.1%) received no explanation compared to Thika where 252 (66.7%) were explained and 126 (33.3%) were not. Overall 350 (53.1%) said procedures were explained. Statistically there was a significant difference between the two hospitals with majority of Thika respondents being explained procedures more ($\chi^2 = 65.4$, df =1: $p = 0.001$).
Whether the respondents agreed with the statement that “they were respected by the
health worker”, in Kangundo 165 (45.8%) agreed with this statement, 45 (12.5%)
disagreed and 119 (33.1%) were not sure. In Thika 136 (34.6%) agreed they respected
with 245 (62.3%) disagreeing with this statement. Statistically there was a significant
difference between the two hospitals with majority of Thika respondents disagreeing they
are respected \( (\chi^2 = 273.3, \text{df}=1: p = 0.001) \).

The mothers were asked to rate the attitude of the health worker depending on how they
were handled either positively or negative during delivery. In Kangundo 143 (39.6%)
reported it was positive and 36 (10%) reported it was negative compared to Thika where
142 (37.1%) reported the attitude was positive while (201) 52.5% reported it was
negative (Figure 4.3).

Statistically there was a significant difference between the two hospitals with majority of
Thika respondents rating the attitude of the health care workers as negative \( (\chi^2 = 205.2,
\text{df}=2: p = 0.00) \).
In FGDs mothers reported that the care was compromised and that assessment of the patient was not done on arrival and staffs were rude and did not maintain privacy. The staffs were said to be disrespectful to clients, rude and used dirty language as a participant put it that she was abused in front of other mothers and told, “You are dirty why didn’t you shave there down or tell your husband to shave you?” (FGD client Kangundo). This client was too embarrassed and run away from the hospital and was delivered by a TBA. During the interview she said she cannot deliver in a hospital. Cruel attitude of the health care worker and staffs feeling superior and not ready for any question was also reported. Poor conduct - no procedures explained clients are supposed
to comply with whatever is said and done without questioning. Yet some of those procedures are very sensitive. "Health workers are feared you cannot ask them questions they feel they know better and when you ask you are asked whether you want to teach them their work so you keep quiet" (FGD client Kangundo).

Others included compromised care because there are few service providers and it takes long to be attended to therefore mothers wait for long, labour ward unclean, facilities not enough e.g. sharing of beds as it was put "it is only babies who use the bed mothers sit on benches after delivery" (client from FGD Thika).

Health workers were said to be cruel have negative attitude towards patients. No one cares, "if you don't have the requirements you are chased away or you buy from the person you will be shown" (client from FGD Thika).
4.6.2 Influence of Accessibility on utilization of hospital delivery

Accessibility assessed how easy it was to reach the hospital and get the required services. Distance of the health facility from the mothers house was also assessed 779 respondents answered this question, In Kangundo 207 (52.5%) lived more than 4 km from the health facility compared to 199 (51.7%) in Thika while only 74 (18.4%) in Kangundo and 98 (25.5 %) lived within one kilometre from the health facility. Statistically there was a significant difference between the two hospitals with majority of Thika hospital respondents living near the hospital compared to Kangundo ($\chi^2 = 9.5$, df = 3: $p = 0.023$).

In Kangundo the main means of transport used from home to healthy facility was matatus 216 (54.3%) followed by walking 159 (39.9%) and bicycle /motor bike 23 (5.8%) compared to Thika 268 (93.6% ), 14 (3.6%) and 11 (2.8%) respectively. Statistically there was a significant difference between the two hospitals with majority of Thika respondents having matatus as the main means of transport ($\chi^2 = 165.3$, df = 2; $p = 0.000$).

According to the respondents the services offered in the hospital in Kangundo are curative 281 (70.5%), promotive 64 (16.1%) and preventive 17 (4.3%) compared to Thika 322 (82.4 %) curative 59 (15.1%) promotive and 10 (3.3%) preventive. Statistically there was a significant difference between the two districts ($\chi^2 = 38.5$, df = 4: $p =0.001$) (Table 4.6). Majority of the mothers knew they could access the services in the two hospitals.

According to FGDs and KII access was said to be hindered by high cost of transport since most of the time they have to hire a taxi and the money is not always available, high cost of health care which is not within the reach of the mothers considering the low economic
status especially in Kangundo “most people here are extremely poor they cannot even afford food” (KII from Kangundo). Self delivery in the hospital was also reported this could be associated with shortage of staffs meaning that even in the hospital the care is not always accessible. Lack of essentials such as drugs, ambulance for transport from the dispensaries which are nearer respondents homes to the main hospital was also reported.

“So smaller hospitals are nearer but when you go there you are referred to the main hospital and if you do not have transport or money you can end up delivering on the way since the dispensaries do not have ambulances” (Kangundo FGD client).

Table 4.6: Accessibility Of the maternal health services by the Mothers

<table>
<thead>
<tr>
<th>Distance to healthy facility from the mothers home</th>
<th>Kangundo</th>
<th>Thika</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N)</td>
<td>%</td>
<td>(N)</td>
<td>%</td>
</tr>
<tr>
<td>1km</td>
<td>74</td>
<td>18.8</td>
<td>98</td>
</tr>
<tr>
<td>2km</td>
<td>59</td>
<td>15</td>
<td>35</td>
</tr>
<tr>
<td>3km</td>
<td>54</td>
<td>13.7</td>
<td>53</td>
</tr>
<tr>
<td>&gt;4km</td>
<td>207</td>
<td>52.5</td>
<td>199</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 9.5, \text{ df}=3: p = 0.023 \]

<table>
<thead>
<tr>
<th>Means of transport to health facility</th>
<th>Kangundo</th>
<th>Thika</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>159</td>
<td>39.9</td>
<td>14</td>
</tr>
<tr>
<td>Bicycle/bike</td>
<td>23</td>
<td>5.8</td>
<td>11</td>
</tr>
<tr>
<td>Matatus</td>
<td>216</td>
<td>54.3</td>
<td>368</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 185.3, \text{ df}=2: p = 0.000 \]

<table>
<thead>
<tr>
<th>Services offered in the health facility</th>
<th>Kangundo</th>
<th>Thika</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curative</td>
<td>281</td>
<td>70.6</td>
<td>322</td>
</tr>
<tr>
<td>Promotive</td>
<td>64</td>
<td>16.1</td>
<td>59</td>
</tr>
<tr>
<td>Preventive</td>
<td>17</td>
<td>4.3</td>
<td>9.0</td>
</tr>
<tr>
<td>Transfer</td>
<td>16</td>
<td>4.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Others</td>
<td>20</td>
<td>5.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 38.5, \text{ df}=4: p = 0.001 \]
4.6.3 Influence of Availability on utilization of hospital delivery

Availability was assessed to check whether the hospitals located within the area are adequate and avail the required services without having to wait for long. In Kangundo 118 (29.7%) reported they had adequate health services while 279 (70.3%) reported they did not have compared to 99 (25.2%) in Thika who reported they had and 294 (74.8%) reported they did not have. Overall only 217 (27.5%) reported having enough health facilities. There was no significant difference between the two hospitals. On time taken to be attended in the hospital for any maternal service majority of the mothers in Kangundo 208 (52%) mentioned one to two hours while majority in Thika 171 (42.8%) mentioned more than three hours. Statistically there was a significant difference between the two districts ($\chi^2 = 407.3$ df = 5; $p = 0.000$).

Whether they always get the services they require in the healthy facility majority of the mothers in Kangundo 346 (86.5%) reported no compared to Thika 254 (63.5%). Statistically there was a significant difference between the two districts with majority

($\chi^2 = 57.1$, df =2; $p =0.001$) (Figure 4.4).

According to FGDs and KII, Kangundo was the main hospital in the area which was offering emergency obstetric services unfortunately the others small health centers and dispensaries were said not to have transport to the main hospital. Health workers were said to be few, but enough to manage with effective time management. “Hospital is good but sometimes you do not get drugs and you are told to buy” (Kangundo FGD Client).

