FACTORS ASSOCIATED WITH THE UPTAKE OF MATERNAL SERVICES AMONG PREGNANT MOTHERS IN MALAVA SUB-COUNTY, IN KAKAMEGA COUNTY, KENYA

BY
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H153/4228/2015

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN EPIDEMIOLOGY AND BIOSTATISTICS OF JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

February, 2023

DECLARATION

I hereby declare that this research project is my original work and had not been sent to any other university or institution for the award of any degree.

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ACKNOWLEDGEMENT

I would like to sincerely appreciate Jaramogi Oginga University of Science and Technology through the school of Health Science for the opportunity to carry out the research. Special thanks to my Supervisors, Dr. Dan Onguru and Prof. Fred Amimo, for their relentless support and offering expertise to undertake the study. Their guidance and counsel has been vital in my research process. My sincere gratitude to my family for their all-round support accorded to me. I am indebted to you. Finally, in a special way, I want to thank my father James Bwana who constantly encourages me to continue with my academic pursuit despite the life hurdles. You are always supportive socially, spiritually, and morally. Finally, I would also like to thank God for his grace. It has been a challenging yet adventurous journey.

DEDICATION

This research work is dedicated to my grandmother Pauline Maroko even though she has no advanced formal education, she has never stopped sharing her wisdom, guardianship, support, and encouragement to study.

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ABBREVATIONS

ANC	Antenatal Care
DV	Dependent Variable
IV	Independent Variable
KDHS	Kenya Demographic and Health Survey
MD	Millennium Development Goals
MHS	Maternal Health Services
MMR	Maternal Mortality Ratio
MO	Ministry of Health
SARAM	Service Availability and Readiness Assessment Mapping
SBA	Skilled Birth Attendance
TBA	Traditional Birth Attendance
WHO	World Health Organization

ABSTRACT

Over the past decade, Kenya has made tremendous efforts to enhance maternal and child health. Maternal health policies such as maternal care have enhanced maternal and child health in all public health facilities. Despite these attempts, public health facilities for maternal and child health are still underused. This study employed a descriptive cross-sectional design to investigate the factors associated with the use of maternal health services, by assessing the individual and health system factors that influence the health-seeking behavior regarding maternal health among 301 pregnant mothers in Malava Sub-County, Kakamega County. This descriptive cross-sectional study used both quantitative and qualitative approaches, where questionnaires were administered to purposively selected pregnant women for the study, while 12 healthcare workers were interviewed. Quantitative data was analyzed using descriptive inferential statistics (Pearson correlation and multiple regression analysis to assess the association between the variables of socio-economic and health facilities and the uptake of maternal health services; $p<0.05$), using SPSS v.23, while qualitative data was subjected to thematic analysis. Results were presented as frequency, percentage and coefficients, and displayed on tables. The uptake of maternal health service was influenced by the cultural and religious beliefs of the women. In addition, 53.8% and 77.7% of the women could not optimally attend antenatal and post-natal care clinics, respectively, because government health facilities were located far away from their homes, and they also had limited information about maternal health care. This study recommends that to improve access to maternal health care, the Ministry of Health (County Government of Kakamega) devices approaches for ensuring that health services close and available to the community where people live. The Ministry should in addition exploit available media networks to sensitize the community on the need to use the available services. In addition, individual hospital management should increase the awareness of maternal health care services.

OPERATIONAL DEFINITIONS

Antenatal Care This is a type of preventive healthcare that is provided in the form of medical checkups, consisting of recommendations on managing a healthy lifestyle and the provision of medical information such as maternal physiological changes in pregnancy

Health Facility Is any location where healthcare is provided. Health facilities range from small clinics and doctor's offices to urgent care centers and large hospitals with elaborate emergency rooms and trauma centers

Health Seeking Behavior This is any action or inaction undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy

Ignorant: Is basically a lack of knowledge and information

Maternal Health Maternal health is the health of women during pregnancy, childbirth, and the postpartum period

Postnatal Care This is a care given to the mother and her newborn baby immediately after the birth of the placenta and for the first six weeks of life

Pregnant Mothers the condition of having a developing embryo or fetus in the body, after union of an oocyte (ovum) and spermatozoon

Skilled Personnel This is any worker who has special skill, training, knowledge which they can then apply to their work

Unskilled Personnel This is a workforce with limited skills or minimal economic value for the work performed.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Maternal health is a global priority, and a pregnant woman should ideally attend at least four pregnancy-wide antenatal care sessions, and be attended to by a skilled birth attendant during delivery at a health facility, and then receive post-partum care (WHO, 2017). One of the primary goals of the Millennium Development Goals (Goal 5) was to reduce maternal mortality by 75% in each nation. This goal was based on the premise of better policies and efficient programs (Agrawal *et al.*, 2016). However, by the end of 2015, statistics show that globally, the maternal mortality rate within the MDG era 1990-2015 had reduced by 44%. Furthermore, an estimated 303,000 maternal deaths were reported representing at least 216 per 100,000 live births. According to (Alkema *et al.*, 2015), there were also 830 maternal deaths due to pregnancy-related complications (DHIS, 2018). Within WHO regional classification, the African region was most disproportion claiming at least two-thirds of the global share. Kenya Demographic and Health Survey 2014 (KNBS, 2014) statistics show that maternal mortality is 362 per 100000 live births. In contrast, WHO data reports that Kenya's maternal mortality rate stands at 510 per 100000 live births (WHO, 2017).

In Japan, the utilization of maternal health services is relatively better with the mother's mortality ratio (MMR) falling by nearly two-thirds from 130 to 50 over only 10 years. To meet the target year of the Millennium Declaration, this provides support for many developing countries that are seeking significant falling maternal mortality. Japan's success in dealing with maternal mortality has been due not only to several factors but also to the three main actions needed worldwide. It has universal access to the provision of skilled care. Japan has long invested in training and ensuring the availability of siblings and nurses to women during childbirth, delivery, and post-natal care (at no cost). Nowadays, 100% of deliveries in Japan take place with the assistance of health professionals, and in healthcare facilities equipped to handle normal cases. By providing high-quality skilled care, Japan has virtually eliminated mothers and babies' major causes of death after birth (Sakamoto *et al.*, 2018). With regards to antenatal care data shows that 96% of mothers of reproductive age who had a live birth before the survey had received Antenatal Care from a skilled provider. Additionally, 60% of mothers surveyed received at least 4 ANC visits, but only a fifth (20%) had their first antenatal visit in

the first trimester. With regards to deliveries, 60% or 6 in 10 mothers delivered in healthcare centers with nearly half (46%) of them (UN, 2014).

