UTILIZATION OF FREE MATERNITY SERVICES AMONG WOMEN AGED 18-49 YEARS IN MACHAKOS COUNTY, KENYA

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN PUBLIC HEALTH SYSTEMS MANAGEMENT AND APPLICATION IN THE SCHOOL OF PUBLIC HEALTH AND APPLIED HUMAN SCIENCES OF KENYATTA UNIVERSITY

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DECLARATION

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

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Supervisor

This project has been sub-mitted for review with my approval as the University Supervisor.

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DEDICATION

This project is dedicated to my children Ryan and Jayden, my husband Kennedy, my parents and siblings for their support, humble time, prayers and words of motivation

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ABBREVIATIONS AND ACRONYMS

ANC	Ante Natal Care
CIDP	County Integrated Development Plan
DHIS	District Health Information System
FGD	Focus Group Discussion
FMS	Free Maternity services
KDHS	Kenya Demographic Health Survey
KII	Key Informant Interview
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
RMNCAH	Reproductive Maternal Newborn Child and Adolescent Health
SBA	Skilled Birth Attendance
SDG	Sustainable Development Goals
TBA	Traditional Birth Attendant
UNICEF	United Children's Fund
UNFPA	United Nations Population Fund
WHO	World Health Organization

DEFINITION OF OPERATIONAL TERMS

Acceptability - This is conformity to the realistic wishes and expectations of health users and their families.

Accessibility – Extent to which a consumer or user can obtain a service at the time it is needed.

Affordable –The measure of assessing if the services offered are cost effective.

Appropriateness – Provision of health care based on client needs.

Attitude - An acquired tendency to exhibit certain reactions to specific objects based on values, emotions, beliefs and character.

Awareness –knowledge gained through own perception or being informed by being cognizant of current development in regard to free maternal healthcare services offered in public hospitals.

Free maternal health care- non-payment for services offered to pregnant women i.e. antenatal care, delivery and post-natal services.

Knowledge - Refers to a state of awareness of free maternal health care.

Maternal health - Refers to the wellbeing of a mother during pregnancy and after delivery.

Quality maternal care-Refers to provision of minimum level of care to all pregnant women and their newborn babies, and a higher level of care to those who need it, obtaining the best possible medical outcome of the mother and baby, providing care, which

satisfies users and providers, and maintaining sound managerial and financial performance.

Staff competence- Training and abilities of healthcare staff in terms of technical and cultural aspects and ability to communicate effectively to clients.

Timeliness – The degree to which patients are able to receive care as quickly as possible.

Utilization of free maternal services– Use of free delivery services by women during pregnancy in public health facilities.

ABSTRACT

Globally, the rate of maternal mortality is unacceptably on the rise. Maternal mortality rates in Kenya remain high at 362 per 100,000 live births. Only 62% of women deliver under the care of a skilled provider indicating a deficiency in the quality of care. The government of Kenya introduced the policy of Free Maternity Services to all women attending public health facilities in June 2013 to increase skilled birth attendance and reduce inequality by making services available to all pregnant women. Despite the introduction and adoption of the free maternity policy in all government facilities, there is still low utilization of the free maternity services by pregnant women. The study sought to establish the determinants of utilization of free maternity services among postnatal women in Machakos County. A cross sectional study was carried out in Machakos County. A sample size of 421 postnatal women was proportionally selected from each ward through systematic random sampling and interviewed. The study mainly focused on the individual client characteristics, the client related factors and organizational factors related to utilization of free maternity services, which encompassed use of both quantitative and qualitative data collection methods. Both quantitative and qualitative data was collected. Necessary approvals were sought from relevant authorities and informed consent obtained from research participants prior to data collection. Descriptive data was analyzed using Statistical Package for Social Sciences version 25.0. Frequency distribution tables, graphs and pie charts were used for data presentation. Qualitative data was presented as direct quotes or narrations from respondents and triangulated with quantitative results. Inferential statistics were calculated using Fischer's exact tests and chi-square test ($p<0.05$) done at 95% confidence interval to establish the association between study variables. The study found out that the overall utilization level of free maternity services by respondents was 75.6%. Chi-square test showed significant statistical association between marital status ($p=0.006$), parity ($p=0.038$), distance from facility and utilization of free maternity services ($p=0.000$), satisfaction with maternity services offered during labour ($p=0.000$), treatment of mothers by healthcare workers during labour ($p=0.000$) provision of adequate food ($p=0.005$), maternity services offered were of high quality ($p=0.000$), maternity ward was not congested ($p=0.009$). Fischer's exact test showed significant statistical association between cleanliness of the maternity ward ($p=0.000$), respect to clients by health workers ($p=0.001$) availability of bed/linen ($p=0.002$), satisfaction with labour ward services during delivery ($p=0.000$) with utilization of free maternity services. The study concludes that the utilization of FMS was optimal, organizational factors were majorly significantly associated with utilization of FMS.The study recommends that the department of health to support health facilities to offer FMS by providing the necessary supplies. These findings would assist key healthcare stakeholders to design strategic policies and initiatives to ensure sustenance of Free Maternity Services in the country. This would further ensure that the Free Maternity policy leads to improved quality of maternal service provision in all public hospitals thus increased utilization among women of reproductive age.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Maternal mortality is unacceptably high in Sub- Saharan Africa (Alkema et al, 2016). Every day, globally nearly 830 women die due to complications during pregnancy and childbirth, which are preventable, and 99% of these deaths occur in developing countries (Alkema et al., 2016). Maternal mortality ratio in developing countries in 2015 was 239 per 100 000 live births compared to 12 per 100 000 live births in developed countries, (WHO, 2014). There are large disparities between countries, but also within countries, and between women with high and low income and those women living in rural versus urban areas (Alkema et al., 2016)

Sub-Saharan Africa and South Asia account for 88 per cent of maternal deaths worldwide, (Nicole, 2013). The Sub-Saharan Africans suffer from the highest maternal mortality ratio, 546 maternal deaths per 100,000 live births,(Nicole, 2013). This is 66 per cent of all maternal deaths per year worldwide. In Kenya, the maternal mortality ratio declined from 488 maternal deaths per 100,000 live births to 362 maternal deaths per 100,000 live births (Kitui, Lewis, & Davey, 2013).

Free maternity services refer to offering of medical and obstetric care to pregnant women without any financial cost. Improving the quality of service delivery requires adequate investments in infrastructure, medical commodities and human resource. For the provision of maternity care to be effective, women need to be active participants and accept responsibility for their own health (Mxoli, 2007).

The health care cost is among the barriers to utilizing skilled birth services in developing countries (Arhinful & Ross, 2006). In June 2013 in line with the Africa union resolutions, Kenya introduced a free maternity care policy through a

presidential declaration to improve on maternal and neonatal health outcomes. This was in favour of service user fees exemptions for pregnant women and children under five years of age, (AU, 2010). In 2009 as per KDHS, Kenya's maternal mortality rate was 488 per 100,000 livebirths compared to developed countries such as Switzerland, which by then had a maternal mortality rate of 5 per 100,000 live births, (AU, 2010).

A policy on free maternity services was introduced which was meant to enable the country to increase use of health facility based services by mothers, achieve national development goals, (GoK, 2010) and global health development goals. Between 2016 and 2030, as part of the sustainable development goal 3, target 3.1 is to reduce the global Maternity Mortality Ratio (MMR) to less than 70 per 100 000 live births (Alkema et al., 2016). This policy was however implemented without considering other factors that can also directly affect pregnancy outcomes such as the staffing levels , availability of commodities and access to quality health education in health facilities (Alkema et al., 2016).

KDHS 2013/2014 estimated that about 61 percent of births in Kenya took place in a health facility. In Machakos County as per KDHS 2014 skilled birth attendance was at 63 percent while home deliveries at 37 percent. Machakos County still recorded a low proportion of births assisted by skilled attendants at 47.4% (DHIS, 2017). Women giving birth under a skilled birth attendant and access to emergency obstetric care is accepted as one of the most crucial intervention for reducing maternal and newborn deaths (DHIS, 2017).

High quality health facility delivery services, globally have been recommended as a solution to preventable maternal and neonatal deaths (McKinnon et al, 2015). In line with the recommendation, several African countries either reduced or eliminated

delivery fees to promote health facility delivery service utilization (De-Allegri et al, 2015). Kenya abolished delivery fees in all public health facilities through a presidential directive signed into effect on June 1, 2013.

For the government at large and for the Ministry of Health Kenya in particular maternal and child health has remained a high priority. Attendance of antenatal care and skilled birth attendance are significant determinants of maternal health. All women need access to maternal health services. The proportion of births attended to by skilled health personnel is thus a benchmark used for monitoring progress towards achievement of sustainable development goal 3 on good health and well-being. Free maternity healthcare services have been adapted in several countries to increase deliveries by skilled birth attendants and reduce mortalities.

Researchers have shown that focus has been mainly on financial barriers to maternal health while strategies and policies on utilization of maternal health care services is limited (Michael et.al, 2013). How accessible and effective free maternity services are to mothers still remains a question to be answered. Evidence and causes of underutilization of free maternity services is still minimal in most studies. The free maternity services programme was expected to have important impact, which has not been convincingly demonstrated and there are specific concerns that the programmatic management of free maternity has led people to question to what extent is the program actually free.

1.2 Problem statement

The government of Kenya started implementing the Free maternity services (FMS) in June 2013. This was intended to reduce the financial burden and high costs for maternity services thus encourage mothers to deliver under skilled birth attendant.

The KDHS 2014 estimated the MMR at 362 per 100,000 live births, which is still high and far away from the MDG target of reducing MMR to 147 per 100,000 live births by 2015 (KDHS 2014& MOH, RMNCAH 2016.). The reduction in MMR has not been as significant as it was documented to be 488 per 100,000 live births in 2008/09. (KDHS 2008/09).

Despite the several efforts that the country has put in place aimed at reducing maternal mortality ratio for example free maternity program, scrapping of user fees in level one and two health facilities the MMR remains high and the skilled birth attendance low. (Kenya RMNCAH, 2016) The free maternal health policy was initiated to reduce the inequalities in access to maternal health services and therefore lead to increase in utilization of skilled birth attendance.

According to the Machakos County Integrated Development Plan (CIDP), data showed that at least women who attended one antenatal care visit was 67.2% while delivery by skilled birth attendant 47.4%. The skilled birth attendance is way below the 90% target by WHO. In Masinga Sub County skilled birth attendance was at 22 % in 2017 (DHIS, 2017) this is despite the free maternity program and the county having increased the number of the healthcare work force in the recent past.

1.3 Justification

Births delivered by skilled birth attendants' is a key indicator for achieving sustainable development goal (SDG) target 3.1 and for improving the measurement of SDG 3.2 (W.H.O, 2017). In the reporting years, 2013 to 2017 deliveries by skilled birth attendant coverage for Machakos County have remained low below the WHO target of 90% at 38.2, 46.5, 55.5, 56.8, and 47.4 respectively as per DHIS reports. Masinga Sub County has the lowest proportion of women delivered by a skilled

attendant in 2017 at 22 % (DHIS, 2017). This therefore prompts for interventions to ensure the achievement of the WHO target. An assessment of existing services is crucial to inform the top management and policy makers in order to strengthen delivery of the free maternity services in future.

The study will contribute to identification of hindrances or enablers of the free maternity program in Machakos County for improving utilization of the free maternity program in line with the universal health coverage with Machakos being one of the pilot counties in Kenya.

1.4 Research Questions

1. What are the individual client characteristics associated with utilization of FMS among postnatal women in Machakos County?
2. What is the influence of mother's level of awareness on FMS on utilization of FMS among postnatal women in Machakos County?
3. What is the influence of mother's delivery experiences with FMS on utilization of FMS among postnatal women in Machakos County?
4. What are the organizational factors associated with utilization of FMS among postnatal women in Machakos County?

1.5 Hypothesis

1.5.1 Null hypothesis

Mother's level of awareness on free maternity services, delivery experiences and organizational factors do not influence utilization of free maternity services

1.5.2 Alternative hypothesis

Mother's level of awareness on free maternity services, delivery experiences and organizational factors influence utilization of free maternity services

1.6 Research Objectives

1.6.1 General objective

To establish the determinants of utilization of free maternity services among postnatal women aged 18-49 years in Machakos County

1.6.2 Specific objectives

i) To describe individual client characteristics associated with utilization of FMS among postnatal women in Machakos County
ii) To determine the influence of mother's level of awareness on FMS on utilization of FMS among postnatal women in Machakos County
iii) To establish the influence of mother's delivery experiences on FMS on utilization of FMS among postnatal women in Machakos County
iv) To identify the organizational factors associated with utilization of free maternity services in Machakos County

1.7 Significance of the study

The study targets to benefit mainly the Department of Health, public health facilities, other relevant stakeholders in health and women of reproductive age who are the main beneficiaries of the free maternity services. This research would point out key areas that need attention by policy makers, health administrators and healthcare service providers in developing evidence-based strategies for improving the free maternity program. Results from this study will be useful to other researchers and scholars, as it would be a basis for further research and build on existing literature.