Thika was reported to be the main hospital for the government in the area dealing with obstetric emergency care. It was reported to be congested and patients were very many
therefore took long to be attended. Others hospitals around were said to be private and expensive. Medical personnel were few, not able to cope with the work load, participant complained that there was a problem of time management by the staffs, supplies were also reported short including drugs and beds especially in labour ward where clients were sharing beds during intrapartal period and also after delivery. “The problem with this hospital is that patients are so many that the staffs are few even drugs are inadequate and the patients share beds after delivery” Thika FGD client.

Figure 4.4: Availability of maternal health care
4.6.4 Influence of Quality of care on utilization of hospital delivery

Quality of care was assessed using six questions as outlined on questionnaire part IV D. The aim was to assess the quality of care because it can influence hospital delivery positively or negatively.

In Kangundo 177 (63.4%) of mothers were happy with the whole labour process compared 102 (36.1%) who were not while in Thika 126 (34.1%) reported they happy with the whole process and 243 (65.9%) reported they were not happy. Statistically there was a significant difference between the two hospitals with majority of respondents in Thika not being happy with the whole labour process of ($\chi^2 = 119.5$, df =1; $p = 0.000$).

Assistance during head delivery was given to 251 (90%) in Kangundo and 216 (58.5%) in Thika while 18 (10%) and 153(41.5%) did not get any assistance respectively. Statistically there was a significant difference between the two hospitals with majority of Thika respondents not being assisted during head delivery compared to Kangundo ($\chi^2 = 172.4$, df =1; $p = 0.000$).

Whether care was up to date in terms of infection control and hospital hygiene this was assessed by asking the respondent whether the delivery cough and beds, instruments used and the floor were clean. In Kangundo 271 (97.5 %) reported the care was up to date in terms of infection control and 7 (2.5%) no compared to Thika 152 (41.3%) and 216 (58.7%) respectively. Statistically there was a significant difference between the two hospitals with majority of Thika respondents saying the care was not up to date in terms of infection control and hospital hygiene ($\chi^2 = 281.9$, df =1; $p = 0.000$).
Whether workers were overwhelmed by work thus not able to give quality care 93 (33.5\%) in Kangundo reported they were while 185 (66.5\%) said they were not compared to Thika 136 (36.9\%) and 233 (63.1\%) respectively. Statistically there was a significant difference between the two hospitals with majority of Thika respondents feeling that the workers were not overwhelmed not to give quality care ($\chi^2 = 67.7$, df =1; \( p = 0.001 \))

Whether the health care worker looked motivated to give the care 229 (82.7\%) in Kangundo reported they were and 48 (17.3\%) reported they were not compared to Thika where 83 (25.5\%) said they were while 286 (77.5\%) reported they were not. Statistically there was a significant difference between the two hospitals with majority in Thika saying that the health care workers did not look motivated to give good care ($\chi^2 = 292.8$, df =1 ; \( p < 0.001 \)) (Figure 4.5).

FGDS and KII were used to assess the quality of care as rated by the clients and the reasons. Quality of care was reported to be below average in terms of client satisfaction due to the following reasons: health workers being rude and unwilling to work, negligence where patients took long before being attended, “mothers deliver alone when waiting to be attended to and they deliver in the ward not labour room, toilets and bathrooms are dirty especially at night when the cleaners are few” (FGD Thika).

Mistreated of mothers was also reported especially when delivery occurred at the wrong place e.g. waiting room, or when the client complained about anything. Patients were not observed and admitted even when in labour and instead they were chased away to walk around until labour was established. Lack of enough beds was also reported thus delivery occurring on the floor or outside yet they were charged by the hospital. No procedure explained for any action, this made the patient feel disrespected. nepotism was
reported to be common “If you do not know anybody you wait in the cue and those one who come after you are attended to depending on who they know” (Thika FGD client).

No birth companion was allowed thus mothers were only assisted by nurses who were not available. In terms of infection control and assistance it was rated fair.

h/w – health worker

Figure 4.5: Quality of Care given to mothers
4.7 Factors that determine Utilization of Maternal health services during delivery

4.7.1 Most Appreciated care in the hospital

Most appreciated care in the hospital was assessed to be able to make a model of what would increase hospital delivery. This was only assessed among mothers who had delivered in the hospital.

Respondents usually appreciate most the care which is provided well in the hospital during delivery and post natal care (Figure 4.6). In Kangundo 181 (65.8 %) of all the respondents appreciated time spent while 94 (34.5%) did not compared to Thika where 156 (43.8%) appreciate time spent and 200 (52.7%) did not. Statistically there was a difference between the two districts with Kangundo respondents feeling the time spent was reasonable ($\chi^2 = 78.9$, df =1; p = 0.000).

Language used was appreciated by 249 (90.2%) in Kangundo compared to Thika 150 (42 %) while 27 (9.8%) and 206 (57.9%) did not appreciate respectively. Statistically there was a difference between the two districts with Kangundo respondents appreciating the Language used ($\chi^2 =200$, df =1 : p = 0.000).

Procedures carried out were appreciated by (160) 58.2% in Kangundo compared to 252 (71%) in Thika while 115 (41.8 %) and 103 (29 %) did not appreciate respectively.

Management of complications was appreciated by 271 (99.3%) in Kangundo and 174 (84.9%) in Thika while 2 (0.7%) and 31(15%) did not appreciate respectively. Statistically there was a difference between the two districts with Kangundo respondents appreciating management of complications ($\chi^2 = 60.9$, df =1; p = 0.000).
The attitude of the care giver was appreciate 241 (87.6%) in Kangundo and 105 (29.5%) in Thika compared to those who did not appreciate 34 (12.4%) and 251 (70.5%) respectively. Statistically there was a difference between the two districts with majority of Kangundo respondents appreciating attitude of the care giver as positive ($\chi^2 = 257.5$, df =1; p = 0.000).

Traditional beliefs and practices were appreciated by 262 (97.4%) in Kangundo and 202 (57.2%) in Thika respectively compared to 7 (2.6%) and 151 (42.8%) respectively. Statistically there was a difference between the two districts with Kangundo respondents feeling placenta was handled in a reasonable way ($\chi^2 = 178.6$, df =1; p = 0.000).
4.7.2: Factors that would discourage respondents from hospital delivery

The respondents who delivered in the hospital from the two hospitals were discouraged from delivering there by lack of privacy which was the main barrier 97 (24.3%) and 157 (39.3%) in Kangundo and Thika respectively. Other factors that discouraged hospital delivery in Thika included HIV testing 85 (21.3%), attitude and language of the care giver 78 (19.8%) and time taken to be attended to 33 (8.3%) while in Kangundo cost of services 36 (10.3%), quality of care 29 (7.3%) and attitude /language of care giver 33 (8.3%) (Figure 4.7).
Mothers who delivered at home in Kangundo 46 (38.7%) mentioned cost, 55 (46.2%) distance to the hospital as compared to Thika 11 (31.4%) and 8 (22.8%) respectively. Atitude of the health care worker was also featured by 7 (20%) in Thika compared to 2 (1.6%) in Kangundo.

FGDs and KII mentioned good services as one of the main reason for home delivery as one of the clients put it “TBA s are good they use polite language and follow you for at least 7 days” from Kangundo FGD client). This was confirmed by a CHW who was a Key informer “wanaongershwa vizuri na wanapebelesa” they talk to them nicely and encourage them (Kangundo KII). It was also reported that they maintain privacy because the TBA only allows one or two women to be in the room to encourage the woman. As one participant put it “Men and children are chased away” (FGD Kangundo). Beddings were also reported to be available since patients come with their own thus lowered risk of infection. “Mothers are provided with hot drink, food and hot water for bath after delivery, services are cheap and readily available since no transport is needed the TBA usually comes or the client walks to her home”, (Kangundo FGD client). Confirmed with CHW who said “they are charged Kshs 700 paid little by little or can pay in kind” (Kangundo KII). Though she was fast to respond that nowadays they don’t refer them to TBA due to fear of Aids and the fact that the Ministry of Health has instructed them not refer mothers to TBA to prevent maternal death.
Figure 4.7: Factors that discourage mothers from utilizing hospital delivery again
4.7.3 Respondents recommendation for improving hospital delivery

The respondents recommended the following areas should be improved or rectified in order for them to utilize hospital delivery or recommend someone else to utilize the services. Majority of the respondents from both Kangundo and Thika recommended increased number of workers 71 (26.2%) and 94 (27%) respectively. In Thika 87 (25%) mentioned ensuring privacy this was mentioned by only 39 (14.4%) in Kangundo.