Children's birth is linked to health condition in the developing countries (Aryastami *et al.*, 2017). There has been a decreased number of mothers' death globally due to the increasing focus on maternal health. There is a growing global and African movement to reduce financial obstacles to general healthcare, but with a particular focus on high-priority services and vulnerable groups (World Health Organization, 2019). In Burundi, for instance, in 2006 free services were introduced for expecting women (Habonimana & Batura, 2021). An 80% subsidy policy has been launched in 2006 in Burkina Faso. Although with varying target groups, other countries have taken the lead and are still at the stage of development.

In sub-Saharan Africa, there has been further progress but in Kenya, the risk of maternal deaths is very high at 1 in 39, as is the case in the developing world, where the risk of a woman's lifecycle is 1 in 3800 (Muriithi, 2017). Therefore, it is important to ensure the best quality of care is provided for increasing numbers of women seeking maternal health care during childbirth and after childbirth in healthcare institutions. According to Kenya's demographic health survey, it is estimated that around 43% of the births in Kenya are delivered under the guidance of a skillful childcare provider (Keats *et al.*, 2017), 28% of the births are still helped by TBA and 22% are home deliveries supported by friends and relatives. The use of antenatal and maternal services is an essential health indicator and step in the right direction. Increasing the proportion of women cared for, during pregnancy, delivery, and post-warning in health facilities reduces the mother's and child's health risk (Nyangena, 2020).

When pregnant mothers have access to a qualified birth attendant–physician, nurse, midwife–during pregnancy, most obstetric complications can easily be avoided or managed (Balde *et al.*, 2021). Globally, qualified attendant coverage improved from 61% in 2000 to 78% in 2016 during pregnancy. Despite continuous enhancement worldwide and within areas, however, a midwife, a doctor, or a qualified nurse did not assist millions of births. About half of all live births were produced in Sub-Saharan Africa in 2016 with the help of a qualified birth attendant (Tekelab *et al.*, 2019).

Important improvements in the coverage of the percentage of births attended by skilled health care providers as well as their care providers may have contributed to maternal mortality declines between 1990 and 2015. However, the estimated coverage of qualified birth attendants between 2012 and 2017 shows the inequality between WHO regions as only more than half of births in sub-Saharan Africa, where maternal mortality is the highest, are attended by qualified health care providers, while more than 68% to 99% of all births are attended by qualified health care workers in other WHO regions (WHO, 2017).

Kenya has made tremendous attempts over the previous decade to improve maternal and child health. Some of the initiatives that have enhanced maternal and birth results are safe maternity policies in all public health facilities, such as maternal care. Despite these attempts, there is still a sub-optimal use of maternal and child health facilities. Though the use of antenatal care centers has risen, there has been little progress with the use of qualified birth attendants and post-natal care services (Mwoma *et al.*, 2021). Kakamega County records the highest maternal mortality ratios with 790 per 100,000 live births, close to 3-folds higher than the national estimate of 362 per 100,000 live births. Kenya Demographic and Household data show that an insignificant proportion (37%) of expectant mothers delivered at home (DHIS, 2018). In Kakamega County, Malava Sub-County is the largest populous Sub-County (205,000) among the 5 other sub-counties. More than half (53.2%) of the population in Kakamega County reside in rural areas (KNBS, 2014). The use of skilled birth attendance in the 18 health facilities in Malava Sub-County in the year 2017 was estimated to be 35.7% (DHIS, 2018).

1.2 Statement of the Problem

Promoting maternal health is one of the main pillars for curbing maternal mortality, as only 65% of pregnant women in developing countries are estimated to have access to ANC services, occasioning loss of life for productive mothers during, before, or post-delivery (Mengesha *et al.*, 2021). Disparity associated with the characteristics of individuals and the community is shown to lead to poor use of maternal health care. This means that most pregnant women may have complications not detected early enough, as they only report their problems to health care facilities when they are exposed to pregnancy-related risks (Nigatu *et al.*, 2020).

Maternal deaths are high in western Kenya: 800 per 100,000 live births, in part attributed to unqualified caregivers, poverty, analphabetism, and poor utilization of prenatal care(Muruka *et al.*, 2019; Rogers *et al.*, 2022). In developing countries, critical challenges for maternal and emerging healthcare include poor healthcare systems, low use of skilled birth care, low-cost equipment, and low technology utilization. The Maternal Mortality Rate (MMR) in Kakamega County is at 880 deaths per 100,000 live births, while deliveries to health care providers are a mismatched figure of 26% percent compared to home delivery at 74% (Onono *et al.*, 2019). In Malava Sub County, these indicators are prevalent more than other Sub-Counties in Kakamega County because of their larger population. This has remained so despite increased resources for the health care sector (mother and child) and the provision of maternal.

In 2013, the government of Kenya through the ministry of health implemented maternal services to decrease the high maternal mortality rate at 495 deaths per 100,000 pregnant mothers (Chang *et al.*, 2019). Unfortunately, a skilled provider offers maternal health services to only 62 percent of all births in Kenya (DHIS, 2018). The cumulative loss of pregnant mothers when they are born has long-term consequences for the whole economy of a country. In western Kenya, Ayodo *et al.* (2021) recently reported poor utilization of maternal and child health services, attributed to among other things, limited knowledge and poor support system, and perceived health worker attitude to the women. In addition, Shikuku *et al.* (2020) reported the critical role played by community midwives in the use of reproductive health services in the neighboring Busia County. The exact drivers of the low of uptake of maternal health services remain poorly understood in many settings, particularly in Kakamega County, making it difficult to mount relevant corrective measures. To develop efficient policies and realize the 2030 Kenyan vision of a healthy population with low maternal mortality, there is a need to understand determinants of the use of maternal health services in Kenya. This study, therefore, examined determinants of low utilization of maternal health services by mothers in Malava Sub County, Kakamega County.