1.8 Limitation and Delimitation

1.8.1 Limitation of the Study

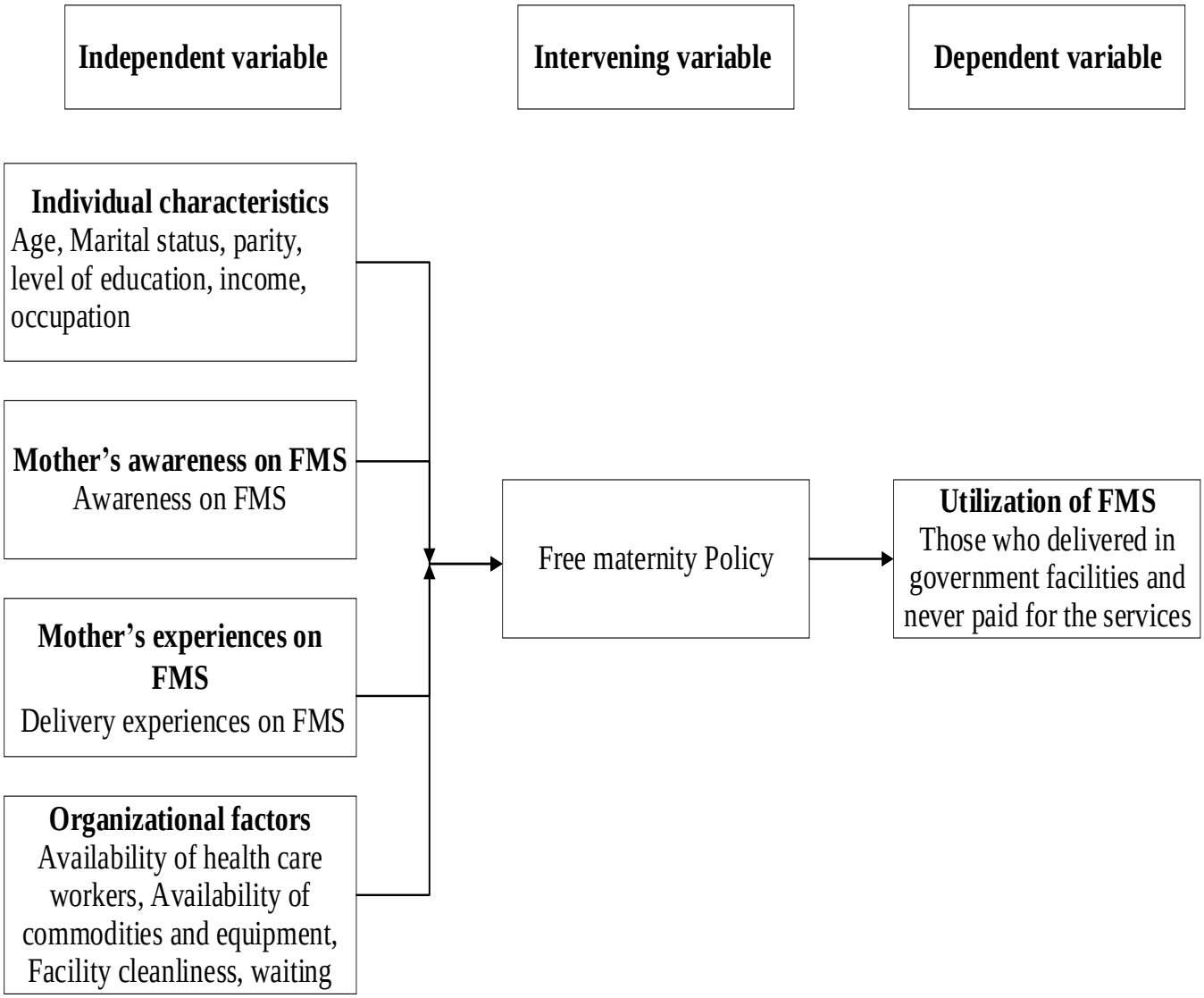
The major study limitation was that maternal health services are offered in both public and private health facilities but the study focused mainly on maternal health services accessed in public health facilities. Respondent recall bias was another limitation since mothers were required to remember their experiences during delivery.

1.8.2 Delimitation of the study

The study was carried out at the households in three wards in Masinga Sub County. The study was bound to the 421 sampled postnatal women who had delivered within the period of researcher's interest. The site was ideal because it had the lowest skilled birth attendance coverage in the county.

1.9 Conceptual framework:

The study aims to establish the determinants of utilization of free maternity services and define the relationship between the dependent and independent variables. This framework was adopted and modified from McCarthy& Maine 2002 model on determinants of maternal mortality. Dependent variable: Utilization of free maternity services will be measured by mother's report of having delivered at a government facility and not paying for the service. Independent variable: These are factors that will affect utilization of the free maternity services, for example mothers awareness on FMS, mothers' delivery experiences with FMS and organizational factors.



Source: Adapted and modified from McCarthy& Maine (2002)

Figure 0:1 Conceptual framework

CHAPTER TWO: LITERATURE REVIEW

2.1 Global free maternal health services

The rate of maternal mortality is unacceptably high globally. About 800 women are approximated to die daily from complications related to pregnancy or childbirth worldwide (Bitew *et al*, 2015). In 2017, there were about 295, 000 global maternal deaths with 86% of these occurring in the developing countries of Asia and Africa. The World Health Organization, advocates for utilization of SBA at every birth to improve delivery outcomes. It recommends assessment of women's satisfaction to promote the quality and effectiveness of health care delivery (WHO, 2014).The reduction of maternal and child mortality and morbidity rate is one of the key targets of achieving the Sustainable Development Goal (SDG) number 3 of ensuring global health and wellbeing (UNDP, 2015). In the more developed countries, SBA rate is about 99.5% whereas that of Africa is 46.5% (Esena *et al*, 2013). Developing countries have adopted measures to reduce the increasing rates of maternal and child mortality to include free maternity services

The ability of pregnant women to find themselves in the presence of skilled birth attendants during delivery, readily available medical care in case of an emergency and effective communication and referral systems are important interventions in scaling up maternal healthcare services utilization (Owiti, Oyugi and Essink, 2018). Accessibility refers to the availability of quality healthcare services to ensure those who need them can acquire them within a reasonable time, ease and other aspects of service delivery that make them available when needed. Accessibility in maternal healthcare services utilization can be classified into two main categories. These include economic accessibility and information accessibility.

Information accessibility refers to the right to solicit, receive or impart ideas and information pertaining to health issues. Conversely, economic accessibility, also known as affordability refers to the measure of an individual's ability to cater for health services without experiencing financial hardship.

Ghana adopted the policy of free maternity services in public hospitals in 2008. By then, the utilization rate of SBA was 59% well below the World Health Organization target of 85% by 2010 (Esena *et al*, 2013). The policy led to a steady rise in the number of facility-based deliveries from about 300,000 in 2007 to 500,000 in 2011. In the New Juaben Municipality, the policy achieved tremendous results including reduced maternal mortality rates (Ameyaw, 2011).

The introduction of the policy ensured pregnant women with complications arrived in health facilities earlier in Ghana. This was accompanied with very poor quality of health care to clients leading to low utilization rates as well as low satisfaction levels (Tornui *et al*, 2015). The basic delivery equipment, consumables and midwifery staff were readily available although overstretched. Expectant mothers reported different aspects of quality improvement in the public facilities, thus positively influencing future health seeking behaviour, maternal service utilization and reduced maternal morbidity and mortality (Tuncalp *et al*, 2012).

A research conducted by the Navrongo Research Centre (NHRC), on the government's free maternal health care policy in the upper Eastern region of Ghana, indicated that hidden costs during delivery were often characterized by finances to buy medicine, scan tests and laboratory services, either in the health facilities or outside the health facilities. Other hidden costs include purchase of pads and disinfectants. These discourage many pregnant women from going to the health facilities to deliver leading to increased maternal and neonatal deaths. Health workers

interviewed in this study reiterated that there was an urgent need to help address the problem in order to achieve the government's agenda to reduce maternal and infant mortality.

In Nigeria a study conducted following the implementation of free maternal health services indicated that inadequate staff, infrastructure, poor remuneration and out of stock syndrome led to many doctors leaving the country for developed countries where there was better pay (Abel et al, 2013). This led to underutilization with over 65% of pregnant women delivering at home.

In Asia, especially in the Pakistani context, studies done suggested that women's utilization of maternity care services was very minimal. The most important concern was whether their service quality meets patient expectation levels (Ashraf Mariam, Ashraf Fatima, Atif, & Rukhsana, 2012).

There are hidden costs that are attributed to the low utilization of free maternity policy in government health facilities in Dhaka, Bangladesh. Further, it was found that 72% of clients assessed were willing to pay a government levied user charge although this was less prevalent in low-income families at 61% (Shamsun, 2018).

Nepal introduced the policy of free delivery in 2009 as a constitutional right (Witter, Khadka, Nathi, & S, 2011). The use of free maternity services continues to improve with increased deliveries in health facilities. The funds are adequate to cover free maternal service delivery costs, with some surplus being invested in staff incentives and improving services. This has promoted flexible use of resources and reimbursement of funds without delay (Raj et al., 2015).

Nearly, a half (47.8%) of clients were satisfied with government provided free maternity services in Nepal (Shrestha *et al*, 2010). However, understaffing is a key

issue in some posts and areas. There is decreased general revenue for facilities due to wider loss of user fee revenues. This explains the on-going charges for patients as reported by both facilities and patients from some hospitals.

Wu et al. (2019), utilization of maternal health services has been reported as a promising avenue in preventing complications related to pregnancy and delivery, while improving the health of the newborns. Despite significant improvements in maternal health services delivery, previous research has indicated that inequities, low coverage and poor quality of essential maternal health services still remain a drawback for most countries in the Sub-Saharan region. For example, on average less than half of women in the reproductive age group in Sub-Saharan Africa give birth in health facilities (Dimbuene et al., 2018). Ganle et al. (2014) argue that only 47% of African women give birth through a skilled birth attendant.

Despite the hindrances in access to SBA and effective emergency obstetric care provision, there has been some progress in reducing maternal mortality and morbidity levels.

2.2 Overview of Maternal Health Services in Kenya

In Kenya, maternal and child mortality rates have been relatively high. The rate of maternal mortality stands at 362 deaths per 100,000 live births (KNBS & ICF, 2014). Further, for every woman who dies during childbirth an extra 20-30 women suffer serious injury or disability due to complications related to pregnancy or delivery (Ochieng, 2014). The high MMR has persisted irrespective of improvements in other health indicators due to lack of access to quality maternal health care including antenatal, delivery and post-natal services (GoK, 2014).

Free maternity health care services, were introduced in Kenya in the year 2013. This was in line with the health system objective of universal health coverage in the fifth millennium development goal. This was seen as a major success in the fight towards reducing maternal and child mortality. The aim was to increase skilled birth attendance and reduce inequality by making services available to all pregnant women. This is a major milestone towards universal health coverage as documented in the Kenya Health Sector Strategic Plan (KHSSP) 2014-2018 (GoK, 2014). The idea of abolishing user fees has been long running in subsequent governments with strong resistance from proponents who believe that free health care may not make economic sense given the increasing budgetary deficits.

Access to skilled delivery has been identified as a key factor in reducing the maternal mortality ratio. Despite the introduction and adoption of the free maternity policy in all government facilities, there is still low utilization of the free maternity services by pregnant women.

Despite witnessed growth in health sector infrastructure recently, many mothers are still unable to access quality maternal health services. In Kenya, only 62% of births occur under supervision of a skilled birth attendant (KNBS & ICF, 2014). This was well below the WHO target of 90% deliveries by the year 2015.

Traditional Birth Attendants (TBAs) continue to assist expectant mothers with 28% of births; relatives and friends are estimated at 21%, while the rest (7%) of the mothers deliver on their own (WHO, 2014).

The Ministry of Health reported that ANC service utilization increased by 11% since initiating FMS, with ANC re-visits accounting for 13% (GoK, 2015). Normal deliveries increased by 22% while those of CS increased by 17%. The complications related to maternal care dropped from 4.3% in 2012/13 to 3.8% in 2013/14. The rate of obstructed labour declined greatly while other maternal complications remained fairly the same (GoK, 2014). Overall, there has been a 10% increase in health facility deliveries across the country, with a 50% increase in certain counties (Owino, 2013).

The increased demand for maternal health services has overstretched the available resources and overloaded the limited human resources. This has affected accessibility and availability of quality, equity and sustainable healthcare services (Bourbonnais, 2013). The policy has faced several challenges that need to be addressed. They include insufficient funds and delayed reimbursements, limited investment in new infrastructure, lack of adequate equipment and low staffing levels (GoK, 2015).

2.3 Individual characteristics and utilization of maternity care services

Individual client characteristics are some of the factors that may determine access to and use of health services (Essendi *et al*, 2011). This consequently plays part in assessing utilization with quality of service provision. However, there is inconsistent relationship between utilization levels and the individual client characteristics as pertained to utilization of maternity services (Leslie & Gupta, 2009).

The educational status of women may be associated with the rate at which they use health care. This improves the health of women by providing them with skills training for employment (Ebere, 2013). Education increases awareness levels among women thus inspires their need for using skilled maternity services at their disposal. Clients who have high educational level demand more information on quality of care

provided and hence try to build trust with physicians (Beatrice, Arthur, & Theresah, 2016).

Income provides women with the ability to achieve improved nutritional status (Philip, Alex, & Caroline, 2018) and adequate housing, which protect and advance their health status (Leslie & Gupta, 2009). This enables them to access quality services thus enhancing positive delivery outcomes. Other studies have found that house wives/non-working women are more likely to use free maternal health services compared to those employed (Christine, 2014; Shamsun, 2018). Studies done in Ethiopia and Nigeria revealed that ANC use is based on economic status. Women from richer households were six times more likely to use such services than their poorer counterparts (Yusuf *et al*, 2013).