Use of polite language and change of attitude of the health workers were mentioned by 70 (20.1%) in Thika and 54 (20%) in Kangundo. Increase of hospital equipment was mentioned by 45 (16.1%) and 35 (10.1%) in Kangundo and Thika respectively. Reduction of cost was mentioned by 30 (11.1%) in Kangundo and this did not feature in Thika.

Other factors that were mentioned included time taken to be attended by 36 (10.3%) in Thika and 12 (4%) in Kangundo. Also taking the healthy facility near the community, explaining procedures, asking for consent and giving health talks were mentioned in both hospitals as others. (Figure 4.8).

The FGDS and KII recommended the following improvement of hospital delivery; Increase number of health facility which can manage obstetric emergency, provide transport from lower level hospitals to the main hospital, increase number of staffs in maternal health care and
avail essential equipments and drugs. Also reducing the cost of maternal care during delivery was mentioned as a factor that can encourage mothers to utilize the hospital for delivery.

Figure 4.8: Recommended improvement in order to improve hospital delivery
4.7.4 Determinant of utilization of Hospital Delivery

Binary regression analysis was carried out to determine the effect of independent variable on the dependant variable while controlling for confounding and also to determine whether the independent variable predict the dependant variable. The independent variables included all the predictors that were significant while using chi-square, they included level of education, occupation of the mother, size of the house, gestation at first clinic attendance, mothers view of the health worker, hospital being comfortable place to deliver, having money to go to hospital, distance from healthy facility and previous delivery in a hospital. Binary regression was used because the dependant variable had two categorical options home and hospital. Two models were done one for Kangundo and one for Thika using the variables which were significant. The two regression models assessed the prediction of place of delivery using independent variables above.

In Kangundo only four variables were retained after analysis. The variables that could predict the place of delivery were education level \((p = 0.011)\), having delivered in the hospital before \((p = 0.000)\) size of the house \((p = 0.095)\) and number of times the client had attended antenatal clinic \(p = 0.028\). Those who had higher education level, had delivered in the hospital before and stayed in large house were more likely to deliver in the hospital. Also those who had attended clinic more times were more likely to deliver in the hospital than those who had attended once (Table 4.7).

In Thika the results showed that five variables could predict the place of delivery. They included occupation \((p = 0.000)\), size of the house \((p = 0.003)\), mothers view of the health worker \((p < 0.027)\), having delivered in the hospital before \((p = 0.000)\) and having money to go to the hospital \((p = 0.000)\). Factors that predicted hospital delivery positively were
formal employment, large size of house, positive view of health worker, having delivered in the hospital before and having money to go to the hospital (Table 4.8).

Table 4.7: Place of Delivery and Predictive Variables in Kangundo

<table>
<thead>
<tr>
<th>Variable</th>
<th>S E</th>
<th>Odd ratio</th>
<th>P value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Educational Level</strong></td>
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<td></td>
</tr>
<tr>
<td>Primary</td>
<td>0.716</td>
<td>2.523</td>
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<td>0.620 -10.27</td>
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<tr>
<td>Secondary</td>
<td>0.264</td>
<td>0.768</td>
<td>0.729</td>
<td>0.172- 3.42</td>
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<tr>
<td>Tertiary</td>
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<td></td>
<td></td>
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<tr>
<td><strong>Size of the house</strong></td>
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<td></td>
</tr>
<tr>
<td>One room</td>
<td>0.660</td>
<td>0.522</td>
<td>0.325</td>
<td>0.143-1.90</td>
</tr>
<tr>
<td>Two rooms</td>
<td>0.373</td>
<td>1.815</td>
<td>0.104</td>
<td>0.883 -3.816</td>
</tr>
<tr>
<td>&gt; Self contained</td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Previous hospital Delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>0.572</td>
<td>0.05</td>
<td><strong>0.000</strong></td>
<td>0.021 -0.015</td>
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<tr>
<td>No</td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Clinic Attendance</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Once</td>
<td>0.906</td>
<td>6.54</td>
<td>0.038</td>
<td>0.108 – 38.7</td>
</tr>
<tr>
<td>Twice</td>
<td>0.522</td>
<td>3.58</td>
<td>0.015</td>
<td>1.288 -9.95</td>
</tr>
<tr>
<td>Three</td>
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<td>1.23</td>
<td>0.657</td>
<td>0.490-3.00</td>
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<tr>
<td>Four and Above</td>
<td></td>
<td>1.00</td>
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</table>
Table 4.8: Place of Delivery and Predictive Variables in Thika

<table>
<thead>
<tr>
<th>Variable</th>
<th>S E</th>
<th>Odd ratio</th>
<th>P value</th>
<th>95% CI</th>
</tr>
</thead>
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<tr>
<td>Occupation</td>
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<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>0.499</td>
<td>0.074</td>
<td>0.000</td>
<td>0.23-0.256</td>
</tr>
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<td>Employed</td>
<td>0.597</td>
<td>0.155</td>
<td>0.001</td>
<td>0.50-0.481</td>
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<td>Formal employment</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>0.003</td>
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<tr>
<td>One room</td>
<td>0.497</td>
<td>0.334</td>
<td>0.028</td>
<td>0.143-1.906</td>
</tr>
<tr>
<td>Two rooms</td>
<td>0.857</td>
<td>0.060</td>
<td>0.001</td>
<td>0.883-3.816</td>
</tr>
<tr>
<td>&gt; Self contained</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers view on health worker</td>
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<td></td>
<td>0.027</td>
<td></td>
</tr>
<tr>
<td>Harsh</td>
<td>1.097</td>
<td>0.147</td>
<td>0.081</td>
<td>0.017-1.264</td>
</tr>
<tr>
<td>Not interested</td>
<td>0.557</td>
<td>0.406</td>
<td>0.105</td>
<td>0.136-1.206</td>
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<tr>
<td>Acceptable</td>
<td>0.486</td>
<td>1.776</td>
<td>0.237</td>
<td>0.685-4.604</td>
</tr>
<tr>
<td>Friendly</td>
<td>1.00</td>
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<tr>
<td>Previous hospital Delivery</td>
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</tr>
<tr>
<td>Yes</td>
<td>0.684</td>
<td>0.082</td>
<td><strong>0.000</strong></td>
<td>0.021-0.312</td>
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<tr>
<td>No</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having money to Go to hospital</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0.532</td>
<td>0.87</td>
<td><strong>0.000</strong></td>
<td>0.031-0.247</td>
</tr>
<tr>
<td>Yes</td>
<td>1.00</td>
<td></td>
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</tbody>
</table>
4.8 Emerging model on increasing utilization of hospital delivery

Based on the factors that determined utilization of hospital delivery, a model was constructed. The model is presented in figure (figure 4.9). In order to improve utilization of hospital delivery the following factors emerged as key contributors in improvement of hospital delivery and need to be addressed as described below:

4.8.1 Availability

The government should build and upgrade more health facilities which can manage obstetric emergencies near the community to reduce the distance the client has to cover when seeking maternal health care and also to reduce the number of patients per hospital. The number of health care workers should be increased, they should also be motivated and working conditions made favorable so that they can improve on their performance and quality of care.