1.3 Research Objectives

1.3.1 Broad Objective

To investigate the determinants of uptake of maternal health services by pregnant mothers in Malava Sub-county

1.3.2 Specific Objectives

1. To assess the health-seeking behavior of pregnant mothers in Malava Sub-county
2. To determine the socio-economic factors associated with the uptake of maternal health services among pregnant mothers in Malava Sub-county
3. To determine the health facility factors associated with the uptake of maternal health services for pregnant mothers in Malava Sub-county
4. To assess the perceptions of pregnant mothers on maternal health services in Malava Sub-county

1.4 Research Questions

1. What is the health-seeking behavior of pregnant mothers in Malava Sub-county?
2. What socio-economic factors are associated with the uptake of maternal health services among pregnant mothers in the Malava Sub-county?
3. What is the health-facility factors are associated with the uptake of maternal health services by pregnant mothers in Malava Sub-county?
4. What is the perception of pregnant mothers on maternal health services by pregnant mothers in the Malava Sub-county?

1.5 Justification

Kakamega County is positioned 5th among 16 counties in Kenya that contribute about 98.7% poor maternal and infant health outcomes. Malava Sub-county is the most populous sub-county in Kakamega County contributes a significant proportion of sub-optimal ANC visits, unskilled deliveries, and post-natal clinic services uptake. As a result of this, undertaking this study is justified because it provides critical data on the uptake of maternal health services in Malava Sub County. In addition, there are no adequate published data to inform interventions to enhance maternal health services uptake. This, therefore, created a gap that necessitated the

current study, in order to offer an insight into the factors that drive the low utilization of maternal health services by pregnant mothers within the study area.

1.6 Significance of the study

This study is significant because it provides a critical information concerning the uptake of maternal health care in Malava Sub County, Kakamega County. The findings of this study bear information on how socio-economic factors influence the uptake of ANC among pregnant mothers. The findings of this study were aimed to help reduce the maternal and infant mortality rates and bring up a healthy mother and child which in return can translate to a healthy nation. The information gathered from this study could be helpful in informing health policy implementers to enhance the utilization of maternal health services in areas characterized by poor maternal health care services uptake. It outlines health facility factors influencing maternal health care utilization.

1.7 Scope of the Study

The study was limited to only pregnant mothers and mothers who were seeking maternal health services from public health facilities in Malava Sub County in Kakamega County. The study was confined to how maternal health-seeking behavior, socioeconomic factors, health facility factors, and perceptions on maternal health services influence uptake of maternal health services among pregnant mothers in Malava Sub-County.

1.8 Limitations of the Research Study

1. It was difficult to gauge exact change in the uptake of maternal health services as a result of many challenges faced by pregnant mothers

2. Some of the respondents feared discrimination while others felt it was time-wasting to respond to questionnaires

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter outlines theoretical literature, related studies, reviews literature gaps, and conceptual framework. Literature was reviewed based on the health-seeking behavior of pregnant mothers, the association between socio-economic factors and the use of maternal health services by pregnant mothers, the role of health facility factors on the uptake of maternal services pregnant mothers, and the perceptions of pregnant mothers on maternal health services in Malava Sub-county.

2.2 Theoretical Framework

This study was anchored on two theories namely; Theory of Planned Behaviour which was developed by Azjen in 1988 and Theory of Reasoned Action developed by Fishbein and Ajzen in 1975.

2.2.1 Theory of Planned Behaviour

The Theory of Planned Behaviour TPB was selected for this study because it provides clear definitions of constructs and is supported by a comprehensive body of correlational evidence. The theory of planned behavior was developed by Icek Ajzen (1985). It provides a simple and efficient framework for use in the investigation of an individual's intent to perform a specific activity. It assumes that the majority of human behavior is goal-directed, socially influenced and that individuals are logical and rational in their decision-making. It is a deliberative processing model that implies individuals make behavioral decisions based on careful consideration of available information.

In addition, this theory recognizes the necessity of estimating the extent to which the individual is capable of exercising control over his/her behavior. The model's ability to consider internal abilities; knowledge and external opportunity; cooperation of other control factors concerning performing a behavior is important in professional contexts such as health institutions. These factors tend to influence patients' behavior. The theory of planned behavior is a psychological theory that links beliefs to behavior. It maintains that three core components; attitude,

subjective norms, and perceived behavioral control play a role in shaping an individual's behavioral intentions.

This theory is relevant to this study because it helps in demonstrating that individual behavior plays a key role in determining the decisions which influence their health priorities. For instance, the current study aims to determine the uptake of maternal health services by pregnant mothers, which may be influenced by social, physical, and health-related factors.

2.2.2 Theory of Reasoned Action

The theory of reasoned action also informs this study (TRA). Martin Fishbein first developed the theory of reasoned action in the late 1960s and Fishbein revised and expanded it in the following decades. It is a theory that focuses on the intention of a person to do something. The theory of reasoned action aims to clarify the relationship between behaviors and attitudes. It is used mainly to predict how people are to behave based on their existing behavioral attitudes and intentions.

The TRA assumes that the behavior under investigation is under willful control, which means that people feel they can carry out the behavior whenever they are willing to do so. The TRA has gradually been used most frequently to investigate behaviors with variable control factors. A component called perceived behavioral control was complemented by the TRA. This concept represents the extent to which people believe they can perform the behavior because they have adequate capabilities and/or opportunities or are lacking in these.

Theory of Reasoned Action (TRA) suggests that the behavior of a person is determined by the intention of conduct and in turn, that its intention is a function of the behavior and subjective standards. Intention or instrumentality is the best predictor of behavior. This is the conviction that the behavior leads to the desired result. Their attitude towards the specific behavior, their subjective standards, and their perceived behavioral control are three determined to be instrumental. As the attitude and the subjective norms are more favorable and as the perceived control is greater the intention of the person to perform the behavior.

Theory of Reasoned Action serves as a useful model because it can help examine whether pregnant women's intentions to use maternal health services. These are determined by their attitudes and perceptions on the significance of maternal health care service in their lives as well as in the lives of the children.

2.3 Utilization of Maternal Health in Kenya

Pregnancy and childbirth are usually happy occasions in a family environment. In this respect, pregnancy, and childbirth translate into desirable maternal and childbirth outcomes. Vital measures such as the use of antenatal care, emergency care, post-natal care, and appropriate nutrition are life-saving measures that guarantee a good mother and child's life (UNICEF, 2015). It is distressing to note, however, that the above approaches are still inadequate to tackle maternal and neonatal mortality, particularly in remote regions where SBA and emergency care are often not available (Prata *et al.*, 2013).

Globally, the use of maternal health services is seriously skewed, and according to global reports, 300,000 mothers die during childbirth due to complications related to pregnancy. Mothers in low- and middle-income nations are at greater risk than their advanced counterparts because, despite the danger involved, most of them prefer delivering at home. The use of unqualified birth attendants, incomplete ANC visits, low postnatal use, and maternal services, have collectively sustained high neonatal mortality rates, especially in developing nations with differences significant health inequities (WHO, 2007).