According to a study done in Nyatike and Muhuru Divisions, a higher proportion of low-income earners utilized more of the free maternity services than higher income earners. In fact, higher income earners may bear the cost of private facilities in the region (Christine, 2014). The same study reveals that education enhances female autonomy hence can make personal health decisions. Women with higher educational levels have greater access and therefore utilize high quality maternity services from private hospitals. On the other hand, those with little education and hailing from poor backgrounds mostly rely on government-subsidized care.

The age and parity of the mother have been examined as determinants of maternal health care utilization and repeated use. Mothers in the middle childbearing ages are most likely to use more maternal services compared to their peers in the early or late childbearing ages (Babalola & Fatusi, 2009). Women who get pregnant at tender ages tend to face more complications during pregnancy and childbirth. Older women have greater experience and confidence on matters related to maternal care. Women with

higher parity, especially those with successful deliveries, have more confidence and less fear for pain and risky pregnancy outcomes (Tsegay *et al*, 2013). Women with higher parity have greater responsibilities within the household for childcare and thus increase their level of health service utilization (Kwast & Liff, 2008).

Given low socio-cultural status of women in developing countries, it influences negatively on women's health status. It is a major barrier to improve health due to the unequal status between men and women. Overall, lower education levels, age, and marital status also contribute to women's poor maternal health conditions. Those married spend more time caring for their spouses and families imposing a strain on their health (Marchie, 2012). It is further revealed that socio-cultural variables when taken together contribute positively to maternal mortality.

2.4 Mothers awareness on free maternity services in public hospitals

Women identify awareness as a major structural variable that could influence the decision on whether to utilize maternal health services or not. Women need more information about maternal health services during antenatal period so that they can make informed choices when to seek these services.

Jewkes (2015) cited lack of adequate information on maternal health services, laboratory tests result findings and dangers of coming for antenatal care late or not coming for antenatal care services at all as contributors to the poor utilization of maternal health care services. Inadequate information about these services and the benefits to both mother and baby may also negatively influence utilization of maternal health care services.

There is a strong positive correlation between knowledge of mothers on maternal issues on the utilization of maternal health care. In a study in Australia that explored

the characteristics of women who utilized and preferred to use the government funded maternal care it was found that all of them knew the meaning of maternal care, knew what it meant by normal delivery, recognized the complications that were likely to be experienced when delivery was administered using unqualified personnel and knew where to refer to in case of problems arising during pregnancy. On the other hand, women who did not utilize the maternal care services on the other hand had a low understanding of these issues (Teate, Leap, Rising, & Homer, 2011).

2.5 Mothers attitude on free maternity services

Studies have revealed that the attitude of mothers has an influence on the utilization of maternal care. Salam et al (2013) pointed out that mothers attitude towards the health care is determined by the experience of the women with the health care or what they observe other mothers going through in the maternal care. Studies previously conducted indicated that expectant mothers may fail to utilize maternal health services because of past mistreatment to them or fears of mistreatment as heard from others. An important but little understood component of poor care that women receive during childbirth in facilities is disrespect and abuse perpetuated by health workers and other facility staff. (Jewkes, 2015) Fear of experiencing disrespect and abuse influences women's decisions to seek care at a health facility during labour and delivery. (Kruk, 2015) A Malawian study conducted in 2017 by Machira, K. et al showed that the health care providers are very unfriendly during childbirth as compared to the antenatal care and this was likely to affect utilization of maternal services. According to Bowser (2010) abuse and humiliation of women during childbirth across the world is a major barrier to access to free maternity services. This is due to negative attitude and burn out attributed to shortage of skilled staff and increased demand of services with inadequate supplies. The working environment is not conducive due to increased

workload, poor remuneration, inadequate supportive supervision, equipment and supplies. Unfortunately, too often pregnant women seeking maternity care receive varying degrees of ill treatment, from subtle disrespect of their autonomy and dignity to outright abuse- physical assault, verbal insults, discrimination, abandonment, or detention in facilities for failure to pay. Evidence is now emerging that this fear of being badly treated and abused in health facilities is holding women back from seeking help. It is proving to be as big a deterrent as cost of care and transport. (Rowdon, 2014)

2.6 Organizational factors and their influence on free maternity services

A study done by Erick Tama et al (2016) found out that while there was improved access to maternity services due to the free maternity program, measures were not taken to improve the health facilities' capacity to adequately cope with the increased number of clients. Health workers had to handle more clients, which led to increased workloads hence burnouts. The increased workload influenced negatively on staff motivation; in some instances, some nurses were hesitant to work in the maternity department. The increased utilization strained facilities' physical capacity for instance ward space forcing hospitals to fit many beds in small spaces leading to congestion and sharing of beds. In some health facilities, mothers were discharged earlier than required to ease congestion in the maternity wards. The increased utilization affected quality of care too, with nurses not being able to give mothers the attention required.

2.7 Satisfaction and free maternity services

Client satisfaction was isolated as a major determinant in the increased utilization of health services and without major effects on perceived quality of care. It is the actual measure of health care services being offered at the health care system. (Al- Abri and

Al- Balushi, 2014). Determinants of client satisfaction with the services offered help policy and decision makers in implementing programs tailored to patients' needs and expectations. (Aldana et al., 2002, Kelley et al., 2014). The patients are the best judges of health care services since they assess services directly offered to them and they can provide inputs, which can be of help in improving the quality of care. Patient's satisfaction and perception are useful measures to provide a direct indicator of quality in health care, hence needs to be assessed frequently so that an evidence based domesticated healthcare plan can be developed for adoption in the health care sector. (Kelley et al., 2014). The following aspects are considered in assessing client satisfaction timeliness, acceptability, accessibility, affordability, client centeredness, staff competence and appropriateness.

2.8 Summary of Literature Review

Many declarations, resolutions and goals have been made in order to achieve reduction of maternal mortality. The most recent was MDGs, which ended in September 2015. The SDG on maternal health aims to reduce preventable maternal mortality to less than 70 per 100,000 live births by 2030.Delivery by skilled birth attendants is the solution to maternal mortality reduction. Many countries in the past have introduced free maternity services to increase deliveries by skilled birth attendants. This is in line with law of demand in economics, which states that there is increase in demand of product when prices are lowered.

In Kenya, free maternity services were introduced in the year 2013.A study was done on assessment of implementation of the policy. Few studies have been done on factors affecting utilization of free maternity services. There is limited evidence on

effectiveness of the policy and interventions to address equity and access to allow all pregnant women deliver in facilities or by skilled attendant.

This gives the need to identify other factors that may be affecting utilization of the maternity services even when provided at no cost. This study seeks to investigate factors that hinder or enhance the utilization of free maternity services.

CHAPTER THREE: MATERIALS AND METHODS

3.1 Introduction

This chapter describes the research design, variables, study location, target population, inclusion and exclusion criteria, sampling techniques, sample size determination, data collection techniques, pretesting, validity and reliability of the study, data collection techniques, data analysis and ethical considerations.

3.2 Study design

This research adopted a descriptive cross-sectional study design approach based in collecting data from the sampled research respondents (Kothari, 2008). It was preferred because it ensured complete description of the situation making sure that there was minimal bias in data collection. This provided an operational framework, through which the facts were placed, analyzed and thus produced valuable outputs (Ochieng, 2014). The design was justified as it captured information on utilization of free maternity services as exhibited by postnatal women interviewed at the households.

3.3 Study Variables

The independent variables of this study included

i) Individual client characteristics such as age, educational status, occupation, monthly income, marital status and parity.

ii) Mother's delivery experiences such as, waiting time, reception at the maternity, satisfaction with services in the labour ward, recommendation of facility to relative or friend and revisiting the facility for delivery.

iii) Mother's level of awareness on FMS to include source of information on FMS,nearest facility offering FMS, governments efforts on informing public on FMS and knowledge on FMS.

iv) Organizational factors including staff availability, staff treatment during labour, cleanliness of maternity, privacy, respect to clients and provision of information to clients by health workers.

3.3.1 Dependent variable

The dependent variable for this study was utilization of free maternity services. Utilization of free maternity services was measured by mothers' self-report of delivering in a public health facility and not incurring any financial cost after delivery.

3.4 Location of the study

The study was conducted in Machakos County, Masinga Sub County. Masinga sub county borders Yatta Sub County and mbeere in Embu County. It was selected because it had the lowest skilled birth attendance coverage in the county and it has the highest number of public health facilities. The study was conducted in three out the five wards. The wards are Masinga central, Ekalakala and Kivaa. It was a household survey.

3.5 Study Population

The study population comprised of all women 18-49 years who delivered within a period of one year between September 2018- September 2019 in Masinga Sub County. The study was carried out in three wards. Three public health facilities that offer maternal and child health services were used for key informant interviews.

3.5.1 Inclusion criteria

Participants for this study included all the women who had delivered in the past one year. The women were of age 18-49 years. Those who consented participated in the study.

3.5.2 Exclusion criteria

The study excluded all women 18-49 years who could not talk, mentally unstable those who were sick thus unable to participate during the time of conducting this study.

3.6 Sampling technique and sample size determination

3.6.1 Sampling size determination

Fisher's formula (Mugenda 2003) was used to determine the sample size. To estimate the proportion within + or -5% of the true value with 95% confidence interval, the sample size(n) will be calculated as follows (for a population more than 10,000).

$$n= \frac{Z^2pq}{d^2}$$

n= sample size

z=normal deviate usually set at (1.96) which corresponds to the 95% confidence level

p= proportion of skilled deliveries in Machakos County

q= 1-p

d= degree of accuracy =0.05

Therefore at 95% confidence level and +-5 percentage precision and population proportion of 50% the sample size will be

(1.96*1.96) 0.47(1-0.47)/0.05*0.05

n=3.8416*0.47(0.53)/0.0025

n=383 (desired sample in a population greater than 10000)

n= 383+ 10% non-response= 383+38=421

n=421

10% of subjects were included to cater for non-responses thus 421 questionnaires were administered. However, after questionnaire checking, cleaning and editing, 394 questionnaires were deemed fit for analysis.

Table 3. 1: Proportion of respondent's selected from each ward

Sub county	**Wards**	**Households**	**Sample size proportion**	**Kth value**	**Response**
Masinga	Masinga Central	1825	161	11	147
	Kivaa	1887	167	11	158
	Ekalakala	1052	93	11	89
Total	3	4764	421		394 (93.6%)

3.6.2 Sampling technique

Masinga Sub County was purposively selected from the eight sub counties in Machakos County because it had the lowest skilled birth coverage and it has the highest number of public health facilities. Multi stage sampling technique was used to recruit the 421 study participants. First, the three wards: Masinga Central, Ekalakala and Kivaa/Kithyoko were randomly selected from the five wards used to recruit participants. All the wards were listed down on small papers then the researcher picked papers to identify the wards to participate in the study. From the three wards, eight community units were purposively selected from the twenty community units.

A probability proportional to size was used to determine the number of households required in each ward. Finally, the women to be included in this study were sampled from every 11th household. Women were eligible if they had delivered within one year September 2018- September 2019 prior to the time of data collection. If a household had two or more women who qualified for the study, the participant was chosen through balloting. In order to obtain additional information two focus group discussions were carried out and three key informant interviews. The FGD comprised of 10 community members who were purposively selected based on their ability to provide the required information. The in charge of the facility was` identified as key informant. Key informants comprised of informed, knowledgeable and experienced persons who were involved in managing the provision of maternity services (Otieno, 2014).

3.7 Research instruments

The study used semi-structured questionnaires (appendix II) for collection of quantitative data from postnatal women in the households. The questionnaires were administered in English, and translated in Kikamba where appropriate with the aid of trained research assistants. They were adequately trained and familiarized with the study area and topic of research before data collection. Focused group discussion guides (appendix IV) were used to collect qualitative data from FGD sessions with 10 participants Additional qualitative information was also collected using key informant interview guides (appendix III) through sessions held with the nursing officer in charge of each selected facility. The data collection instruments comprised of questions covering individual characteristics, health provider factors and organizational factors.

3.7.1 Pre testing of research instrument

Pretesting of the research instrument involved administering of the research instrument to a small sample of respondents with the same characteristics as the actual sample that was to be used during the study. Pretesting of data collection tools for mothers was carried out at Kithimani community unit in Yatta Sub County. A total of 42 mothers representing 10% of the study sample was randomly selected. Focused group discussion guides and key informant interview schedules were also pretested.

3.8 Data collection techniques

Quantitative data was collected using semi-structured research questionnaires. The questionnaires were administered by the researcher and trained research assistants who guided the participants to fill in their responses. They were monitored, guided and supervised by the researcher. All filled questionnaires, were collected and kept in locked cabinets throughout the study period and accessed by the researcher only to ensure confidentiality and avoid data loss.

Qualitative data was obtained from focused group discussions held with community members and community health volunteers in two FGD sessions in an area identified by the participants. The researcher moderated the sessions. Voice recording of the FGD sessions was done and notes taken by research assistants. This encouraged free discussion among participants thus captured information, which was not achievable in a one on one interview.

The researcher also conducted key informant interviews with three facility nursing officer in charges to supplement information obtained from clients. The interviews were done at their offices on appointment in each facility. Their views, opinions and suggestions were taken into account.