4.8.2 Quality of care

The quality of care should be improved by reducing the time the mother has to wait before being attended to. Provide a waiting bay for mothers in early labour under observation of a qualified midwife to prevent corridor and outside deliveries when the patients are waiting to be in active labor. Close monitoring of labor should be done to prevent bench deliveries and self deliveries in the hospital. Hospital hygiene should be observed strictly to prevent cross infection. Health workers should address mothers politely to win their confidence and ensure privacy during examinations, labor, and delivery.
4.8.3 Healthy facility

Healthy facility should address transport problem from one level of health facility to the other and encourage communities to have community transport project. They should provide essential package for delivery to use when the mothers come to the hospital and be combined with the hospital bill instead of sending them away to go and buy. The hospital should be equipped with commonly used drugs and other equipments which are required during labor instead of sending mothers to buy. They should also train staffs on communication skills to include clients rights to prevent harassment of mothers.

4.8.4 Finances

This was one of the factors that determined utilization of hospital delivery. This can be managed by reducing the cost of hospital services, use of national hospital insurance fund (NHIF). The mothers can also have funds which they can access and control this can be through income generating programmes or employment opportunities. Fortunately on June 1, 2013, the Government of Kenya launched a new policy of free maternity services in all public facilities in order to combat the country’s persistently high maternal morbidity and mortality rates.

4.8.5 Health workers

Health workers should have positive attitudes towards patients irrespective of socio-economic status, use polite acceptable language and respect mothers. They should share health messages with the mothers to educate them on what is expected of them during delivery. They should improve on time management and ensure that self delivery does not occur as long as the patient is in the hospital.
4.8.6 Knowledge

Mothers should be educated on preparation during pregnancy, labor and delivery what is expected of them. Importance of hospital delivery as compared to home delivery Barazas should be held to improve the image of the health facility and the health workers.
Figure 4.9: Emerging Model On Utilization Of Hospital Delivery

- **Availability:**
  - Increase health workers
  - Increase healthy facilities in the community
  - Motivate health workers

- **Knowledge:**
  - Importance of hospital delivery
  - Barazas to improve hospital image
  - Preparation for delivery

- **Quality of care:**
  - Reduce waiting time
  - Assessment of clients
  - Hospital hygiene
  - Privacy of patients
  - Use polite language

- **Healthy facility:**
  - Provide transport
  - Provide Essential package for delivery
  - Provide enough equipments and drugs
  - Train health workers on communication skills

- **Health workers:**
  - Have positive attitude towards patients
  - Use polite language
  - Respect Mothers
  - Share Health messages
  - Prevent self delivery
  - Improve on time management

- **Finances:**
  - Reduce cost of services
  - Use of NHIF
  - Access and control Income generating programmes
  - Employment
CHAPTER FIVE: DISCUSSIONS

5.1 Socio-economic and Demographic Characteristics

The study was carried out in Kangundo and Thika hospitals. Utilization of hospital during delivery was assessed. A total of 800 respondents 400 from each district were interviewed.

Majority of the respondents in Kangundo were aged 24 to 34 year while in Thika they were aged less than 24 years. Majority of the clients in Kangundo had primary education while in Thika most had secondary education and above. Majority of young people move to urban area to look for jobs after completing secondary education level. Most clients in both Districts were married and did not have formal employment.

Most respondents in Thika lived in a single room as compared to Kangundo this is a case of rural /urban scenario where in town houses are rented expensively while in rural houses are constructed on a owned piece of land with locally available materials and they do not need to be permanent. Majority of the respondents got pregnant between 20 -24 years followed by below 20 years. Those are young parents likely to have modern beliefs and get married after finishing schools without having to go to tertiary colleges in order to secure formal employment.

On Decision making majority of the mothers in rural 87% urban 80% could make decision to go to the hospital. This is different with what was found in Nigerian where decision was mostly made by husband and other family members (Babalola et al., 2009). Mothers in Kenya seem to be empowered and can decision to go to the hospital on their own.
5.2 **Proportion of mothers delivering in the hospital**

A key target for MDG 5 and for all national plans is to significantly increase the number of women delivering with the assistance of skilled attendants. In this study 78% of the clients had delivered in the hospital, considering that this research was conducted in the hospital, those who had delivered there were likely to come back for postnatal check up and immunization. This is different with Kenya health demographic survey where only 43% delivered in a health facility (KNBS, 2010). This could be accounted by the fact that KDHS did their research in the whole country including the remotest area like Northern Kenya where the health facilities are very far and mothers mostly utilize traditional birth attendants.

In Kangundo hospital which is in rural area fewer mothers had delivered in the hospital compared to Thika hospital which is in urban area this concurs with what was found in Rwanda where rural women were more likely to be assisted by unskilled attendant compared to urban women (Umurungi, 2011). The fact that Kangundo hospital was far from the community and TBAs were readily available and highly regarded by the community could have accounted for this. This was also confirmed during FGDs where the mothers agreed that in Kangundo most of them deliver at home assisted by Traditional Birth Attendant (TBAs) mainly due to cost of transport and services. In Thika according to the key informers TBAs were not readily available, and the mothers depended entirely on private and public hospitals. A research done in Burkina Faso found out that 72% of the mothers delivered in the hospital (De Allegri *et al.*, 2010), this is slightly higher than Kangundo but lower than Thika this could be attributed to the fact that the research was done in rural and the services were free compared to Kenya where
the client has to pay for the services at the time of the research. A research done in a teaching hospital in Nigeria showed that 68.5% of the mothers delivered in the hospital this similar with Kangundo (Ekele et al., 2007).

Overall assistance during delivery was mostly given by the health workers in case of hospital delivery 78.9% and majority of the home deliveries were attended by Traditional birth attendant. The high percentage of mothers who did not deliver in the hospital being delivered by traditional birth attendant is a clear indication that those mothers who do not go to the hospital are usually assisted by traditional birth attendant. Similar results were found in Machakos district and rural Bangladesh (Kaingu et al., 2011; Chowdhury et al., 2013).

Overall majority of the mothers 83.4% had attended antenatal clinic three times and above in both Kangundo and Thika with only two out of 800 having not attended any antenatal care. This is higher than Bukina Faso where 76% had attended clinic three times and above despite the fact that they had reduced user fee this could be attributed to the fact that their research was done in the community (De Allegri et al., 2010) but concurs with what was found in Rwanda where 90% attended antenatal clinic (Umurungi, 2011). Most mothers attend antenatal clinic to confirm that the pregnancy is well and also to get a card so that in case of complications during delivery they can be admitted in the hospital without any problem. Similar results were found in rural Tanzania where a population based study reviewed that most mothers attend antenatal clinic but do not deliver in a hospital (Rockers et al., 2009). Majority of the mothers78.5% started the clinic early below 24 weeks in Kangundo where home deliveries were more. This could
be associated to the fact that most mothers attend the clinic early for any complication to be detected so that they can plan on place of delivery. In Thika 58.8% started the clinic below 24 weeks, this is lower compared to Kangundo and could be accounted by the fact that mothers in Thika are more economically stable and are likely to utilize the many private clinics in Thika which do not insist on clinic attendance as long as they can pay for delivery service.

Majority (57.5%) of the mothers did not report to the hospital at the onset of labor this could be associated with distance to the hospital and the means of transport they were using which featured prominently in both areas. However it could also be due to the fact that the respondents had not made up their mind to deliver in the hospital and did not have complications. This concurs with a study done in Indonesia where hospital was only used for complications (Titaley et al., 2010).

5.3 Client socio-demographic factors that determine utilization of hospital delivery

Hospital delivery was associated with the level of education in both areas with 61.4% of mothers having primary education level in Kangundo utilizing hospital services compared to 84.4% in tertiary level while in Thika it ranged from 85.3% to 97.6% respectively. This compares favourably with a research done in Nigeria and India where level of education was bound to influence utilization of hospital during delivery (Babalola et al., 2009, Mohanty et al., 2013). This was also found by Fotso when he did his research among the urban poor where level of education positively influenced the place of delivery (Fotso et al., 2008). Other researches which concurs with this study found out that level of education influences utilization of hospital delivery include those
done in Botswana, Turkey, Tanzania and USA (Latemo et al., 2003; Celik et al., 2000; Mpembeni et al., 2007; Stanton et al., 2006) respectively.