According to Sheffel *et al.* (2018), maternal health is useful not only in evaluating the health status of mothers but also in evaluating the availability, adequacy, and efficacy of the health service system of a country. However, evaluating progress towards this goal remains a significant challenge due to the lack of appropriate data. Of the 18 nations reported in 2013, Africa accounted for 63% of maternal deaths globally (with MMR above 500), and 16 of them coming from Africa (Azaare *et al.*, 2020). These fatalities were associated with a few variables from social financial variables, such as income levels and place of residence, either urban or rural areas, gender inequality, absence of qualified birth attendance, elevated teenage birth rates, and absence of access to contraception. Mothers in developing nations generally have

more pregnancies than females in developed countries, which puts mothers in developing countries at higher risk of death due to pregnancy compared to their counterparts in advanced nations (Alkema *et al.*, 2015).

The world is short of a 75% reduction in the proportion of maternal mortality (MMR), and in 2005-2013 the rate of decline was faster than in 1990-2005. Overall, maternal deaths have dropped significantly – from an estimated 523,000 fatalities in 1990 to 289,000 fatalities in 2013. From 380 maternal fatalities per 100,000 live births in 1990 to 210 in 2013, global MMR dropped by 45%, leading to an average annual decrease of 2.6%. Between 2005 and 2013, the global MMR annual decline (3.3%) was quicker than the 1990-2005 decline (2.2%). Between 1990 and 2013, all areas except North America encountered a decrease in MMR, the largest decrease in Europe (66%), followed by Asia (59%), Oceania (48%), Africa (47%), and the Caribbean (UN, 2014).

Previous population estimates in Kenya showed a significant drop in maternal mortality from 488 fatalities per 100,000 to 362 fatalities per 100,000 individuals (KNBS, 2014). These household survey statistics performed every ten years contradict World Bank-cited figures, estimated at 510 fatalities per 100,000. A sharp contrast underlines the importance of having up-to-date surveillance systems in such vital statistics.

2.3.1 Antenatal Care Utilization

Population and health statistics from Kenya for 2014 indicate that at least 94% of females of reproductive age (15-49 years) received skilled antenatal care, at least 97% of the same category received qualified antenatal care across Kenya, except North-Eastern region. While the involvement in the ANC was quite big, the average timing and number of ANCs were quite large. Data indicates that 2-3 visits were made by at least 34% of mothers; a little over half (57.8%) produced at least four visits as suggested by the WHO. Again, the North-East province had the smallest 36.8% (KNBS, 2014). Furthermore, multiple cluster study findings from Kakamega County show that only 38.6% of females made approximately 4 antenatal visits (KNBS, 2016).

2.3.2 Skilled and Unskilled Deliveries

The likelihood of maternal and child death is reduced by obstetric care from an experienced and qualified doctor. A comprehensive evaluation of demographic study data demonstrates a growing trend in the application of qualified deliveries from 44% in 2008-09 to 62% in 2014. The study also adds that in rural regions, there are qualified deliveries. According to multiple indicator cluster research carried out in 2013/2014, only 53.4% of mothers surveyed in the Kakamega county received skilled birth deliveries (KNBS, 2016).

2.3.3 Post-natal Care Utilization

Post-natal care is essential for mother and infant health. Unfortunately, its significance is often overlooked. As such, during this era, most maternal and infant mortality happen. Typically, post-natal care would include iron and folate supplementation, screening and potential infection treatment, hemorrhage, including but not limited to post-natal stress. Mothers are suggested to make at least 4 post-natal visits in the first 6 weeks. Full clinical examination within one hour of childbirth should also be conducted (WHO, 2013).

The level of use of post-natal care has increased over the past five years. Recent KDHS (KNBS, 2014) data suggests that more than half (53%) of mothers surveyed received post-natal services within the suggested 48 hours of delivery. Approximately 49% of Post-natal care is obtained in this group by a doctor, nurse, or midwife; a slight increase of 12 percentage points (Statistics, 2008-09). A decreased proportion of post-natal care timing was revealed. However, only 38% of mothers received postnatal care within 4 hours of delivery and another 9% and 6% received care between 4-23 hours and 1-2 days respectively. Results from the research indicate a 10 percent reduction in the role of post-natal care TBAs. A recent multi-cluster indicator study in Kakamega district states that, at health facilities, less than four-fifth (79%) of mothers received post-natal care. A recent cross-sectional study in Kitui County found that two days after delivery, only 46% of females in the study sought post-partum care. The survey's regression analysis showed that level (Nzioki *et al.*, 2015).

2.3.4 Maternal Health as a Human Right

The Kenyan Constitution, 2010 recognizes reproductive health as a human right by providing Article 43(1)(a) which categorically states that' Every person has the right to the highest achievable standard of health, including maternal health as a component of reproductive health. 'The Kenya National Patients Right Charter 2013 aims to teach the rights and responsibilities of customers to empower reproductive health. The charter includes 14 patient/customer privileges in all facilities, including the right to emergency care (MOH, 2013a).

Kenya has implemented laws to protect sexual and reproductive health. Globally, the 2001 Abuja Declaration says that at least 15 percent of the national health care budget is allocated to the Member States. Adequate budget allocation encourages equitable and accessible maternal health provision. Unfortunately, most countries have not met the expectations of healthcare financing, according to reports (WHO, 2011). Following the Abuja Declaration, the 2003 Maputo Protocol campaigned for the Member States to improve health facilities to provide quality, availability, and equity in pre-natal and post-natal health services (WHO, 2011). In addition, most recently in 2010, Kenya signed up and launched the Accelerated Maternal Mortality Reduction Campaign *"No female should die while providing life! In reaction"* (CARMMA, 2010)**.** In all public health facilities and initiatives such as beyond zero, the state of Kenya has introduced maternal facilities to enhance access to maternal health for its citizens.

2.4 Maternal Health Service Utilization as a Health-seeking Behavior

There is an increasing concern today about how health can be improved and promoted. There is a lot of effort to alter behavior; with a lot of focus on preventive behavior, such as smoking campaigns, excision, healthy nutrition, secure sexual encounters, among others (Poortaghi *et al.*, 2015). Many theories put forward can describe health-seeking behavior, the Health Belief Model is one of the widely used conceptual frameworks for understanding health-seeking behavior. Other frameworks often implemented include the Theory of Planned Behaviour (Azjen,1988) and the Theory of Reasoned Action (Fishbein and Ajzen, 1975). In pursuing health care, the behavioral model of Anderson delineates three determinants; predisposing factors, allowing factors, and need (Qureshi *et al.*, 2016).