3.9 Validity and Reliability of the study

3.9.1 Validity

The validity of the research instrument was established through discussing with the supervisor, monitoring and evaluation officer at the Machakos department of health, to assess how well the respondents respond to the research questions. Construct and face validity were assessed. The team ensured that the data collection tool questions were in line with the research questions. Any ambiguities and inconsistencies were checked and corrected. Pre testing of the questionnaire was done to check on its validity.

3.9.2 Reliability

The variables that had Likert type items were subjected to the Cronbach Alpha. Six items were entered. Variables that did not meet the threshold of 0.7 were assumed as not reliable for further analysis. SPSS version 25 was used to determine the Cronbach's Alpha. After subjecting, the variables to the Cronbach Alpha only one item had 0.6 and it was removed from the questionnaire to make it more reliable. The rest had a score of 0.8, which was satisfactory.

Table 3. 2: Rule of Thumb for Cronbach Alpha

Rate	Standard	Rate	Standard
≥ 0.9	Excellent	≥ 0.6	Questionable
≥ 0.8	Good	≥ 0.5	Poor
≥ 0.7	Acceptable	<0.5	Unacceptable

3.10 Data management and analysis

Quantitative data was entered and stored in Microsoft Excel program. Data cleaning and editing was done where extreme, missing and inconsistent values were identified and corrected. The researcher did data entry and cleaning. Coding and verification of the data was done for easy manipulation, analysis and presentation. Data was then exported to Statistical Package for Social Sciences (SPSS) software version 25.0 for descriptive analysis. Frequency distribution tables, percentages, charts and graphs were used to present quantitative results.

Inferential statistics were computed using Fisher's Exact Test presented in cross-tabulations. This was done at 95% confidence interval and p values of less than 0.05 were considered significant in testing the association between the independent and dependent variables. Individual patient characteristics, mother's level of awareness on FMS, organizational factors and mother's delivery experiences were subjected to statistical analysis in relation to free maternity utilization. Qualitative data from the FGDs and KII were presented as direct quotes or narrations and triangulated to validate and enrich quantitative results.

3.11 Logistical and Ethical considerations

The researcher sought approval from Kenyatta University Graduate School (Appendix V). A research permit was sought from the National Council for Science, Technology and Innovation (NACOSTI). (Appendix VII), Research authorization was sought from Machakos Department of Health (Appendix VIII). Permission was also sought from the Sub County Health Management Team and local administrators before actual data collection.

The study sought informed consent from research participants before they were interviewed. The study purpose was clearly explained and participants were informed that their involvement in the research was voluntary without due coercion or influence. Their identities were kept private and confidential by removing personal identifiers, with the collected information used only for the purpose of this study. The results would be submitted to the Machakos County Department of Health and emergency services. The results would be disseminated through publication for future reference and presented in conferences and workshops of relevant stakeholders.

CHAPTER FOUR: RESULTS

4.1 Introduction

The findings of this study are presented in this chapter. These include the demographic information, presentation of results and analysis based on the objectives of the study and as explored by the questionnaires, employing descriptive statistics. The presentation of the results is based on sections. Section 4.2 is description of the socio demographic characteristics of the respondents, section 4.3 overall utilization of maternity services, section 4.4 utilization of free maternity services, section 4.5 individual client characteristics associated with utilization of FMS, section 4.6 influence of mother's level of awareness on utilization of FMS, section 4.7 the influence of mother's delivery experiences on utilization of FMS, section 4.8 the influence of organizational factors on utilization of FMS, while section 4.9 determinants of utilization of FMS.

4.2 Response rate

The study targeted a sample size of 421 women who had given birth in public hospitals in Masinga Sub County from which 394 questionnaires were filled and returned accounting to a response rate of 93.6%.

Table 4. 1: Questionnaire response rate

Response rate	Frequency	Percentage
Response	394	93.6%
Non response	27	6.4%
Total	421	100

4.3 Sociodemographic characteristics of respondents

Table 4.2 presents socio demographic characteristics of the respondents, slightly more than half (55.3%, n=218) were aged between 20 and 29 years while one in three participants (32.2%, n=127), were aged between 30 and 39 years. Majority of participants were protestant Christians (52.6%, n=204) while (47.4%, n=184) were Catholics Christians. The marital status of three in four of the respondents were married (74.6%), n=294) while one in four of the respondents were single (25.4%), n=100). Education wise, approximately half of the participants (48.3%, n=190) had primary education while (39.9%, n=157) had secondary education. Regarding occupation, majority of the participants were unemployed (44.4%, n=175) with approximately one in five (23.4%, n=92) of the participants being farmers.

On monthly income, slightly more than half of participants (54.6%, n=215) earned a monthly income of less than Kshs. 10,000/=, while one in three (n=104, 32.5%) earned no monthly income. On parity half of the respondents (50.8%, n=200) had between 2-3 children while (3.6%, n=14) of the respondents had more than five children.

Table 4. 2: Socio demographic characteristics of the respondents (n=394)

Variable	Respondent response	Frequency	Percentage
Age group	<19	43	10.9%
	20-29	218	55.3%
	30-39	127	32.2%
	>40	6	1.5%
Religion	Catholic	184	47.4%
	Protestant	204	52.6%
Marital status	Single	100	25.4%
	Married	294	74.6%
Level of education	None	4	1.0%
	Primary	190	48.3%
	Secondary	157	39.9%
	University	7	1.8%
	Diploma/tertiary college	30	7.6%
	Others	5	1.3%
Occupation	Employed/salaried worker	24	6.1%
	Farmer	92	23.4%
	Business/self employed	91	23.1%
	Unemployed	175	44.4%
	Others	12	3.0%
Income	<10,000	215	54.6%
	10,000-30,000	37	9.4%
	>30,000	11	2.8%
	None	131	33.2%
Parity	1	115	29.2%
	2-3	200	50.8%
	4-5	65	16.5%
	>5	14	3.6%

4.4 Overall utilization of maternity services

As shown in figure 4.1, out of the 394 respondents, (81%, n=320) utilized maternity services in their last delivery in government facilities while (8 %, n=31) delivered in private/mission facilities. The rest (11%, n=43) delivered at home.

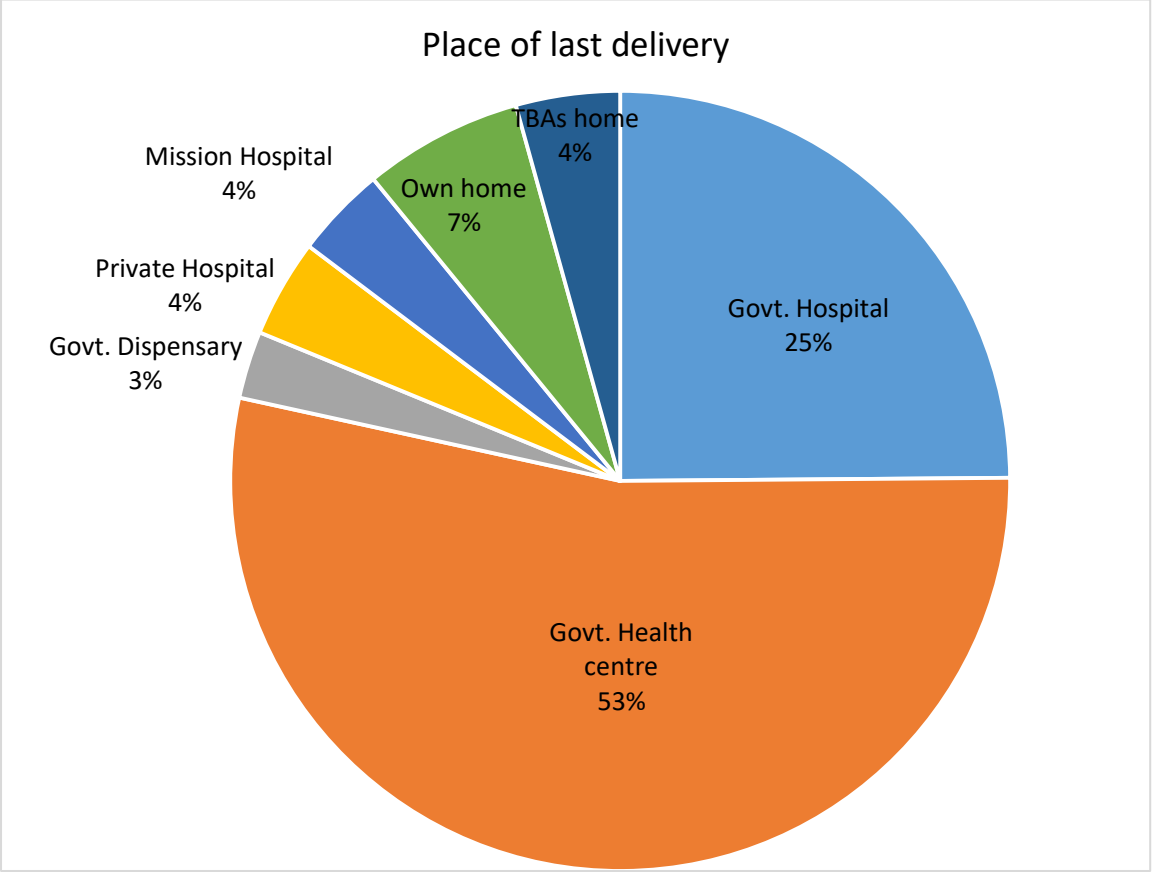


Figure 4. 1: Place of delivery among respondents

One key informant interviewee reported-

"Ever since the introduction of FMS, the number of deliveries in a month has tripled as more mothers are now coming to deliver at the facility.

4.5 Utilization of free maternity services

As per figure 4.2, the study found out that of the 320 respondents who delivered in government facilities (75.6 %, n=242) never paid for the maternity services while (24.4 %, n=78) paid for the services, though the payments done were not official as no

receipts were issued. Those who delivered in government facilities and never paid for the services defined utilization of free maternity services. Monies paid by mothers after delivery was considered as payment for services offered.

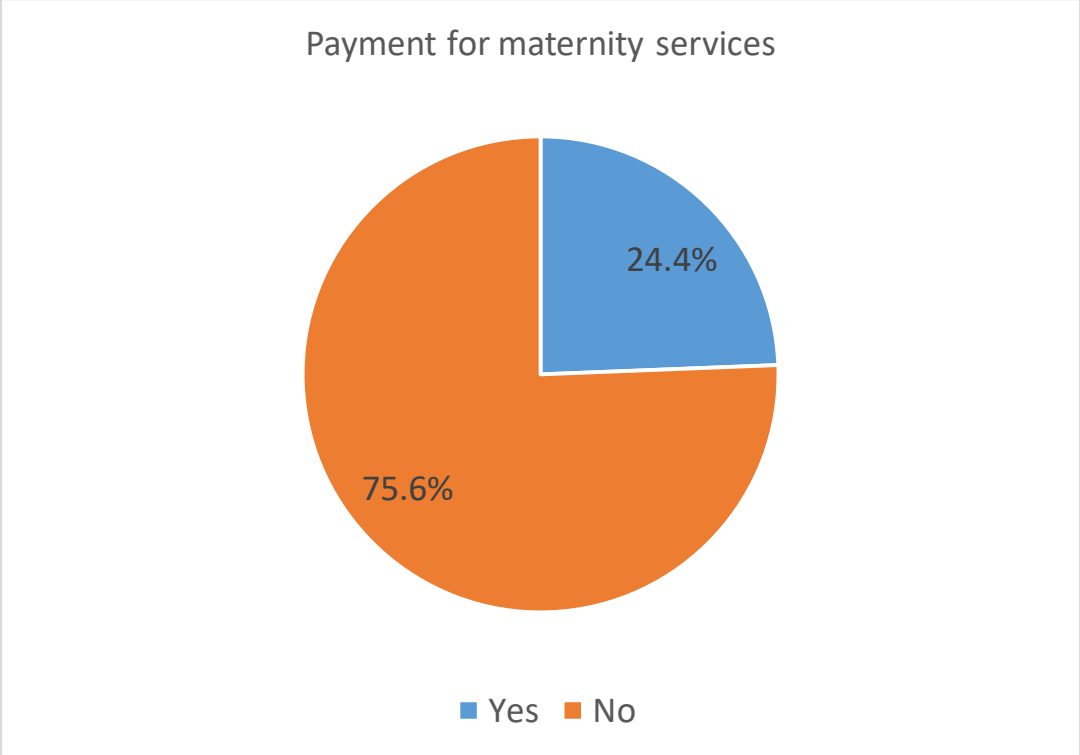


Figure 4. 2: Utilization of free maternity services among respondents

One FGD discussant commented that:

> "we *know that we are not supposed to pay for the maternity services, but some health workers ask for money after a mother delivers, chai ya daktari, kupanguza daktari jasho"and at times, when a mother does not have the cash she is forced to leave behind her identity card until that time when she is able to raise the money, others are not issued with birth notification forms until that point when they bring the money.*

4.6 Individual client characteristics associated with utilization of free maternity services

Table 4.3 presents the individual client characteristics associated with utilization of free maternity services. The highest percentage of women who utilize FMS in Machakos county were those in the age bracket 20-29 (n=172, 78.9%) followed by those in the 30-39 age bracket (n=106, 83.5%). Slightly more than half of those utilizing FMS were Protestant Christians while 47.5 % were Catholics. Majority (77.5 %) were married with 22.5% being single. There was a statistically significant association between marital status and utilization of FMS with married persons being more likely to utilize FMS (79.6%, n=234 (p = 0.006). Regarding education, 47.0%, n=150) of participants utilizing FMS had primary level education with another two in five (41.4%), n=132, having secondary education however, there was no statistically significant association between one's level of education and utilization of FMS.