Occupation also played a role in utilization of hospital delivery; 98.9% of those who were in formal employment in Kangundo utilized the hospital compared to 67% who were not in formal employment. In Thika those who were not employed were utilizing the services with 89.9% among housewives and 76.9% among those in formal employment. This could be attributed to the fact that in town most people are likely to be economically stable therefore influence hospital delivery even among housewives compared to their Kangundo counterparts. The fact also that TBAs are not readily available leave the mothers with no alternative but to go to the hospital. This is similar to studies done in Rwanda, Botswana, Turkey, USA, India and Nigeria where hospital delivery increased with high economic status (Umurungi, 2011; Latemo et al., 2003; Celik et al., 2000; Stanton et al., 2006; Mohanty et al., 2013; Babalola et al., 2009) respectively.

Size of the house in Thika was associated with hospital delivery the high the number of rooms the bigger the number who utilized hospital delivery this is because in Thika the size of the house is a true representative of the economic status as compared to Kangundo this ranged from 86.3% for those with one room to 96.3% on self contained houses KDHS found similar results and also Fotso among the urban poor in Kenya (KNBS 2010; Fotso et al., 2008).
The gestation at which mother started the clinic was significant in Kangundo districts those who started the clinic early at less than 16 weeks 79.4% were likely to deliver in the hospital compared to those who started after 36 weeks 43.8% this compares favorably with (KNBS 2010). In Thika those who started clinic early only 34.4% delivered in the hospital compared to 84.6% of those who started after 36 weeks this was not significant. This could be accounted by the fact that in Kangundo there are few private hospitals unlike Thika where mothers have an alternative of using the many private hospital for antenatal clinic and only attend one visit in the government hospital.

Hospital delivery increased with the number of times the mother attended antenatal clinic. The percentage of those who utilized the hospital for delivery was higher among those who attended Antenatal clinic four times and above compared to those who attended clinic once or none. This compares favorably with what was found in USA, Tanzania, Nepal and Cambodia (Stanton et al., 2006; Mpembeni et al., 2007; Choulagai et al., 2013; Yanagisawa, 2006) respectively.

5.4 Client oriented factors about health facility that determined utilization of hospital delivery

Mothers’ views of the health workers determine utilization of hospital delivery. Positive view of the health worker increased utilization of the hospital as compared to those who viewed them negatively this is similar to what was found in Kenya among urban poor (Fotso et al., 2008). The way the mother viewed the health workers determined utilization in Kangundo unlike Thika. Those who viewed the health worker as friendly and
acceptable were likely to utilize the hospital as compared to those who viewed them as not interested and harsh.

In Kangundo 81% of those who felt that hospital was a comfortable place to deliver delivered there compared to 17% of those who reported it was not. However in Thika irrespective of whether the hospital was comfortable or not majority utilized the services with 88.6% of those who reported hospital as being comfortable place for delivery delivering there compared to 89% of those who considered hospital to be uncomfortable. This can be attributed to the fact that despite respondents from Thika reporting that hospital was not a comfortable place to deliver they had no alternative but to utilize the hospital because TBAs were not readily available and mothers fear of complications during delivery.

Those who had money to go to the hospital were more likely to deliver in the hospital compared to those who did not. In Kangundo 86% of those who had money delivered in the hospital compared to 41% of those who did not. While in Thika 92.3% of those who had money delivered there compared to 81% of those who did not. This is similar to what was found in Kenya, South Africa and Ethiopia where cost of services were mentioned as the main hindrance to hospital delivery (APHRC, 2006; KNBS, 2010; Sheetal et al., 2014; Azmeraw et al., 2011).

Those who lived one kilometer from the health facility utilized the facility for delivery more compared to those who lived more than four kilometers. In Kangundo 81% of those who lived one kilometer from the hospital delivered in the hospital as compared to 63.8% who lived more than four kilometers. In Thika 93% of those who lived one
kilometer from the hospital utilized the hospital for delivery compared to 85% of those who lived more than four kilometers this similar to what was found in Burkina Faso, Bolivia and Nepal where mothers living near the hospital were found to be utilizing the hospital for delivery more compared to those who lived far (De Allegri et al., 2010; Otis et al., 2008; Baral et al., 2010). Those mothers who had utilized the hospital for delivery previously were more likely to deliver in the hospital compared to those who had not utilized the hospital before in both hospitals.

5.5 Healthy facility oriented factors that may determine utilization of hospital delivery

Considering the two hospitals more than half of the mothers 54.8% in Thika, who delivered in the hospital were handled in a harsh manner and the health care worker was not interested when they went to deliver in a hospital this is similar to what was reported in informal settlement in Nairobi (APHRC, 2006). This was not the case in Kangundo where majorities 88.5% were handled in friendly or acceptable manner. This could be attributed to the familiarity of the health care worker in Kangundo areas where they live in communities and know each other well and therefore unlikely to mistreat one another. In Thika majority 74.4% of those who delivered in the hospital reported they did not receive the care they expected as compared to Kangundo 10.5% this could be attributed to the fact they are more educated than their Kangundo counterparts who may not know their rights.
On the cleanliness of the hospital clients from Kangundo 98.6% reported that the hospital was clean compared to their Thika counter parts 35.6%. This could be attributed to the fact that in Thika the hospital was more congested with patients due to high population compared to Kangundo hospital. On whether the health worker looked overworked and tensed to give quality care this again was significant with 56.4% of Thika respondents reporting the staffs were overworked compared 30.9% in the Kangundo hospital.

Maintenance of privacy was significant in both areas with the majority of the respondents who delivered in the hospitals reporting that it was not maintained. Majority of the clients in both hospitals reported that privacy was not maintained. Despite the fact that privacy is a fundamental patients right and it’s important during delivery to preserve the dignity of the client this was not the case in this study. This can be contributed due to lack of essentials, like screens and pressure of work on the staffs so that the staffs did not follow the laid down procedure when examining a patient. Similar results were found in Ethiopia where patient’s privacy was not guaranteed, (Azmeraw et al., 2011). However it differs with a study done in Nairobi informal sectors by UNFPA in 2006 where 76% of the hospitals had private area. UNFPA assessed the facility but did not assess their utilization the fact that there were separate room and barriers their utilization cannot be guaranteed and can only be reported by the client. (APHRC, 2006).

Use of polite language was reported to be high in Kangundo 87.7% area and low 37.6% in Thika area this compares favorably with what was found by APHRC in Nairobi Informal settlement (APHRC, 2006). The fact that health workers were not rude in Kangundo area
could be attributed to the fact that Kangundo staffs and clients know each other at personal level again they have normal work load and therefore unlikely to be rude as compared to their Thika counterparts who have more workload and are unknown personally to their client and were more likely to be rude due to pressure of work. Similar findings were reported in a research done in Pumwani where clients complained of health workers being rude (CRR et al., 2007).

Reports and complains being taken care of was significant between the two districts with Kangundo reporting they were handled well 68.6% compared to 35% in Thika. This again may be due to pressure of work in Thika. Unnecessary procedures were significant in both Kangundo and Thika with Thika reporting a higher number 27.4% compared to Kangundo 7.3%. This could be attributed to the fact that Thika was a teaching hospital and therefore the students repeated the procedures when trying to learn and considering that management of labour has sensitive procedures the clients felt uncomfortable.