A qualitative study in rural India revealed that only when experiencing severe headache bouts of vertigo and high blood pressure did a large proportion of mothers visit the doctor, compounded by other factors such as cost, spousal preference, and distance to health care facilities, as plausible barriers in trying to handle pregnancy complications (Qureshi *et al.*, 2016). In addition, expectant mothers delay seeking complication management during pregnancy because there is a preconceived view that pregnancy is considered a health condition and therefore does not require intervention (Song *et al.*, 2013). Finlayson and Downe (2013) conducted a study of 63 expectant females in a low-income nation investigating data-seeking behavior and results indicate that the research respondents rely on family and close friends as the primary sources of information during their pregnancy.

2.5 Socio-Economic Characteristics and Use of Maternal Health Services

Existing studies have shown that socio-economic characteristics in the quest for maternal health determine or influence mothers' behavior. For instance, a study in rural Egypt claims that it is crucial to investigate ways in which these socio-economic factors impact health outcomes to create effective alternatives and interventions to mitigate inequities, especially in maternal health care (Benova *et al.*, 2014). High rates of maternal and infant mortality in Kenya are highly attributable to socio-economic inequalities in education, earnings, employment status, and place of home. Levels of education determine the ability to understand fresh data, learn and enhance cognitive abilities. As such, it affects decisions that are vital to health-seeking behavior. Employment and earnings are strongly correlated with the status of education. Household assets were used to determine the wealth index of families as a proximate socio-economic measure.

A systematic review of Chinese domestic health and population survey data revealed that 2.86% of educated mothers were more likely to get skilled birth attendance than with limited or educational attendance. The research also discovered that those with high school and higher education in two unnamed provinces were more likely to receive antenatal care as stated by (Yuan *et al.*, 2013). A study on the implications for maternal health service utilization in developing countries argues that the understanding of life-threatening obstetric complications of an expectant woman is a result of lack of or restricted education. As a result, a less educated

mother's decision-making is inhibited causing her medical attention delay (Ahmed *et al.*, 2010). The MDG 1 aimed to eliminate poverty in families; improving the rates of literacy was essential as a solution to eradicate poverty. The MDG 2 is directed at attaining universal primary education in this respect. Recent reports on girls' schooling in Africa show that girls' schooling has beneficial health results; enhanced maternal results, enhanced dietary status, decreased incidence of child mortality, and other social factors (Gitobu *et al.,* 2018).

2.6 Health Facility & System Attributes and Utilization of Maternal Health Services

2.6.1 Availability & Access to Health Facilities

Health access features such as distance to health services, cost, and accessibility of transportation determine the amount of consumption. Contextually, the use of maternal health services in urban and rural areas becomes skewed (Alcock *et al.*, 2015). In Laikipia County, Kenya, for instance, distance to healthcare and accessibility to transport was established as an obstacle to the use of skilled birth attendance (Caulfield *et al.*, 2016). Emergency obstetric care is impaired due to long distances to health care centers, leading to unwanted maternal results. Furthermore, expectant mothers residing in rural areas are more likely to pay for transport than those residing in urban areas.

The service availability and readiness assessment mapping research in Kenya disclosed the percentage of infrastructure and staff per 10,000 residents in all counties. National survey statistics showed that the density of the domestic average amount of facilities per 10,000 populations was 2.04 per 10,000 populations. When disaggregated by counties, the counties of Bungoma and Mombasa had the lowest density of facilities with < 1 per 10,000 and > 3.5 per 10,000 respectively. Kakamega County, this research's study region had an installation density of nearly 1.8 per 10,000. It was revealed that Kakamega County had a ratio of 12.6 per 10,000 (MOH, 2013b). From a hypothetical view, a higher density of facilities per population would be expected to be fully equipped to provide maternal health services as county governments are now fully operational.

2.6.2 Availability of adequate staff in Health-Facilities

Ordinarily, health service delivery is a barrier that affects the use of maternal health services. The quality of service rendered is affected to some extent by insufficient or excess service delivery factors. Moreover, despite health services accessibility, most low-income countries (including Kenya) often face human resource health challenges. In some instances, literature shows either a handful is skilled or there is no adequate number of staff. The situation is further exacerbated by the lack of health service delivery and facilities for providing healthcare to customers (Ayanore *et al.*, 2016).

A study on human resources for health issues portrayed disparities across several personnel cadres, where the physician-population ratio, for instance, was 1 per 10,000 population, nurses were 3 per 10,000 clinical officers, 1 per 10,000 population (MOH, 2013b). It has been shown that the gender of health care workers in health centers affects full ANC visits, the use of skilled services, and post-natal services. For instance, expectant mothers in the rural Islamic community in Bangladesh preferred TBAs because they did not want male doctors to attend to them, during delivery, post-natal care as well as ANC visits(Sarker *et al.*, 2016). The expectant rural mothers of Lao people in the Democratic Republic showed similar outcomes (Sychareun, 2012) and pastoral rural mothers in Kenya (Nnebue *et al.*, 2014).

2.7 Perceptions and Maternal Health Utilization

2.7.1 Perceived Staff Attitudes, Quality of Healthcare and Use of Maternal Health Services

Health care quality in the context of maternal health is defined as the degree to which maternal health services for people and groups enhance the likelihood of prompt and appropriate treatment to obtain necessary outcomes that are both consistent with current professional knowledge and retain basic reproductive freedoms (Hulton *et al.*, 2000). This definition describes two aspects, the delivery of service and the quality of the scheme. A correlation has been shown in current studies between run-away maternal mortality and the quality of care provided to expectant mothers and kids. A systematic assessment of the maternal provider claims that a client evaluates the quality of care based on clinical efficiency, efficacy, and safety. As such, care providers' attitudes and behaviors affect the perception of the patients. As

a consequence, incomplete ANC and postnatal visits are becoming alarming and the use of TBAs is steadily rising. (Mannava *et al.*, 2015).