The main occupation of those utilizing FMS was business persons/self-employed (79.1%, n=72) and farming (75.0%, n=69) even so, majority were unemployed 82.9%, (n=145). However there was no statistically significant association between occupation and utilization of FMS, p=0.871.

Based on income, (75.8%, n=163) of those utilizing FMS study participants earned a monthly income of less than KShs.10,000/= while 88.9% earned between 10,000 and 30, 000 per month. However, there was no statistically significant association between monthly income and utilization of FMS, p = 0.218. Majority of those utilizing FMS had a parity of 2-3 children (79.1%), n=159) while approximately four in five had 4-5 children (81.5%), n=53) There was a significant statistical association between parity and utilization of FMS, p = 0.038, with those who had low parity more likely to utilize FMS.

Table 4. 3: The influence of individual characteristics on utilization of FMS (n=394)

Independent variable / **Individual characteristics**	**Response**	**Dependent variable**				**P**
		Non utilization of FMS (N=74)		**Utilization of FMS (N=320)**		
		n	**%**	**n**	**%**	
Age	<19	10	23.3%	33	76.7%	0.107
	20-29	46	21.1%	172	78.9%	
	30-39	21	16.5%	106	83.5%	
	>40	1	16.7%	5	83.3%	
Religion	Catholic	32	17.4%	152	82.6%	0.183
	Protestant	44	21.6%	160	78.4%	
Marital status	Single	18	18.0%	82	82.0%	X^2= 7.465 df = 1 **p=0.006**
	Married	60	20.4%	234	79.6%	
Level of education	None	1	25.0%	3	75.0%	0.076
	Primary	38	20.0%	152	80.0%	
	Secondary	30	19.1%	127	80.9%	
	University	0	0.0%	7	100.0%	
	Diploma/tertiary college	8	26.7%	22	73.3%	
	Others	1	20.0%	4	80.0%	
Main Occupation	Employed/salaried worker	3	12.5%	21	87.5%	0.871
	Farmer	23	25.0%	69	75.0%	
	Business/self employed	19	20.9%	72	79.1%	
	Unemployed	30	17.1%	145	82.9%	
	Others	3	25.0%	9	75.0%	
Monthly income	<10,000 Kshs	52	24.2%	163	75.8%	0.218
	10,000-30,000 Kshs	5	11.1%	40	88.9%	
	> 30,000 Kshs	0	0.0%	3	100.0%	
	None	21	16.0%	110	84.0%	
Parity	1	24	20.9%	91	79.1%	X^2 = 8.437 df = 3 **p=0.038**
	2-3	41	20.5%	159	79.5%	
	4-5	12	18.5%	53	81.5%	
	>5	1	7.1%	13	92.9%	

P statistical significance (two sided fishers exact)

4.7 Influence of mother's level of awareness on utilization free maternity services

Findings from the study, figure 4.3 found that that there was a 99.0% awareness on free maternity services being offered in public health facilities in Machakos County. The highest percentage of women, 9 in 10 were aware that delivery services in public health facilities were provided free of charge.

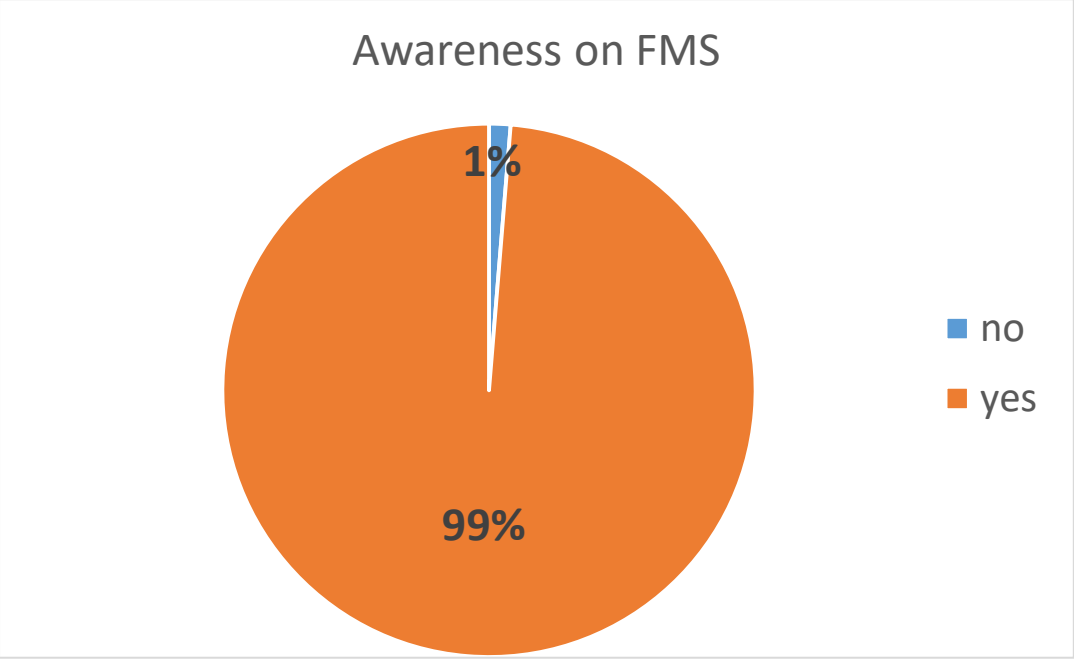


Figure 4. 3: Awareness on free maternity services among the respondents

In one *FGD discussion, a participant commented-*

"Almost everyone in the community knows that giving birth in all government facilities is free of charge",

4.7.1 Sources of information on free maternity services

Majority of the postnatal mothers acquired information on free maternity services from more than one source. Generally, 57.0% of responders, the information was acquired from facility staff, followed by community health workers (45.0%), radio/ TV (39.0%), husband and close relatives (4.0%), while (1.0%) acquired the information from others sources such as local leaders. The results are presented in Figure 4.4

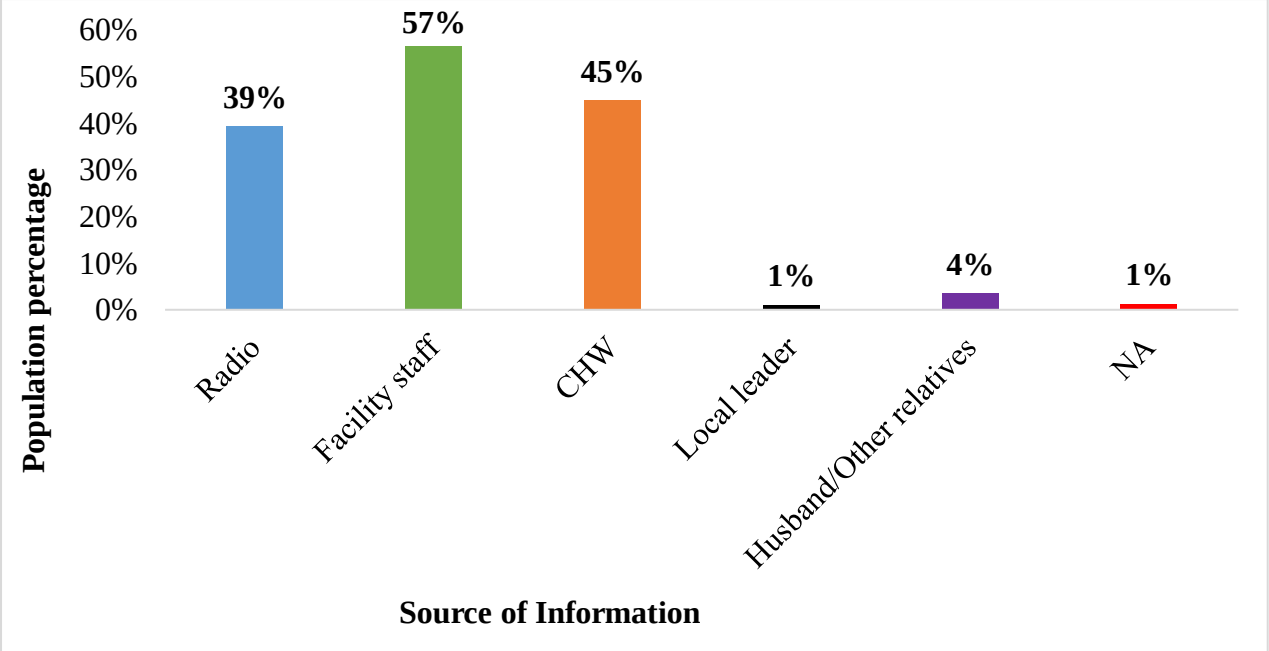


Figure 4. 4: Source of information on FMS among respondents

4.7.2 Relationship between awareness and utilization of free maternity services

Table 4.4 presents the relationship between mother's level of awareness on free maternity services and utilization of free maternity services. From the study population, 99.0% of the respondents were aware of free maternity services being offered in Machakos County. However, only (82.0%, n=315) of respondents utilized the services, of which (50.0%, n=5) did not have knowledge about free maternity services but still utilized it. (18.0%, n=69) knew of the service but did not utilize it. There was no statistically significant association between awareness of FMS and utilization of the service p = 0.589

Table 4. 4: The influence of mother's level of awareness on utilization of free maternity services (n=394)

Study Variable		Utilized free maternity services		
		Yes (N=320)	No (N=74)	*P-value*
		n (%)	n (%)	
Awareness of free maternity services	No	5 (50.0%)	5(50.0%)	*0.589*
	Yes	315(82.0%)	69 (18.0%)	

P statistical significance (two sided fishers exact)

4.7.3 Nearest public facility offering free maternity services

The study found a significant statistical association between utilization of free maternity service and proximity to a facility offering free maternity service (p=0.000).

Table 4. 5: Relationship between distance from facility and utilization of FMS

		Nearest facility offered free maternity services		*P*
		No (161)	Yes (233)	
Utilized free maternity service	Yes	146 (45.6%)	174 (54.4%)	X^2 = 15.989 df = 1 p=0.000
	No	15 (20.3%)	59 (79.7%)	

4.8 Influence of mother's delivery experiences on utilization of FMS

In table 4.6, mother's delivery experiences on free maternity services was assessed based on their reception at the maternity, time taken to be attended at the maternity, if mother's would recommend the facility where they delivered to a friend or relative or if they would visit the same facility if need be, labour experiences and satisfaction with the services offered in the labour ward.

In regards to the reception at the maternity, the study revealed that majority (83.3%, n=115) of respondents who utilized the FMS rated the reception as excellent. There

was significant statistical association (p=0.000) between client's reception at the maternity and utilization of FMS.

It took less than 15 mins to be attended at the maternity for the majority of mothers who utilized FMS (77.0 %, n=147). However, there was no significant statistical association (p=0.389) between time taken to be attended and utilization of FMS. (78.2 %, n=230) of the respondents who utilized FMS indicated that they would visit the same facility for delivery if need be. There was a significant statistical association (p=0.000) between visiting the same facility for delivery and utilization of FMS. Majority of the respondents (78.3 %, n=231) indicated that they would recommend the facility where they delivered to a friend or relative. There existed a significant statistical association (p=0.000) between recommending facility to a friend or relative and utilization of FMS.

In regards to satisfaction with services in the labour ward, the study revealed that majority (80.2 %, n=219) of the respondents who utilized FMS indicated that they were satisfied with the services rendered during labour, (79.9 %, n=226) were satisfied with services offered during delivery while (80.3 %, n=232) were satisfied with services offered after delivery. There was significant statistical association (p=0.000) between satisfaction with services rendered in labour ward and utilization of FMS.

The study found out that (75.9%, n=236) of mothers who utilized FMS did not experience verbal abuse during labour though there was no significant statistical association (p=0.460) between verbal abuse and utilization of FMS. Majority of the respondents (76.5%, n=241) did not experience pinching/slapping/beating during labour. There was a significant statistical association (p=0.014) between pinching and

utilization of FMS. (75.6 %, n=236) of the respondents did not deliver alone without assistance however there was no significant statistical association (p=0.620) between delivering alone without assistance and utilization of FMS.