5.6 Rating of the maternal health services by the mother

5.6.1 Acceptability

In terms of acceptability majority of the mothers in both areas rated the care as average 49.8% there was no significant difference between the two areas. Whether the procedures were explained to the mothers there was a significant difference between the two areas with majority in the Thika (urban areas) 66.7% compared to 34.9% in Kangundo being explained the procedures which could be attributed level of education where the health
workers are likely to explain to someone they think is educated and can understand as compared to non educated. About the clients being respected by the health workers slightly less than half of the client in the rural area 45.8% felt they were respected compared to the around one third 36.7% in urban area where they disagreed with the statement that they were respected. Lack of respect towards the client was also reported by APRC when the research was done in the informal sector of Nairobi (APHRC, 2006). Majority 52.3% of the respondents in urban area reported negative attitude of the health worker with only 10% reporting the same in rural area. About one third in both areas reported positive attitude. Negative attitude towards mothers seeking reproductive health care was also reported in Ghana (Cammilo, 2004; D’Ambruso 2005; APHRC, 2006). Negative attitude towards mothers is associated with low utilization of maternal health care. This was also reported in Focus group discussion where participants felt mothers do not like going to the hospitals because they were ignored and not assisted due to the attitude of the health care workers. Similar results were reported in Pumwani where mothers were not assisted during delivery (CRR et al., 2007).

5.6.2 Accessibility

Accessibility in both areas was not a problem with almost all mothers 97.2% reporting there was a direct road to the hospital. Considering means of transport there was a significant difference between the two areas. In Thika the main means of transport to the hospital was matatus 93.6% which were readily available similar results were found in Nairobi informal sectors and in Nigeria (APHRC 2006; Ekele et al., 2007; Van Eijk et
al., 2006)). But in Kangundo only slightly above half 54.3% used matatus while the other half majority had to walk 39.9% and a few 5.8% use a motorcycle or a bicycle which is not recommended for mothers during labour. This could be one of the major hindrances to hospital delivery in this area. The fact that more than half of all the clients lived more than four kilometers from the hospital it was unlikely that the mother was likely to walk during labour or even use a bike especially at night. Again even using matatus in established labour might not be possible the most appropriate transport to use is taxi which is equally expensive. Similar results were found in a research done in Nepal, rural western Kenya where distance was found to be major hindrance to hospital delivery also Kenya Health Demographic Survey (Baral et al., 2010; Van Eijk et al., 2006; KNBS 2010).

Majority of the respondents in both areas had knowledge on the services being offered in the hospital although it was a bit high for those in the Thika hospital compared to Kangundo but only a few knew transfer of a patient can be done from a small health facility to the main hospitals using ambulance meaning that those facilities are not available. Mothers seems to have knowledge about services available in the hospital but other factors such as the way they are handled by the health care worker usually discourage them from hospital delivery. Similar results were found in Pumwani (CRR et al., 2007).
5.6.3 Availability

Majority of the respondents 72.5% mentioned that they did not have adequate facilities within their location in the two Districts. On the time it took to be attended to after arriving in the hospital there was a significant difference between the two areas. In Kangundo majority 75.8% took less than two hours to be attended to compared to Thika where only 34.3% were attended within two hours. Similar results were found in Nairobi informal where clients reported delay in hospital (APHRC, 2006) and also in Ethiopia where client satisfaction was associated with waiting time (Azmeraw et al., 2011). This could be attributed to the total number of clients utilizing the hospital as witnessed during research where clients in Thika reported as early as 7 am and they were many and attended up to past five compared to Kangundo where clients arrived around 9 a.m and by 2.30 pm all have been attended to. In Kangundo 12.5% of the respondents did not always get the services they required compared to their Thika counterparts 32%. Majority 81% repeatedly reported drugs as the main commodity which was always missing and were sent to go and buy also mothers requiring laboratory services were also referred. Similar reports were found in Nairobi informal sector research and Pumwani hospital (APHRC, 2006): CRR et al., 2007).

5.6.4 Quality of care

There was a significant different between the two areas with a third of clients in Thika hospital being happy with the whole delivery procedure compared to two thirds in Kangundo area. Majority were unhappy 65.9% in Thika and 36.1% in Kangundo because they were handled harshly and they were not assisted when they called and the
health workers. This concurs with what was found out by KDHS among North-Eastern respondents who cited poor quality of service as reasons of not utilizing hospital delivery (KNBS 2010.)

Similar results of poor care were reported were reported in Bolivia and Ethiopia as the factors hindering hospital delivery (Otis et al., 2008 ; Azmeraw et al., 2011). Assistance during head delivery was reported by 90 % and 58.5% in Kangundo and Thika respectively there was a significant difference between the two areas with Kangundo reporting more assistance compared to Thika. This percentage is low because when clients go to the hospital they all expect assistance during head delivery again this is a very crucial time during delivery and immediately the mother is not assisted during this time then she does not see the essence of hospital delivery. It discourages the client so much as observed during focus group as one client who had delivered alone in the hospital lamented during focus group discussion, “if i knew I was going to the hospital to deliver alone then i could have as well delivered at home with a the assistance of the TBA who would have been solely available for me” (Kangundo FGD client). This is a clear indication that going to the hospital is not a guarantee that you will be assisted during delivery and it was not one of the main advantages of hospital delivery. This was also mentioned in a research done in the Nairobi informal sector and Pumwani hospital (APHRC, 2006; CRR, 2007).

Majority 97.5% in the Kangundo mentioned that the hospital was up to date in terms of infection control and hospital hygiene compared to the Thika hospital where 41.3%. Self delivery in the hospitals and poor hospital hygiene were also reported by APHRC in urban informal sector and Centre for Reproductive Rights (APHRC, 2006; CRR 2007).
In terms of quality care majority of respondents in both areas 66.5% in Kangundo and 63.1% in Thika felt that the health workers were not overwhelmed by work and thus unable to give quality care. This shows that mothers do not feel the main problem is pressure of work but the attitude of the healthy care workers.

About motivation to give quality care 82.5% in Kangundo area felt that health care workers were motivated while only 22.5% in Thika felt that they were motivated to give good quality care. This could be accounted by the fact that those in Thika areas are overworked and its more expensive to live in town as compared to their Kangundo counterparts where live is cheaper in terms of food and rent. The remuneration is also low compared to the living standards in Thika leading to de-motivation of health workers. Health workers are likely to be de-motivated by lack of essential facilities in the working areas especially when to capacity of the mothers is more than what is catered for. Similar results of de-motivated health workers due to pressure of work were reported by Centre for Reproductive Rights (CRR et al., 2007).

5.7 Factors that improve utilization of hospital during delivery.

5.7.1 Most appreciated care during hospital delivery

The services which were appreciated most by the clients were management of the complications, procedures carried out and traditional believes about handling placenta. The clients had no issues with those factors and therefore they could not prevent them from hospital delivery. However there was a significant difference between the two hospitals, in Kangundo which is in rural area most of the services were appreciated by the mothers meaning that they were performed well. In Thika attitude of health worker,
language used and time spent while being attended were not appreciated because they were not favorable for the client therefore need to improve. The time the health care worker spends with a client was too brief and not enough for the client to express themselves. The health care givers needed to give clients enough time to explain themselves in order to make correct diagnosis. Health care workers were not using polite language when addressing the client in the urban area. This compares favorably with what was found in Nairobi urban slums where complains were not listened to and the language used was unbecoming. (APHRC, 2006).

5.7.2 Factors that discourage hospital delivery

Factors that discouraged the respondents from hospital delivery were assessed in both Kangundo and Thika lack of privacy featured prominently in both hospitals. Other factors included HIV testing, attitude of the care giver, quality of care including infection. This was also cited by Fotso among the urban poor where HIV testing and attitude of the care giver were the main reasons why mothers did not seek health care during delivery (Fotso et al., 2008). This can be improved by screening the mothers during procedures and delivery to ensure privacy, change of attitude and utilization of procedure manuals in management of patients therefore preventing infections. Explaining procedures such as why HIV test is necessary to encourage hospital delivery. In Kangundo cost of services was also an issue due to low socio-economic factors in the area and distance to health facility. This is similar to what was found in rural Coast Province in Kenya where cost and distance discouraged the mother from utilizing hospital delivery (Mwangome et al., 2012).
5.7.3 Recommended improvements by the respondents.

In both areas recommendation to increase the number of health workers featured prominently followed by use of polite language/attitude of the health workers, maintenance of privacy and increasing hospital equipment. Others which featured in urban included improvement of the time taken and assistance while in rural their main issue was cost of services. These views are consistent with health survey in Nairobi informal sector where both health facility staff and consumers recommended more equipment and improved supply of consumables needed, including ambulances and more training for staff (APHRC, 2006).