A qualitative study in the rural Gambia discovered that expectant females made only one ANC visit for prenatal evaluation due to poor interpersonal skills and conduct to be admitted at the time of delivery (Cham *et al.*, 2005). Understanding the perceptions of customers about healthcare provides provision as a measure of healthcare quality. Furthermore, deficiencies can be recognized quickly within the health system. This can be accomplished from a cultural view through objective or subjective evaluation. Nigeria's cross-sectional study found that females using maternity facilities expressed elevated rates of satisfaction with the quality of services they received. Most of them (85%) were happy with the attitude of healthcare employees during healthcare provision. The research also disclosed that young females had greater expectations of health care delivery compared to elderly females. Mothers with decreased educational status demonstrated poor attitudes towards accessibility of health care, while those with higher education levels were dissatisfied with the cost of anti-natal and post-natal care (Emelumadu *et al.*, 2014).

2.7.2 Perceived Male Involvement and Use of Maternal Health Services

A qualitative study in rural Ethiopia found that male involvement had a significant impact on the use of antenatal, birth delivery, and post-natal care services. Themed evaluation shows that the use of maternal health services was anchored in the husband's decision-making process; this impacted a substantial proportion of mothers. This finding highlights socio-cultural dimensions in our societies where patriarchal societies in Africa limited mothers' decision-making process. Ahmed *et al.* (2010) agrees that females are less probable to use maternal health facilities in polygamous marriages than females in monogamous marriages.

The reduction of maternal morbidity and mortality was ascribed to masculine participation in problems related to reproductive health. In African cultures, reproductive health problems surrounding childbirth largely depend on the mothers (Alcock *et al.*, 2015; Lusambili *et al.*, 2020). There is a paradigm shift in reproductive health issues to alter masculine perceptions. Recent changes to reproductive health and child support laws in a host of African countries

(including Kenya) could be one of the possible factors. A study at Coast General Hospital in Mombasa claims that masculine involvement in the use of maternal health services promotes partner safety during and after pregnancy. A cross-sectional study in a coastal city in Kenya found that in place of delivery, only 40.6% of females engaged their partners. The research also found that males showed the adverse perception of Antenatal visits and post-natal checks in the research (Onchong'a *et al.*, 2016). Similarly, a study among mothers in Ethiopia showed that approximately 90% of male partners were actively involved in the use of ANC, the delivery location, and the use of post-natal facilities (Lingerih *et al.*).

A qualitative study of Maasai mothers in Kenya disclosed adverse perceptions of males during pregnancy participation (Wamucii, 2018) thus they rarely offer adequate support to their women counterparts. Findings from the research indicated that male health care workers in health care facilities were less likely to attend to expectant mothers owing to cultural impact. The idea that childbirth is just a matter for mothers has been created by cultural influence. As such, male partners would stay away until the birth cycle ends. It is therefore vital to change the perceptions of expectant mothers by empowering them through tailor-made access to education (Caulfield *et al.*, 2016). This promotes the full use of antenatal services hence the use of skilled birth participation and post-natal services.

2.8 Conceptual Framework

A conceptual structure is an empirical tool used to obtain an understanding of a phenomenon in its entirety. This may be used in many fields of study and is most widely used to describe the main concepts or variables and the relationships to be explored between them.

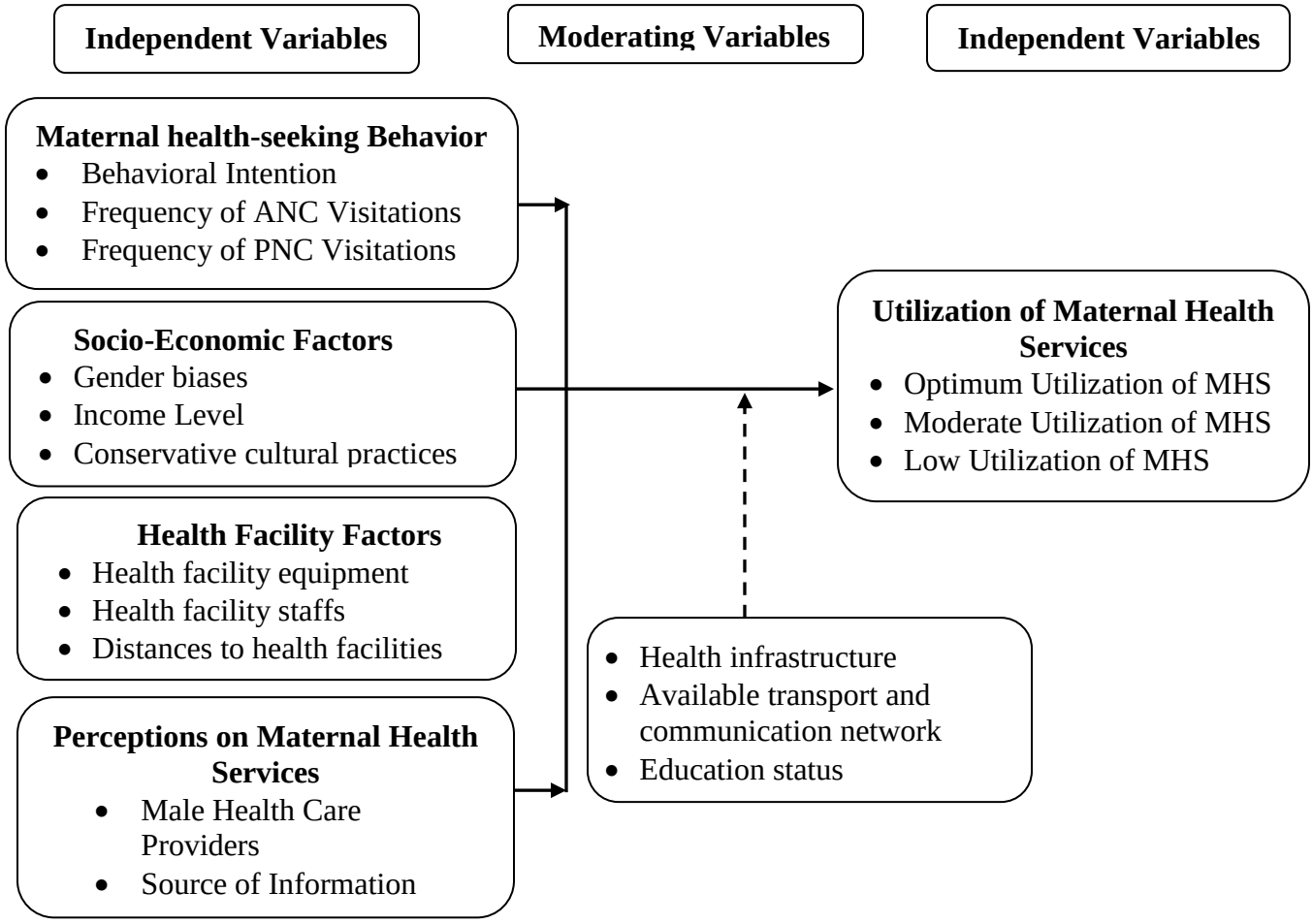

Figure 1: Conceptual Framework (Source: Author)

CHAPTER THREE: METHODOLOGY

3.1 Study Design

This study used a descriptive cross-sectional design, where pregnant mothers and health care providers working within the selected public health facilities in Malava Sub-county were participants.