Table 4. 6: Relationship of mother's delivery experiences on utilization of FMS (n=320)

Variable	**Response**	**Utilized Free Maternity**				**P**
		No			Yes	
		n	%	n	%	
Reception at the maternity	Poor	1	50.0%	1	50.0%	**0.001**
	Fair	19	46.3%	22	53.7%	
	Good	35	25.2%	104	74.8%	
	Excellent	23	16.7%	115	83.3%	
Time it took to be attended at the maternity	<15mins	44	23.0%	147	77.0%	X^2 = 3.018 df = 3 p = 0.389
	16-20 mins	12	20.7%	46	79.3%	
	21-30 mins	9	26.5%	25	73.5%	
	>30mins	13	35.1%	24	64.9%	
I would visit the same facility for delivery if need be	Agree	64	21.8%	230	78.2%	**0.000**
	Neither agree or disagree	11	64.7%	6	35.3%	
	Disagree	3	33.3%	6	66.7%	
I would recommend the facility for delivery to a friend/ relative	Agree	64	21.7%	231	78.3%	**0.000**
	Neither agree or disagree	11	68.8%	5	31.3%	
	Disagree	3	33.3%	6	66.7%	
Satisfaction with labour ward services- during labour	Satisfied	54	19.8%	219	80.2%	$X2$ =21.992 df = 2 p = **0.000**
	Neither satisfied or dissatisfied	17	54.8%	14	45.2%	
	Dissatisfied	7	43.8%	9	56.3%	

Satisfaction with labour ward services- during delivery	Satisfied	57	20.1%	226	79.9%	**0.000**
	Neither satisfied or dissatisfied	18	64.3%	10	35.7%	
	Dissatisfied	3	33.3%	6	66.7%	
Variable	**Response**	**n**	**%**	**n**	**%**	***p***
Satisfaction with labour ward services-after delivery	Satisfied	57	19.7%	232	80.3%	**0.000**
	Neither satisfied or dissatisfied	17	73.9%	6	26.1%	
	Dissatisfied	4	50.0%	4	50.0%	
Experienced - Verbal abuse	No	75	24.1%	236	75.9%	0.460
	Yes	3	33.3%	6	66.7%	
Experienced - Pinching/slapping/beating	No	74	23.5%	241	76.5%	**0.014**
	Yes	4	80.0%	1	20.0%	
Experienced - Delivered alone without assistance	No	76	24.4%	236	75.6%	0.620*
	Yes	2	25.0%	6	75.0%	

P statistical significance (two sided fishers exact), * one sided fishers exact

4.9 Organizational factors associated with utilization of free maternity services

The organizational factors were rated based on the general treatment from health care workers, cleanliness of the maternity ward, availability of bed linen, state of the bathroom and toilet, privacy, respect to clients and provision of information to clients by health workers and essential services. Other factors that were rated included provision of food, warm water, sharing of beds in maternity ward, adequacy of health workers and quality of services.

As shown in table 4.7, in regards to how the health worker treated the mothers during labour, majority (85.0%, n=130) of respondents who utilized the FMS rated the treatment as excellent. There was a statistically significant association (p=0.000) between treatment by healthcare worker and utilization of FMS.

Majority (84.0%, n=137) of mothers who utilized FMS rated the cleanliness of the maternity ward as excellent. There existed a significant statistical association (p=0.000) between cleanliness of the maternity ward and utilization of FMS. Availability of linen was rated as excellent by (82.3 %, n=135) of the respondents. There was a significant statistical association (p=0.002) between availability of bed and linen and utilization of FMS. The state of the bathroom and toilet was also rated excellent by (85.6 %, n=131) and (84.0%, n=121) of the respondents respectively. There existed a significant association (p=0.000) between state of the bathroom and toilet (p=0.000) and utilization of FMS.

In regards to provision of client privacy, the study revealed that majority (82.6 %, n=90) of respondents who utilized FMS rated the provision of privacy as excellent. There was a significant statistical association (p=0.002) between provision of client privacy and utilization of FMS.

Regarding respect to clients and provision of information to clients by health workers, majority (86.0%, n=111) and (84.7 %, n=116) of the respondents rated the two as excellent respectively. There was a significant statistical association (p=0.001, p=0.000) between respect to clients, provision of information to clients by health workers and utilization of FMS.

Table 4. 7: Relationship of organizational factors and utilization of FMS (n=320)

Variable	Response	Utilized Free Maternity				p
		No		Yes		
		n	%	n	%	
Treatment by health worker during labour	Poor	5	33.3%	10	66.7%	X^2 = 28.369 df = 3 p = **0.000**
	Fair	24	53.3%	21	46.7%	
	Good	26	24.3%	81	75.7%	
	Excellent	23	15.0%	130	85.0%	
Cleanliness of the maternity ward	Poor	1	50.0%	1	50.0%	**0.000***
	Fair	17	56.7%	13	43.3%	
	Good	34	27.2%	91	72.8%	
	Excellent	26	16.0%	137	84.0%	
Availability of bed/ linen	Poor	3	37.5%	5	62.5%	**0.002***
	Fair	11	55.0%	9	45.0%	
	Good	35	27.3%	93	72.7%	
	Excellent	29	17.7%	135	82.3%	
State of bathroom	Poor	8	57.1%	6	42.9%	$X2$ = 22.544 df = 3 p = **0.000**
	Fair	11	42.3%	15	57.7%	
	Good	37	29.1%	90	70.9%	
	Excellent	22	14.4%	131	85.6%	
State of toilet	Poor	9	60.0%	6	40.0%	$X2$ = 18.052 df = 3 p = **0.000**
	Fair	10	34.5%	19	65.5%	
	Good	36	27.3%	96	72.7%	
	Excellent	23	16.0%	121	84.0%	
Privacy	Poor	11	16.7%	55	83.3%	$X2$ = 15.045 df = 3 p = **0.002**
	Fair	13	48.1%	14	51.9%	
	Good	35	29.7%	83	70.3%	
	Excellent	19	17.4%	90	82.6%	
Respect to clients	Poor	9	39.1%	14	60.9%	$X2$ = 17.686 df = 4 p = **0.001**
	Fair	21	40.4%	31	59.6%	
	Good	30	25.9%	86	74.1%	
	Excellent	18	14.0%	111	86.0%	
Provision of information to clients by health workers	Poor	3	37.5%	5	62.5%	$X2$ = 20.805 df = 3 p = **0.000**
	Fair	26	45.6%	31	54.4%	
	Good	28	23.7%	90	76.3%	
	Excellent	21	15.3%	116	84.7%	

P statistical significance (two sided fishers exact) * one sided fishers exact

In regards to provision of adequate food, the study revealed that majority (82.9 %, n=131) of respondents who utilized FMS agreed to having been provided with adequate food during their stay in the maternity ward. There was significant statistical association (p=0.005) between provision of adequate food and utilization of FMS. Qualitative results also showed that provision of adequate food affected utilization of FMS negatively.

One FGD discussant narrated her experience and said, *"In my recent delivery in September my relatives were asked to get me food after delivery because the facility had ran out of gas making it impossible for them to provide food for mothers who delivered"*

The study results showed that majority (80.0 %, n=196) of the respondents who utilized FMS were provided with warm water for bathing after delivery. There was a significant statistical association (p=0.000) between utilization of FMS and provision of warm water.

Regarding sharing of beds (78.9 %, n=206) of the respondents who utilized FMS reported that they never shared a bed with another woman in the maternity ward. Sharing of beds among clients signifies increased congestion and thus discomfort among clients There was significant statistical association (p=0.014) between sharing of beds and utilization of FMS.

The study results showed that majority (79.0 %, n=203) of respondents who utilized FMS reported that the maternity ward was not congested. There was significant statistical association (p=0.009) between congestion of maternity ward and utilization of FMS.

The maternity services offered were of high quality as rated by the majority of the respondents who utilized FMS (79.8%, n=209). There was significant statistical

association (p=0.001) between quality of maternity services offered and utilization of FMS.

The study found that (77.7 %, n=216) of the respondents who utilized FMS reported that the health workers in maternity ward were adequate. There was significant statistical association (p=0.003) between adequacy of health workers and utilization of FMS.

The study results showed that (80.7 %, n=201) of the respondents who utilized FMS were provided with bed net. There was significant statistical association (p=0.000) between provision of net and utilization of FMS.

In regard to provision of basin, pads and bathing soap, the study found out that (75.7%, n=237), 75.0%, n=222) and (75.5%, n=237) of the respondents who utilized FMS were provided with those supplies respectively, however there was no significant statistical association (p=0.131, p=0.617, p=0.094) between provision of basin, pads and bathing soap with utilization of FMS.

Table 4. 8: Influence of organizational factors on utilization of FMS

Variable	Response	Utilized Free Maternity				P
		No		Yes		
		n	%	n	%	
Adequate food was provided	Agree	27	17.1%	131	82.9%	X^2 = 10.640 df = 2 p =0.005
	Neither agree or disagree	6	46.2%	7	53.8%	
	Disagree	45	30.2%	104	69.8%	
I was provided with warm water for bathing	Agree	49	20.0%	196	80.0%	X^2 = 17.327 df = 2, p = 0.000
	Neither agree or disagree	11	61.1%	7	38.9%	
	Disagree	18	31.6%	39	68.4%	
I never shared a bed with another woman	Agree	55	21.1%	206	78.9%	X^2 = 8.546 df = 2, p = 0.014
	Neither agree Or disagree	4	44.4%	5	55.6%	
	disagree	19	38.0%	31	62.0%	
The maternity ward was not congested	Agree	54	21.0%	203	79.0%	X^2 = 9.466 df = 2 p = 0.009
	Neither agree or Disagree	5	27.8%	13	72.2%	
	Disagree	19	42.2%	26	57.8%	
The maternity services offered are of high quality	Agree	53	20.2%	209	79.8%	X^2 = 13.717 df = 2 p = 0.001
	Neither agree or disagree	13	40.6%	19	59.4%	
	Disagree	12	46.2%	14	53.8%	
There were adequate health workers	Agree	62	22.3%	216	77.7%	X^2 = 11.594 df = 2 p = 0.003
	Neither agree or disagree	10	58.8%	7	41.2%	
	Disagree	6	24.0%	19	76.0%	
A bed net was provided during my stay in the maternity	Agree	48	19.3%	201	80.7%	X^2 = 15.933 df = 2 p = 0.000
	Neither agree or disagree	3	37.5%	5	62.5%	
	Disagree	27	42.9%	36	57.1%	
I was provided with basin	Agree	2	28.6%	5	71.4%	0.131*
	Disagree	76	24.3%	237	75.7%	
I was provided with pads	Agree	4	16.7%	20	83.3%	0.617*
	Disagree	74	25.0%	222	75.0%	
I was provided with soap	Agree	1	16.7%	5	83.3%	0.094*
	Disagree	77	24.5%	237	75.5%	

P statistical significance (two sided fishers exact), * one sided fishers exact

4.10 Determinants of utilization of free maternity services

Table 4.9 presents the multivariate analysis. Multivariate analysis was used to establish the effect of independent variables or predictor variables on the utilization of FMS. Logistic regression tests was used to develop multivariate models for predicting utilization of FMS i.e. socio demographic characteristics, awareness of FMS, mother's experiences on FMS and organizational factors. Results of multiple logistic regression indicated that mothers who had a monthly income were more likely to utilize FMS (OR 1.132, CI 1.001-1.279) More results of binary logistic regression indicated that mothers who were provided with adequate food after delivery were more likely to utilize FMS (OR 0.276, CI 0.078-0.984). Mother's reporting that they were provided with a basin after delivery were more likely to use FMS (OR 3.550, CI 1.072-11.762). Adequacy of health workers in maternity ward was found to be strongly associated with utilization of FMS (OR 3.011, CI 1.454-6.234).

Table 4. 9: Multivariate models for predicting utilization of FMS

Predictor variable		**Wald**	**OR**	**95% C.I.**		**Sig.**
				Lower	**Upper**	
Socio demographics	Monthly income	3.927	1.132	1.001	1.279	0.048
Organizational factors and utilization of FMS	Adequate food was provided	3.942	0.276	0.078	0.984	0.047
	Adequate health workers in the maternity	8.808	3.011	1.454	6.234	0.003
	I was provided with basin	4.298	3.55	1.072	11.762	0.038

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1Discussions

This chapter presents a summary of the study findings, what it means and how the study compares with other similar studies done elsewhere.

5.1.1 Utilization of free maternity services

The study findings showed that the utilization of free maternity services was at 75.6%, considering the women who delivered in public health facilities in their recent delivery and never paid for the service. This estimate was higher than the national average of 62% but below the 90% target by WHO. This could imply that the fee exemption policy by the Kenyan government encourages women to deliver in health facilities.

5.1.2 Individual client characteristics

The study found out that more middle-aged women had slightly high utilization for free maternity services compared to younger and older women. There were slight differences in utilization levels across the various age categories. The finding was similar to a study done in Ethiopia, which showed that most women in the middle childbearing ages are most likely to use maternal services more compared to their peers in the early or late childbearing ages thus increased level of utilization (Babalola & Fatusi, 2009).

Educated mothers have a greater ability to easily access and make use of available information to inform their delivery decisions, however the level of education did not play a significant role in determining utilization of free maternity services among respondents in this study. This study showed that most of the respondents with primary education had high utilization of free maternity services compared to the rest. Meeting expectations of clients by service providers boosts their utilization with

maternal care delivery services. Education plays a significant role in demystification of poor delivery outcome related beliefs. These results were contrary to other findings of studies done elsewhere for example a study done in Kakamega County Referral Hospital, found that most clients with higher educational level demand more information on quality of care provided and try to build trust with physicians (Beatrice et al., 2016). This was also in contrast to a study conducted in Nigeria, which showed that education increases awareness levels for the need to use skilled maternity services at women's disposal (Ebere, 2013).

On parity, our study found that majority of respondents who utilized free maternity services had two or three children. It was further observed that the level of utilization increased with decrease in parity This can be explained by the fact women with high parities have experience which makes them not to consider pregnancy as an illness hence making them think that they can deliver on their own at their homes. (KSPA 2010). This could also be due to the high poverty level and hardship around the study area, where women prefer to have a smaller number of children whom they can cater for. These results are contrary to a study conducted by Kwast and Liff (2008) in Addis Ababa, Ethiopia, which showed that majority of women with higher parity, have greater responsibilities within the household for childcare. This increases health service utilization (Kwast & Liff, 2008). These results were also inconsistent with another Ethiopian study done in Tigray region, in which it was reported that most women with higher parity, especially those with successful deliveries, have more confidence and less fear for pain and risky pregnancy outcomes (Tsegay *et al*, 2013).