If mothers are given the right information and inadequacies addressed they would utilize the hospital for delivery but as it is today only those who have complications are obliged to utilize. As long as they do not anticipate complications they are unlikely to utilize.

5.8 Free Maternity Services in Kenya

Cost of maternity services is an issue in Kenya leading to high mortality rate and few women delivering under care of skilled attendant in a hospital. On June 1, 2013, the Government of Kenya took action to address this problem by initiating a policy of free maternity services in all public facilities, effective immediately (Bourbonnais, 2013). This was supposed to encourage the mothers who could not attend the hospital due to cost of services to utilize the facilities. However the government did not tackle the issue of cost of transport, adequate facilities, equipments, health staffs and the quality of care. This is likely to serve as a challenge considering the high number of clients ready to utilize the services and the strained facilities and staffs.
CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusions

1. The proportion of hospital delivery was found to be lower in Kangundo 69% and higher in Thika 86.5% despite high Antenatal clinic Attendance of 99% in both hospitals.

2. Socio-demographic factors determining utilization of hospital delivery in Kangundo was level of education while in Thika it was occupation and size of the house.

3. Client oriented factors that determined utilization of hospital delivery in Thika and Kangundo were affordability to pay, distance to the health facility, and previous delivery in the hospital, gestation at first clinic attendance, view of health worker and the feeling that hospital was a comfortable place to deliver.

4. In both Kangundo and Thika factors associated with service delivery that influence utilization of hospital delivery negatively were lack of privacy, negative attitude of care giver, HIV testing, poor quality of care, lack of enough equipments, time taken to be attended to, lack of assistance during delivery, cost and poor hospital hygiene.
5. The health facility services were rated average in terms of acceptability. Accessibility was rated average in terms of services offered and distance. In terms of availability facilities were poor. Quality of care was rated fair in terms of assistance and infection control but below average in terms of client satisfaction.

6.2 Recommendations

1. All mothers who attend antenatal clinic should be encouraged to deliver in the hospital. Traditional birth attendance should also be encouraged to refer mothers to the hospital during delivery to prevent maternal death and healthy facilities should be increased and made accessible even at night.

2. Mothers need to be empowered with education, knowledge and financially to be able to understand the importance of hospital delivery and be able to pay for transport to the services.

3. The government should increase healthy facilities so that they are nearer to the community. There should be community mobilization in order to change the image of the community towards health workers and the hospital during delivery. Health worker should increase the campaign on importance of hospital delivery.

4. The Government should provide health facilities with means of transport incase of referral, increase the number of staffs and motivate them. They should also increase hospital equipments and upgrade them to be able to deal with emergencies.
5. The County Government should improve hospital delivery in terms of acceptability, accessibility, availability and Quality of care.

6. More research is recommended on the side of the health workers and healthy facilities in order to assess determinant of the services they offer and the way they can be improved.
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APPENDIX I: INFORMED CONSENT

Determinants of utilization of maternity health care services during delivery among postnatal mothers in Thika and Kangundo Districts, Kenya.

My name is Priscilla Njeri a PhD student at Kenyatta University. I am carrying out a Research to assess why hospital delivery where mothers are assisted by skilled health worker has remained so low despite the strategies put up by the government to increase it so as to reduce maternal mortality. Most mothers are delivered at home by Traditional Birth attendant or relatives despite high clinic attendance in the health facility. This has lead to high morbidity and mortality as a result of complications, which can be avoided if a qualified medical person delivers the mother in a health facility.

The questionnaire is aimed at assessing the level of awareness on complications during delivery, challenges encountered when utilizing maternal facility and factors that determine hospital delivery where skilled health personnel are available. The information given by the mothers will be treated confidentially and will be used for study purposes only and improvement of care.

The risks and possible benefits of participating in this study has been explained to me and I have accepted to be interviewed.

................................................................. .................................................................
Interviewee Date

................................................................. .................................................................
Interviewer Date
APPENDIX II: STRUCTURED QUESTIONNAIRE

Consent given........................................ District.....................Location......................

Signature........................................ Serial number.............Date.....................

Date........................................ Clinic Card No.......................

Part I A : Socio-economic and Demographic Characteristics

1. How old are you?
   (1) <18  (2) 18-24  (3) 25-34  (4) >35
2. What is your religion affiliation?
   (1) Catholic  (2) Muslim  (3) Protestant  (4) others (specify)
3. Level of education completed
   (1) 1-4  (2) 5-8  (3) Secondary  (4) College and tertiary
4. Occupation
   (1) housewife  (2) self employed  (3) Professional  (4) employed
   (5) Others (specify)
5. Marital status
   (1) single  (2) married  (3) separated  (4) divorced  (5) windowed
   (6) others (specify) (If single go to 7)
6. Husbands Occupation
   (1) Professional  (2) petty trader  (3) Businessman  (4) employed
   (5) Others (specify)
7. Whom do you live with? (For single mothers only)
   (1) parents  (2) relatives  (3) friends  (4) alone
   (5) others (specify)
8. How big is the house you live in?
   (1) one room  (2) two rooms  (3) self contained
   (4) others (specify)
9. a. Which born are you in your family? (1) 1st  (2) 2nd  (3) 3rd  (4) >4
   b. Born of the baby
   (1) 1st  (2) 2nd  (3) 3rd  (4) >4
10. How old were you when you got pregnant for the first time.
    (1) below 20  (2) 20-24  (3) 25-30  (4) 30-35
11. Who makes decision in your house whether to go to the hospital or not?
    (1) myself  (2) husband  (3) mother-in-law  (4) Father in Law  (5) mother  (6) Father
12. How old is your baby?
    (1) 0-6 weeks  (2) 7-12 weeks  (3) 13-18 weeks  (4) 19 weeks and above
Part IB: Obstetric history of the client.
1. Where did you deliver (1) hospital (2) on the way to the hospital (3) home (4) others
2. Who assisted you during delivery (1) Skilled health Personnel (2) TBA (3) good Samaritan (4) Friends (5) others
3. How many times did you attend antenatal clinic during pregnancy (1) one (2) two (3) three (4) four and above (5) none
4. When did you attend your first antenatal clinic (1) below 16 weeks (2) 16-24 weeks (3) 28-32 weeks (4) above 36 weeks (5) when I got complications (6) others
5. If above 36 weeks why did you start clinic so late
6. How long did you report to the hospital after labour pains began (1) immediately (2) two hours (3) four hours (4) others
7. Did you have a problem during this or other pregnancy (1) yes (2) no. If yes which one (1) previous scar (2) blood pressure (3) diabetes (4) others
8. Did you get any complication during delivery or puerperium? (1) Yes (2) no
9. If yes which one (1) maternal distress (2) fetal distress (3) cord prolapsed (4) prolonged labour (5) haemorrhage (6) ruptured uterus (7) others
10. How is the baby (1) well (2) has a problem specify

PART II Client oriented factors that may determine utilization of hospital delivery
1. How do you view the health care workers? (1) are friendly (2) acceptable (3) not interested (4) harsh (5) others
2. Why is it important to deliver in a hospital (1) to prevent complications (2) to get someone to assist you (3) for the child to get immunization (4) it a government requirement (5) others
3. Do you think hospital is a comfortable place to deliver (1) yes (3) No b. If No why (1) confidentiality (2) Lack of privacy (5) Attitude of the care giver (4) Infection (5) Others
4. Which complications are you likely to get during delivery(1) cord prolapsed (2) maternal distress (3) fetal distress (4) heavy bleeding (5) obstructed labour (6) prolonged labour (7) ruptured uterus (8) infections (9) retained placenta(10) others
5. Have you ever delivered in a hospital? (1) Yes (2) no. If No what have you heard about hospital delivery (1) mistreatment (2) use of abusive language (3) exposed (4) others
6. What are your traditional beliefs and practices about hospital delivery?
7. Did you have money to go to the hospital during delivery (1) yes (2) no (3) others
8. Who decides when you should go to the hospital in your family (1) mother in law (2) mother (3) husband (4) myself (5) relatives (6) others