3.2 Study Area

This research was carried out in Malava sub-county in Kakamega County, western Kenya. It has 12 sub-counties and 60 wards, and it covers an area of approximately 3050.3 km2. Kakamega County has an estimated population of 1,660,651; the estimated 2017 population is 2,028,324. Kakamega County borders South Vihiga, North East Uasin Gishu and East Nandi County, West Busia and Siaya County, North Bungoma and Trans Nzoia. The county has an area of approximately 3050.3 km2. Administratively, the county has twelve sub-counties with 60 wards and 405,665 households (KNBS, 2014).

3.3 Study Population

The study targeted a population consisting of 8,786 pregnant mothers obtained from 2018 KDHS data set and 12 health care providers from the selected public health facilities in Malava Sub County that offer antenatal clinic, delivery, and post-natal care services.

3.4 Sampling Size Determination

It was predicted that the population would not exceed 10,000 hence Fisher et al. (1998) formulae were used to derive the sample size needed.

$$n = \frac{Z_{\alpha/2}{}^2 p(1-p)}{e^2}$$

Where:

n= Desired sample size

$\mathbf{Z_a}$= represents the desired level of statistical significance (typically 1.96 for 95 percent).

p= proportion of women who delivered at health facility (26.7%)

e= error margin (5%)

$$\mathbf{n} = \frac{1.96^2 * 0.2(1-0.47)}{(0.05^2)}$$

n= 300.74 = 301 participants

3.5 Sampling Technique

Mothers visiting the antenatal hospital, labor and delivery, and postnatal mothers were selected by systematic random sampling, after stratification by nature of clinic (here above listed). Mothers were sampled by choosing customers who left the service delivery space on the day of the interview or were about to leave. The estimated number of mothers selected and interviewed in each facility was calculated based on the average number of customers seen over the past seven days.

Qualitative data analysis includes the exploration of general statements on the topic of the study as revealed in the information collected from interviewing participants (Peterson, 2019). Participants were chosen from the key informants (Doctors, Clinical Officers, and Nurses) with an interview conducted with 12 participants. The researcher conducted a total of 12 interviews to obtain qualitative information that was used in a triangulation of the data to develop a comprehensive understanding of the phenomena of the study. This helped in terms of giving feedback on areas that need improvement in the uptake of maternal health care in Malava Sub-county Kakamega County,.

3.6 Exclusion and Inclusion Criteria

3.6.1 Inclusion Criteria

1. Pregnant mothers who delivered in a government hospital within three months was included in Study
2. Pregnant mothers who delivered in a government facility within three mothers and gave informed permission was included in the research

3.6.2 Exclusion Criteria

1. The research excluded pregnant mothers who in the opinion of the healthcare workers were not psychologically stable to respond to the questionnaire
2. Pregnant mothers who declined to give informed permission were also excluded

3.7 Data collection Technique and Tools

Semi-structured Questionnaires were designed and used in Malava Sub County to collect primary data from pregnant women who were seeking maternal health services from public health facilities within the study area. The questionnaire was closed-ended and allowed respondents to choose one alternative. The questions used in the analysis were streamlined and built explicitly for easy comprehension by respondents. The study used this approach because it allowed the respondents to remain anonymous, which, in addition to providing first-hand information, also helped to increase the response rate. However, qualitative data were collected by the use of interview schedules. An oral interview was administered by an interviewer and two trained research assistants.

3.8 Validity and Reliability

3.8.1 Validity

The accuracy with which a method measures what it is intended to measure is referred to as its validity. If research has high validity, it produces results that correspond to real variables' relationships. One sign that measurement is valid is high reliability.

To address the issue of the validity of the instruments, separate data collection instruments were tailor-made to suit the various categories of respondents. In addition, the instruments were shared with experts including supervisors for review before data collection.

3.8.2 Reliability

This is a measure of internal consistency, or how closely related a group of items is. It is regarded as a scale reliability metric. Cronbach's alpha (α) is commonly used to assess internal consistency. Cronbach's Alpha has a value between 0 and 1, with higher values indicating greater internal consistency and, ultimately, reliability. A Cronbach alpha of 0.7 was used as a cut-off point, and since the pre-test here yielded $\alpha = 0.781$, the tool was deemed reliable, with minor adjustments before data collection.

3.9 Data Analysis

Using SPSS version 23, quantitative data from questionnaires were coded, entered, cleaned, and analyzed. Descriptive statistics were used to summarize the data, presented as frequencies and percentages, while inferential analysis was performed to assess the relationship between variables relating to socio-economic, cultural, and health facilities and the uptake of maternity facilities ($p<0.05$). Thematic analysis was used to analyze qualitative data collected through interviews, and findings were triangulated.

The inferential statistical tests that were performed in this study were correlation and multiple linear regression analysis.

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon$$

Where: Y = Maternal health service uptake

$\beta 0$ = Constant Term.

$\beta 1$, $\beta 2$, $\beta 3$, & $\beta 4$ = Beta coefficients.

X1 = Maternal Health-Seeking Behavior

X2= Socio-Economic Factors

X3 = Health Facility Factors

X4 = Perceptions on Maternal Health Services

ε = Error term assumed normal and, independent and identically distributed.

3.10 Ethical Considerations

Approval for this study was obtained from the Board of Postgraduate Studies JOOUST followed by Jaramogi Odinga Oginga Referral Hospital Ethical Research Ethics Committee. Was followed by the NACOSTI research permit, and authorization to conduct research in Malava Sub-county, as well as permission from the respective hospital management teams. Informed consent was obtained from the hospital administration and before accessing patients' records.

CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter presents the results of the study on the determinants of low maternal health services uptake by expectant mothers in the Malava Sub-county. The four objectives were to establish maternal health-seeking behavior of pregnant mothers, to determine the influence of socio-economic factors on the use of maternal health services, to determine the role of health facility factors on the uptake of maternal services, and to assess the perceptions of expectant mothers on maternal health services in Malava Sub-county.