About religion, this study showed that majority of respondents with high utilization for free maternity services were Christians. The level of utilization did not differ

significantly across the various religious affiliations. However, the study revealed that religion does not play a significant indirect role on pregnancy and delivery outcomes.

The current study found out that majority of married women utilized free maternity services more. Marital status was significantly associated with utilization of free maternity services. These results were inconsistent with a study done in Edo South Senatorial District, Nigeria, which showed that majority of married women spent more time caring for their spouses and families imposing a strain on their health thus reducing their utilization of maternal services (Marchie, 2012). These results were consistent with a study done in Western Uganda that documented higher utilization of free maternity services among most married mothers. This was attributed to financial support from their spouses and consequently greater access to quality maternal care (Asiimwe, 2010).

The study showed that majority of respondents who utilized the free maternity services were farmers and unemployed women. The level of utilization had significant differences across the various occupational categories. Unemployed women lack enough resources to finance their healthcare needs thus seem to enjoy free maternity services provided by the government. This finding was consistent with studies done in Nyatike and Muhuru Bay divisions in Nyanza region by Mugambi Christine (2014) and in Bangladesh by Shamsun (2018) who found that more housewives/non-working women are more likely to use free maternal health services compared to their employed counterparts thus more utilization.

Income was not significantly associated with utilization of free maternity services. The study found out that majority of postnatal women with high utilization were low-income earners. The levels of utilization increased with decrease in income among respondents. This could be because higher income earners have a greater ability to

access/afford and use health care inputs from private facilities unlike their poorer counterparts who mostly rely on government-subsidized care. Therefore, the income earned by majority of postnatal women was insufficient to sustain their family needs hence the utilization of the free maternity services.

The finding was similar to a Kenyan study, which revealed that higher utilization of free maternity was exhibited among majority of low-income earners (Christine, 2014). This finding was contrary to studies done in Nigeria by Ebere (2013) and in Ghana by Philip et al. (2018) who showed; that income enables women to improve their nutritional status thus improved delivery outcomes. This contributes to increased utilization among majority of higher income earners.

5.1.3 Mother's level of awareness on free maternity services

The study found out that women were aware of free maternity services being offered in government facilities. People working at the facility contributed highly to sensitizing the mothers on availability of free maternity services right from the antenatal care clinic visits and this increased utilization of the free maternity services. The study found out that majority of the facilities that were near to the respondents were offering the free maternity services hence the increased utilization, however those who were not near a facility offering free maternity services were never hindered from utilizing the service and clients went to facilities where they could get the service. The study however found no association between awareness and utilization of free maternity services. The findings were contrary to a study conducted in Australia (Teate et al., 2011), which revealed a strong positive correlation between knowledge on maternal issues and utilization of maternal health care.

5.1.4 Mother's delivery experiences on free maternity services

The study found out that majority of women who utilized the free maternity services rated the reception at the maternity as good or excellent, this may be because friendliness enables women to create good rapport and establish trust with clinician's thus higher perceived quality of care. This result was supported by a study done in Kenya by Ochako (2011) who reported that when mothers perceive care providers to being unsympathetic and having poor attitudes towards women in labour creates mistrust between them thus reducing their satisfaction levels hence affecting the utilization of the services. Similar results were also reported by another Kenyan study done in Pumwani Maternity hospital in Nairobi City County, which revealed that provider friendliness is a predictor of client satisfaction hence utilization of service among majority of patients (Margaret, Bella, & Rose, 2014).

The current study revealed that majority of the women would revisit the same facility or recommend to a friend or relative if need be and this could be attributed to the way the health workers treated the women during delivery. This was in agreement with a study done in Kenya by Salam et al (2013) which revealed that mother's attitude towards healthcare is determined by their experience with the healthcare or what they observe others going through in maternal care. The positive relationship, between attitude and utilization of maternal health care was also experienced in Japan (Heneck, 2003), explained that in Japan there was effective free maternal care, proper management of maternal resources and well trained staff to administer the maternal care services, this saw improvement in the number of women preferring to use the free maternal care due to the good perception that had been created as result of the administration of the maternal care. The reverse is true, poor attitude by women translates to low utilization of maternal care.

5.1.5 Organizational factors

The study showed that most of the respondents who utilized the free maternity services rated the cleanliness of the maternity ward, availability of bed and linen, state of the bathroom and toilet as good or excellent. Facility cleanliness had a significant influence on maternal satisfaction. Perceived facility cleanliness is associated with high quality service provision. Sheehy et al (2011) who argued that the physical birthing environment in most cases, affects patient safety and health, effectiveness of care and the morale of the care providers reported similar results. Overall satisfaction with the facility's physical and birthing environment is a predictor to women's positive experience during labour and eventual delivery (Foureur et *al*, 2010). This was further supported by a report by the World Health Organization, which explained that delivery in unhygienic conditions without the assistance of a Skilled Birth Attendant might result in adverse health conditions of pregnant women consequently reducing their satisfaction levels hence utilization (WHO, 2004).

The current study revealed that majority of women who utilized free maternity services reported that the health workers ensured their privacy. Utilization of maternity services increased with provision of privacy. This is because patients feel valued as the health care workers respects their rights to dignity, privacy and confidentiality. The results concur with a study done by Otieno (2014) who argued that provision of patient privacy affects the health seeking behaviours and ultimately the effectiveness of such care. Provision of patient privacy encourages more women to use the available maternal services since they feel satisfied with service delivery components at their disposal. The results also concur with a study done by Okoth (2017) which revealed that there was a relationship between privacy in service delivery and utilization of maternal and neonatal health care services.

The study found that monthly income, provision of basin, provision of adequate food and adequacy of health care workers were predictors for utilization of FMS.

5.1.6 Summary of Findings

The study found that the overall utilization of free maternity services in public hospitals in Machakos County was above average (75.6%), however 24.4% of the respondents indicated to having paid some money for delivery services.

The study sought to describe the individual client characteristics of postnatal women associated with utilization of FMS. Generally, the study revealed that majority (78.9%) of the participants were in the age bracket of 20-29, mostly (80.0%) had attained primary level of education, largest proportion (79.5%) had between 2-3 children, most (82.6%) of the respondents were Catholics, majority (79.6%) were married and largest proportion (82.9%) were unemployed. The study findings indicated that marital status (p=0.006) and parity (p=0.038), had a significant statistical association with FMS.

The study also sought to determine the association between mother's level of awareness on FMS and utilization of FMS. It was revealed that most (99.0%) of the postnatal women were aware of FMS being offered in public facilities. Majority (57.0%) reported of having heard about FMS from facility staff. Slightly more than half (59.1%) of the postnatal women lived near a facility that was offering FMS.

The study results showed that awareness on FMS (p=0.589) had no significant statistical association with utilization of FMS.

The study also sought to determine the association between mother's delivery experiences and utilization of FMS. It was revealed that, most (77.0%) of the postnatal women who utilized FMS took <15minutes to be attended at the maternity. Majority of the respondents 83.3% rated the reception at maternity as excellent,

78.2% would visit the same facility for delivery if need be with 78.3% indicating that they would recommend the facility where they delivered to a friend or relative. Recommending the facility to others by majority of the respondents showed a sign of improved service delivery. Concerning satisfaction with delivery services, 80.2% of the respondents indicated that they were satisfied with the services rendered during labour, 79.9% satisfied with services offered during delivery and 78.3% were satisfied with services offered after delivery. Visiting the same facility for delivery (p=0.000), recommending the facility to a friend or relative (p=0.000), satisfaction with services offered in labour ward during and after delivery (p=0.000) and reception at the maternity (p=0.000) were significantly associated with utilization of FMS.

This study identified organizational factors associated with utilization of FMS. The findings indicated that (85.0%) of the respondents rated the treatment by health workers as excellent, (84.0% indicated that the maternity ward was clean, (82.3%) reported that the linen were available, (86.0%) reported that the health workers were respectful to clients. It was further revealed that majority (82.9%) of the respondents reported availability of adequate food, similarly more respondents (80.0%) indicated that warm water was provided to them after delivery. (78.9%) of the respondents, reported never sharing a bed with others, (79.0%) of the postnatal women reported that the maternity ward was not congested. (79.8%) of the respondents indicated that maternity services offered were of high quality and (77.7%) reported that there were adequate health workers in the maternity ward. Availability of adequate food (p=0.005), provision of warm water (p=0.000), maternity ward was not congested (p=0.009), health workers were adequate (p=0.003), cleanliness of the toilet (p=0.000), privacy (p=0.002) and sharing of beds (p=0.014) among respondents were significantly associated with utilization of FMS.

The study established the determinants of utilization of FMS as monthly income (OR 1.132 CI-1.001-1.279), provision of adequate food (OR 0.276 CI 0.078-0.984), adequacy of health workers (OR 3.001 CI 1.454-6.234) and provision of basin (OR 3.550 CI 1.072-11.762).

5.2 Conclusions

The study concludes that utilization of FMS in Machakos County public hospitals was optimal though mothers who utilized free maternity services were still reporting illegal payments. Individual client characteristics were not significantly associated with utilization of FMS. The facility staff played a greater role in creating awareness on FMS, however mother's level of awareness was not significantly associated with utilization of FMS

The study concludes that mother's delivery experiences played a significant role towards utilization of FMS. Reception at maternity, time taken to be attended at the maternity and satisfaction with the services offered during labour, delivery and after delivery determined future utilization of FMS by the mothers.

These findings conclude that organizational factors played a significant role towards utilization of FMS. Provision of adequate food after delivery, provision of warm water, quality of maternity services, adequacy of health workers in maternity, cleanliness of the maternity, respect to clients and provision of information to clients by health workers were associated with utilization of FMS.

Finally, the study established the determinants of utilization of FMS as monthly income, provision of adequate food and adequate health care workers.

5.3 Recommendations

5.3.1 Recommendations from the study

County department of health

1. The Machakos county department of health should ensure that all the health facilities have adequate supplies of food to be offered to the clients during their stay in the maternity ward.
2. The department of health should also ensure that the facilities have adequate health workers deployed in the maternity ward.
3. The department should also ensure enforcement of the FMS policy since mothers reported of making illegal payments for the maternity services

5.3.2 Recommendations for further study

i. A research should be conducted to determine the quality of Free Maternity Services across public health facilities in Kenya.

ii. A study should be conducted to establish the impact of FMS on maternal and child health in Kenya.

iii. A study should be conducted to identify challenges of not providing entirely FMS in Kenya

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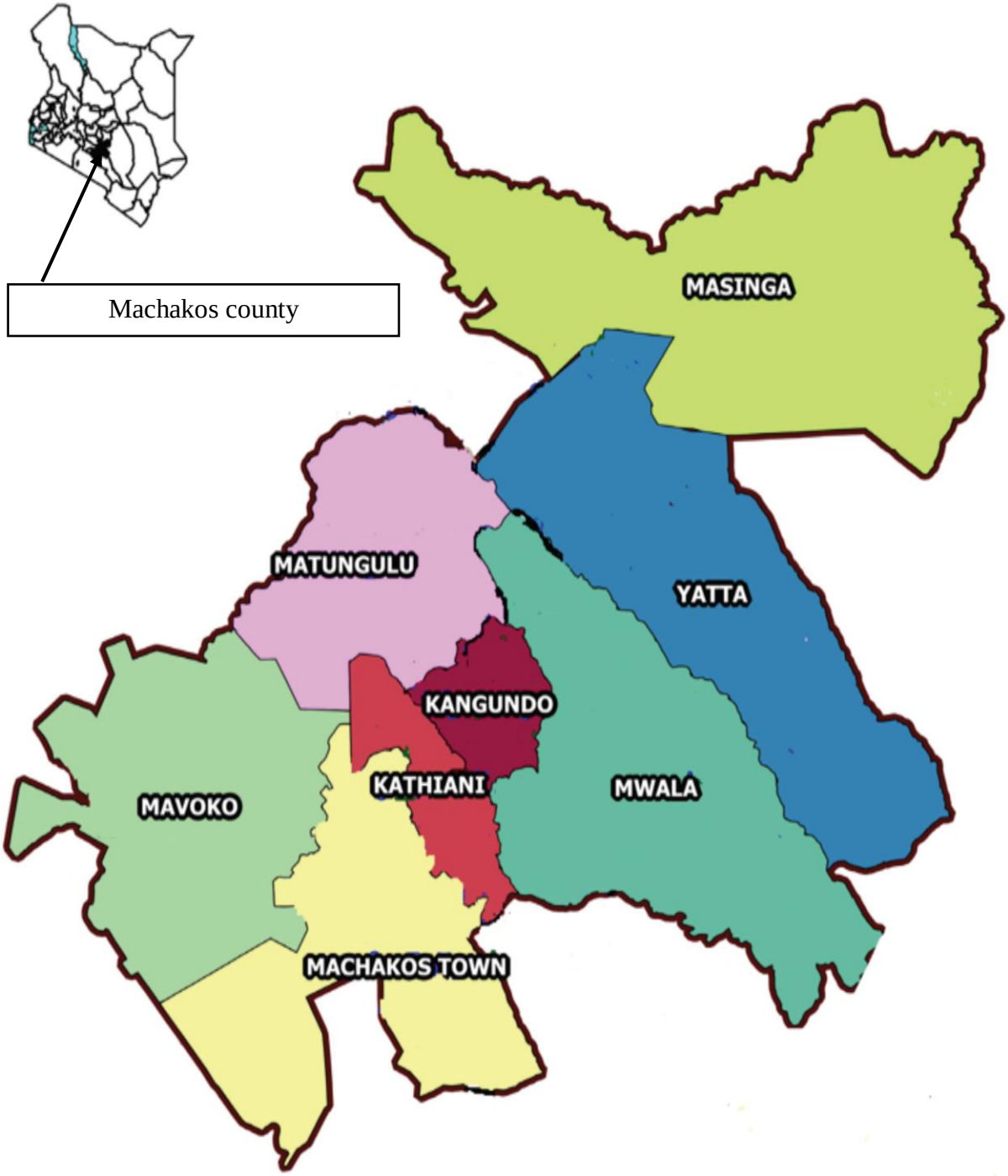
APPENDICES

Appendix I: Machakos county map



Appendix II: informed consent form

Introduction

My name is Alice Mukunzu Ngesa. I am Master's student from Kenyatta University. I am conducting a study on '**Utilization of free maternity services in Machakos County".** You are being invited to participate in this study because you are among the sampled respondents believed to have useful information on the study subject.