9. Do you have any income of your own which you are able to control (1) yes (2) no

10. How far is the health facility from your home (1) 1 Km (2) 2 km (3) 3 km (4) >4 km

PART III: Health facility oriented factors that determine utilization of hospital delivery

1. In which manner were you handled by the health care worker during delivery? (1) friendly (2) acceptable (3) not interested (4) harshly (5) others

2. Did you receive the care you expected on admission for delivery (1) Yes (2) no. If no Explain

3. Was the hospital clean as you expected in terms of floors, bed sheets, instruments used (1) yes (2) no. If No explain

4. Did the health worker look overworked and tensed (1) Yes (2) no. If No explain

5. Was privacy maintained (1) Yes (2) no. If No explain

6. Did the health worker use polite language when addressing you (1) Yes (2) No. If No explain

7. When you reported or complain about something was it taken care of? (1) Yes (2) No. If No explain

8. Do you think unnecessary procedures were done on you eg assessments (1) Yes (2) no Explain
Part IV Rating of the health services by mothers during delivery

A. Acceptability

1. How can you rate the care you were given in the hospital during delivery (1) excellent (2) good (3) average (4) poor (5) very poor
2. Did the health worker explain to you all the procedures before they were carried out (1) yes (2) no. Did this affect you………………………………………………
3. Health care workers respect mothers who come to the hospital. Do you agree with this statement (1) strongly agree (2) agree (3) disagree (4) strongly disagree (5) not sure
4. How can you rate the attitude of health workers to mothers (1) positive (2) negative (3) not sure. Explain…………………………………………………………

B. Accessibility

1. Is there a direct route from your home to the health facility(1) Yes (2) No
2. What is the means of transport from your home to the health facility(1) walking (2) bicycle/bike (3) matatu (4) taxi (5) others……………………………………
3. What are the services offered in the hospital for mothers (1) curative (2) promotive (3) preventive (4) transfer to larger facilities (5) others…………………………………………………………
4. In case of labour at home would you decide to go to the hospital (1) yes (2) no If no who decides and why ……………………………………………………………

C. Availability

1. In your location do you have adequate number of health facilities (1) yes (2) no explain………………………………………………………………………………
2. When you go to the nearest facility do you always get health worker to attend to you (1) Yes (2) no explain…………………………………………………………
3. How long does it take when you go the hospital to be attended to for any maternal service (1) < 30 minutes (2) 30- one hour (3) one to two hours (4) 2to 3 hours (5) > 3 hours.
4. When you go to the hospital do you always get the services you require? E.g. drugs laboratory services etc (1) yes (2) no
   If No Explain ………………………………………………………………………

D. Quality of care.

1. When you went to deliver in the hospital were you happy with the whole labour process (1) yes No (2) If no. Explain ……………………………………………………………
2. Were you assisted during delivery of the fetal head (1) yes (2) no (3) others

3. Was the care given up to date in terms of infection control and hospital hygiene (1) Yes (2) No. Explain

4. Did health workers look overwhelmed by work so that they were not able to give quality healthcare during delivery (1) yes (2) no

5. How many hours were you in labour ward from admission before delivery (1) 4-6 (2) 7-10 (3) >10and above. Action taken

6. Did the health workers in the hospital look motivated to give good health care (1) yes (2) no

7. How long did it take before you were admitted for delivery (1) <30min (2) 1 hr (3) >1hr

Part V Factors that can improve utilization hospital during delivery

A. (To be Answered by only those who delivered in the hospital)

1. What did you appreciate most in the hospital during delivery and post natal care?

a. Time spent attending to you (1) yes (2) No explain

b. Language used (1) yes (2) No explain

c. Procedures carried out (1) yes (2) No explain

d. Management of complications (1) yes (2) No explain

e. Attitude of the care giver (1) yes (2) No explain
f. Traditional beliefs and practices about handling placenta and the cord (1) Yes (2) No

Explain.................................................................................................................................

2. What would discourage you from delivering in a hospital (1) HIV testing (2) attitude of the care giver (3) lack of privacy (4) quality of care (5) Infection (6) Unnecessary procedures e.g. vaginal examinations, episiotomies, Caesarian section (7) half hourly observations (8) distance from home (9) time taken to be attended (10) language of the health worker (11) cost of services (12) Other........................................................................................................................................

3. If all what you have mentioned was put in place what else would you recommend to be improved or rectified for you or someone else to deliver in the hospital

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4. Mention five advantages of home delivery..............................................................................

Disadvantage..............................................................................................................................

................................................................................................................................................

5. Mention five advantages of hospital......................................................................................

Disadvantages............................................................................................................................

B. (To be answered by only those who delivered at home)

1. Did you have any complication during pregnancy? (1) yes (2) no. If yes which one..............................................................

2. For those who delivered at home what made you decide to deliver at home (1) cost (2) attitude oh health worker (3) distance (4) traditional beliefs (5) procedures performed in hospitals (6) privacy (7) others................................................................................................................................................

3. What happened when labour started? (1) planned to go to the hospital (2) called a TBA to help me (3) called my mother (4) neighbor (5) friend to assist in delivery (6) others ........................................................................................................................................

4. Who assisted you during delivery (1) TBA (2) my friends (3) relatives (4) mother in law (5) myself (6) others ................................................................................................................................................

5. During delivery did you at any time wish you would have gone to the hospital (1) Yes (2) No

Explain........................................................................................................................................

6. If Yes what made you wish you could have gone to the hospital.................................................................
7. Do you think in the hospital you would have gotten better care than the one you got at home (1) Yes (2) No explain

8. a. Had you at any one time planned to deliver in the hospital (1) Yes (2) No
b. If yes What made you change your mind to deliver at home. Explain

9. Was there any complications after delivery (1) yes (2) no Explain

10. If yes do you think this complication would have occurred if you were in the hospital (1) yes (2) No Explain

11. Did you go to the hospital after delivery (1) Yes (2) No Explain

12. After how long (1) immediately (2) 1 day (3) 2 days (4) ≥ 3 days.

13. If you get pregnant again would you deliver at home or in the hospital? Why

14. a. Mention five advantages of home delivery
b. Disadvantages

15. What do you know or have heard about hospital delivery

16. Mention five advantages of hospital delivery according to you
b. Disadvantages
APPENDIX III: FOCUS GROUP DISCUSSION GUIDE

1. Where do mothers mostly deliver in this area?

2. What client oriented factors that determine utilization of hospital during delivery?

3. What health facility oriented factors that will determine utilization of hospital during delivery?

4. What is the rating of services during delivery in this area in terms of Acceptability, accessibility availability and quality of care?

5. What factors can make mothers utilize hospital during delivery in this area?

6. What makes the mothers be delivered at home in this area?

7. What can be improved in the hospital to make mothers utilize them?

8. What have you heard about hospital delivery?

9. Do you think whatever you have heard about hospital delivery is true? If yes why?
APPENDIX IV: KEY INFORMERS INTERVIEW GUIDE

1. Where do mothers from this area deliver and why?
2. What are the main causes of home delivery?
3. Who assists them during delivery?
4. When do they go to the hospital for delivery?
5. Are there many traditional birth attendants in this area?
6. What does the community say about the hospital delivery? Is it true?
7. What do you think should be done to improve hospital delivery in this area?
8. What client oriented factor determines utilization of hospital during delivery?
9. What healthy facility oriented factor determines utilization of hospital during delivery?
10. What is the rating of the hospital care during delivery in terms of acceptability, accessibility, availability and quality of care?
11. What factors can make mothers utilize hospital during delivery in this area?
APPENDIX V: MAP OF THIKA IN KIAMBU AND KANGUNDO IN MACHAKOS COUNTIES IN KENYA

Map Showing the Position of Thika in Kiambu and Kangundo in Machakos Counties in Kenya