Purpose

The purpose of this study is to understand factors influencing utilization of free maternity services. The information will be used by the CHMT and Ministry of Health to inform strategies and opportunities for improving free maternity services in Machakos County as well as other regions of Kenya.

Procedure to be followed

If you agree to be in this study, you will be asked to respond to some questions through either interviewer-administered questionnaire, interview schedule or focus group discussion guide.

Study time: Study participation will take a total of approximately 45 minutes.

Benefits

There is no direct benefit to you anticipated from participating in this study. However, it is hoped that the information gained from the study will help to identify strategies and opportunities for improving utilization of free maternity services.

Risks/Discomforts

Some of the study instruments may make you uncomfortable or upset, but you are free to decline to answer any questions you do not wish to or to leave the group at any time.

Confidentiality

Your study data will be handled as confidentially as possible. If results of this study are published or presented, individual names and other personally identifiable information will not be used.

Rights

Participation in research is completely voluntary. You have the right to decline to participate or to withdraw at any point in this study without penalty or loss of benefits to which you are otherwise entitled.

Question /Contact information

If you have any questions or concerns about this study, you may contact Dr. George O. Otieno on Mob. 0719506770 or Dr. Daniel W. Muthee on Mob. 0723934169 or the Kenyatta University Ethical and Review Committee Secretariat on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke or ercku2008@gmail.com

Participant(s) statement

The above information regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntarily. I understand that my record(s) will be kept private and that I can leave the study at any time.

_____

Participant's Name *(please print)*

_____ _____

Participant's Signature Date

Investigator's statement

I, the undersigned, have explained to the participant in the language s/he understands, the procedure to be followed in the study and risks and benefits involved.

_____

Person Obtaining Consent

_____ _____

Person obtaining consent Signature Date

Appendix III: household questionnaire

Instructions

The questionnaire has been formulated for the sole purpose of gathering information for research project geared towards establishing factors that will influence utilization of free maternity services in public hospitals in Machakos County.

A. WARD .....

B. COMMUNITY UNIT……

C. DATE.....

D. INTERVIEWER .....

E. RESPONDENT CODE…….

S/No	Question	Answer	Mark
	A. Socio-Demographic Characteristics		
1.	What is your age in years?		
2.	Religion	Catholic	1
		Protestant	2
		Muslim	3
		Hindu	4
		Buddha	5
		African traditionalist	6
		None	7

		Other (please specify)	8
3.	Marital status	Single	1
		Married Monogamous	2
		Married Polygamous	3
		Divorced/ Separated	4
		Widow	5
4.	Level of education	None	1
		Primary	2
		Secondary	3
		University	4
		Diploma/ Tertiary college training	5
		Others, specify	6
5.	Main Occupation	Employed/ Salaried worker	1

		Farmer	2
		Business/ self employed	3
		Unemployed	4
		Others (specify)	5
6.	Monthly income	Less than 10,000	1
		Between 10,000-20,000	2
		Between 20,000-30,000	3
		Between 30,000-40,000	4
		Between 40,000-50,000	5
		Over 50,000	6
		None	7
7.	What is the distance from your place of residence to the nearest public health facility?	Less than 2KM	1
		Between 2-5KM	2
		More than 5+ KM	3
		Don't know	4
8.	Mode of transport to the health facility	By foot	1
		By Bus/Matatu	2
		By own vehicle	3
		Boda Boda	4
		Others (specify)	5

UTILIZATION OF FREE MATERNITY SERVICES			
9.	Parity	1	1
		2-3	2
		4-5	3
		>5	5
10.	How many were delivered in a health facility?	None	1
		1	2
		2-3	3
		4-5	4
		5	5
11.	Where did you deliver in your recent birth?	Govt. Hospital	1
		Govt. Health centre	2
		Govt. Dispensary	3
		Private Hosp	4
		Mission Hosp	5
		Own home	6
		TBAs home	7

12.	Using the scale provided to what extent, do you agree with the following statement? I never paid for the maternity services. where 5= Strongly agree, 4= Agree, 3= Neither agree or disagree, 2= Disagree and 1= Strongly Disagree **APPLICABLE TO THOSE WHO DELIVERED IN GOVERNMENT FACILITIES**	5	4	3	2	1		

	B. Mother's Knowledge on free maternity services		
13.	Have you ever heard of the free maternity services?	Yes	1
		No	0
14.	How did you get the information about the free maternity services? Multiple responses	Radio/ TV	1
		Facility staff	2
		Community health worker	3
		Local leaders	4

	possible. **SKIP IF ANSWER TO 11 IS NO**	Husband/Relatives	5
15.	Do you think the government has done enough to inform the public about the free maternity services?	Yes	1
		No	0
16.	Does the nearest public facility offer FMS?	Yes / No	
		1 / 0	
17.	Did you receive antenatal care services in your recent pregnancy?	Yes	1
		No	0
18.	Where did you receive the service?	Government facility	1
		Private facility	0
19.	Using the scale provided to what extent do you agree with the following statements where 1= Strongly disagree 2= Disagree 3= Neither agree or		

	disagree 4= Agree 5= Strongly agree I was adequately given information about the usefulness of delivering under a skilled birth attendant during the ANC								
	C. Mothers Perception on free maternal services								
20.	How can you rate the reception at the maternity?	Poor							1
		Fair							2
		Good							3
		Excellent							4
21.	How long did it take for you to be attended at the maternity?	<15mins							1
		16-20 mins							2
		17-30 mins							3
		>30mins							4
22.	Using the scale provided to what extent, do you agree	Strongly disagree							1
		Disagree							2

	with this statement? where 5= Strongly agree, 4= Agree, 3= Neither agree or disagree, 2= Disagree and 1= Strongly Disagree I would visit the same facility for delivery if need be.	Neither agree nor disagree	3
		Agree	4
		Strongly agree	5
23.	Using the scale provided to what extent, do you agree with this statement? I would recommend the facility for delivery to a friend/ relative	Strongly disagree	1
		Disagree	2
		Neither agree nor disagree	3
		Agree	4
		Strongly disagree	5
24.	Did you deliver in the same facility where you attended your ANC?	Yes	1
		No	0

25. Express your level of satisfaction with the services in the labour ward.

4= fully satisfied, 3= Satisfied, 2= somewhat dissatisfied and 1= Dissatisfied

Rating	4	3	2	1
During labour				
During delivery				
After delivery				

26. During labour did you experience any of the following (tick all that apply)

Experience	YES	NO
Verbal abuse		
Pinching/slapping/beating		
Delivering alone without assistance		

D. Health system factors

27.. How would you rate the following?

4= Excellent, 3= Good, 2= Fair and 1= Poor

	4	3	2	1
How the health worker treated you during labour?				
Cleanliness of the				

maternity ward				
Availability of bed and linen				
State of the bathroom				
State of the toilet				
Privacy				
Respect to clients				
Provision of information to clients by health workers				

28. Using the scale provided, indicate to what extent you agree or disagree with the following statements where 5= Strongly agree, 4= Agree, 3= Neither agree or disagree, 2= Disagree and 1= Strongly Disagree

	5	4	3	2	1
Adequate food was provided during my stay in the maternity ward.					
I was provided with warm water for bathing after delivery					

I never shared a bed with another woman in the maternity ward					
The maternity ward was not congested					
The maternity services offered are of high quality					
There were adequate health workers in the maternity ward					
A bed net was provided during my stay in the maternity ward					
I was provided with the following items during my stay in the maternity ward					

Basin					
Pads					
Bathing soap					

Appendix IV: Key informant interview guide

Dear participant,

You are hereby invited to participate in a Key Informant Interviewee for a study on 'Utilization of free maternity services among postnatal women in Machakos County'. You have been chosen purposively due to the expected level of information and knowledge you have on the study topic. You are requested to be honest, free and active in your participation. Participation will be guided by use of FGD Guide. All information gathered will be held under strict confidentiality and will be used for purposes of this research only.

1. In your opinion, are mothers in this area aware of the free maternity services? Expound
2. What is their attitude towards the free maternity services?
3. What is the average number of deliveries conducted in this facility per month?.....
4. How does it compare with the deliveries before the free maternity program?
5. In your opinion, does this facility have adequate capacity to handle the free maternal health care? In terms of health workers, availability of equipment and other commodities. Give your reasons.
6. What are the challenges faced in administration of the free maternal care
7. In your opinion, what do you think the department of health and emergency services in Machakos County can do to improve the free maternity services program?

Appendix V: Focus group discussion guide

Dear participant,

You are hereby invited to participate in a Focused Group Discussion for a study on 'Utilization of free maternity services among postnatal women Machakos County'. You will be one of the members of a focused discussion group made up of 8 to 10 participants. You are requested to be honest, free and active in your participation. Participation will be guided by use of FGD Guide. There will be an observer, moderator and note taker for your focused group discussion. All information gathered will be held under strict confidentiality and will be used for purposes of this research only.

1. Are women in this community aware of the free maternity services? Expound
2. What do women and other members of the community say about the free maternity services?
3. What factors influence utilization of free maternity services in this community?
4. In your opinion, what do you think are some of the challenges facing free maternity services program?
5. In your opinion what can the department of health do to improve free maternity services program?

Appendix VI: Research approval from Kenyatta University graduate school

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

Internal Memo

FROM: Dean, Graduate School

DATE: 5th July, 2019

TO: Alice Mukunzu Ngesa
C/o Health Management and Informatics Dept.

REF: Q142/38397/2017

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 26th June, 2019 approved your Research Project Proposal for the M.PH Degree Entitled, "Utilization of Free Maternity Services among Women Aged -49 Years in Machakos County, Kenya.

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

HARRIET ISABOKE
FOR: DEAN, GRADUATE SCHOOL

c.c. Chairman, Health Management & Informatics Department.

Supervisors:

1. Dr. Joyce Kirui
C/o Department of Health Management & Informatics
Kenyatta University

HI/lnn

Appendix VII: Research authorization from Kenyatta University graduate school

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: Q142/38397/2017

DATE: 5th July, 2019

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR ALICE MUKUNZU NGESA – REG. NO. Q142/38397/2017.

I write to introduce Alice Mukunzu Ngesa who is a Postgraduate Student of this University. The student is registered for M.PH degree programme in the Department of Health Management & Informatics.

Alice intends to conduct research for a M.PH Project Proposal entitled, "Utilization of Free Maternity Services among Women Aged -49 Years in Machakos County, Kenya".

Any assistance given will be highly appreciated.

Yours faithfully,

PROF. ELISHIBA KIMANI
AG. DEAN, GRADUATE SCHOOL

HI/lnn

Appendix VIII: Research authorization from National Council for Science, Technology and Innovation

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **301227**

Date of Issue: **21/August/2019**

RESEARCH LICENSE

This is to Certify that Miss.. Alice Ngesa of Kenyatta University, has been licensed to conduct research in Machakos on the topic: Utilization of free maternity services among women aged 18 to 49 years in Machakos county,Kenya. for the period ending : 21/August/2020.

License No: **NACOSTI/P/19/48**

301227

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix IX: Letter of permission from Machakos department of health and emergency services

REPUBLIC OF KENYA

GOVERNMENT OF MACHAKOS COUNTY
DEPARTMENT OF HEALTH AND EMERGENCY SERVICES

Machakos Highway
P.O. Box 2574-90100
Machakos. Kenya

Telephone: +254 -44-20575
Fax: 254-44-20655

1st October 2019

Principal Investigator - ATTN: Alice Mukunzu Ngesa
Q142/38397/2017
Kenyatta University,

Dear Miss Alice,

RE: LETTER OF AUTHORIZATION FOR CONDUCTING PROPOSED RESEARCH

The Department of Health and Emergency Services, Machakos County is keen to collaborate in your study: '**Utilization of Free Maternity Services among Women Aged 18 – 49 years in Machakos County, Kenya.**'

Note is taken of the letter of approval by the Kenyatta University Graduate School Board dated 26th June 2019 and the Research Licence by National Commission for Science, Technology and Innovation (NACOSTI) No. NACOSTI/P/19/48 dated 21st August 2019.

You are hereby authorized to proceed with the research and urged to share the findings with the Department of Health and Emergency Services; Machakos County, through this office.

Sincerely,

Dr. Jonathan N. M. Nthusi
County Director – Medical Services

cc: County Executive Committee Member – Health
Chief Officer – Public Health and Community Outreach
County Director, Preventive and Promotive Services
Sub-county Medical Officer of Health, Masinga.