4.2 Demographic Characteristics of Respondents

The study established that 134 (45.2%) of the 301 participants were aged 15-24 years, followed by 129 (42.9%) of participants who were aged 25-34 years. Majority (252; 83.7%) of the participants were married while (44; 14.6%) of participants were single. Most of the participants (177; 58.8%) got married at (19-26) years. However, a minority of (4; 1.3%) of participants showed that they got married at (27-34) years. Regarding participants' religion, the findings of the study show that almost all the respondents (300; 99.7%) were Christians. Based on the number of children every participant had, more than 50% had 1-3 children: 84 (27.9%) had 1 child, 59 (19.6%) had 2 children and 50 (16.6%) had 3 children each.

Majority (297; 98.7%) of the participants had attained some formal education, with 85 (28.2%) having completed secondary education; 78 (25.9%) had completed primary education, while 39 (13.0%) had attained college or university education, and only 4 (1.3%) had no formal education. Findings of the study indicate that 122 (40.5%) of the participants' spouses had completed secondary education, whereas 11 (3.7%) had no formal education. Concerning the household income, most of the participants 111 (36.9%) earn between 0-2,500 every month followed by 109 (36.2%) of participants who earned KSh 2,501/-- 5,000/- per month.

Table 4.1: Respondents' Demographic Information

Demographic Variables	Responses	Frequency	Percent
Participants' Age (years)	15-24	134	45.2
	25-34	129	42.9
	35-42	36	11.9
	Total (n)	**301**	**100.0**
Marital Status	Divorced	3	1.0
	Married	252	83.7
	Single	44	14.6
	Widowed	2	0.7
	Total (n)	**301**	**100.0**
Age got Married	Singles	44	14.6
	12-18	76	25.3
	19-26	177	58.8
	27-34	4	1.3
	Total (n)	**301**	**100.0**
Religion	Christian	300	99.7
	Other	1	0.3
	Total (n)	**301**	**100.0**
Number of Children	0	52	17.3
	1	84	27.9
	19	1	.3
	2	59	19.6
	20	1	.3
	3	50	16.6
	4	27	9.0
	5	13	4.3
	6	6	2.0
	7	6	2.0
	8	2	.7
	Total (n)	**301**	**100.0**
Highest Level of Education	No formal education	4	1.3
	Primary Incomplete	54	17.9
	Primary Complete	78	25.9
	Secondary Incomplete	41	13.7
	Secondary Complete	85	28.2
	College/University	39	13.0
	Total (n)	**301**	**100.0**
Level of Partner Education	No Formal Education	11	3.7
	Primary Incomplete	48	15.9
	Primary Complete	43	14.3
	Secondary Incomplete	34	11.3
	Secondary Complete	122	40.5
	College/University	43	14.3
	Total (n)	**301**	**100.0**
Household Income in KSh	0-2,500	111	36.9
	2,501- 5,000	109	36.2
	10,001-15,000	67	22.3
	>15,001	14	4.7
	Total (n)	**301**	**100.0**

As shown on Table 4.2, 12 interviews were conducted across the study settings in Malava Sub-County, Kakamega County. A total of 12 health providers (nurses directly involved with maternal health provision) participated in the study: all from. Health providers included those working in the health centers.

Table 4.2: Distribution of Study Participants

Health Facility	Participants	Total
	Healthcare Providers	
Malava County Hospital	4	4 Interviews
Chameli Health Centre	4	4 Interviews
Kuvasali Health Centre	4	4 Interviews
Total	**12**	**12 Interviews**

4.3 Maternal Health Seeking Behaviour

The first objective aimed at establishing maternal health-seeking behavior of pregnant mothers in the Malava sub-county. This was reported under different sub-themes, as presented below.

4.3.1 Antenatal Care

Participants were requested to state how they regarded the antenatal care received by pregnant mothers in the Malava sub-county. Among the 301 participants, 132 (43.9%) made the first antenatal visit during the first trimester (less than 16 weeks pregnant), 104 (34.6%) started when they were 16-24 weeks pregnant, while 17 (5.6%) and 4 (1.3%) of participants were 28-32 weeks and more than 36 weeks pregnant, respectively.

Secondly, the results of the study show the responses of the participants regarding how many antenatal care visits they made in the previous pregnancy. Findings indicate that 44 14.6%), 9 (3.0%), 9 (3.0%) and 30 (10.0%) participants made antenatal care visits 0, 1, 2, and 3 times, respectively. Lastly, findings of the study show that although the majority (85.4%) of the participants had attended antenatal care, the rest of the participants never attended antenatal care due to several reasons. Only 41 (13.7%) of participants were unaware of the places for delivery, while 1 (0.3%) were barred from attending antenatal due to religious beliefs.

However, 2 (0.6%) participants had no reason why they did not attend antenatal care. The responses are summarized in Table 4.3.

Table 4.3: Antenatal Care

Variables	Responses	Frequency	%
Time of first ANC visit in current pregnancy	Never attended ANC	44	14.6
	<16 weeks	132	43.9
	>36weeks	4	1.3
	16-24 weeks	104	34.6
	28-32 weeks	17	5.6
	Total	**301**	**100.0**
ANC visits in previous pregnancy	0	44	14.6
	1	9	3.0
	2	9	3.0
	3	30	10.0
	4	81	26.9
	5	62	20.6
	6	27	9.0
	7	13	4.3
	8	25	8.3
	9	1	.3
	Total	**301**	**100.0**
Reason for non-attendance of ANC	Attended antenatal care	257	85.4
	NA	2	.6
	Lack of awareness	41	13.7
	Religious beliefs	1	.3
	Total	**301**	**100.0**

4.3.2 During Child Birth

Participants were asked to say how they regarded the treatment offered to pregnant mothers in the Malava sub-county during childbirth. Concerning the question, regarding the previous pregnancy, 261 (86.7%) of the participants indicated that they delivered at a government facility whereas 40 (13.3%) did not deliver in a public facility. Results showed that apart from 261 (86.7%) of participants who delivered in the government facilities, other participants delivered at home due to several reasons. However, 18 (5.9%) delivered at home because they were ignorant, 10 (3.2%) had in the previous pregnancies delivered at home 4 children due to

distance to the facility and knowledge gap in health issues, and 2 (0.6%) of participants were advised by the partners to undergo home delivery. However, 1 (0.3%) of the participants delivered at home due to at term, distance, ignorance, illiteracy, religious beliefs, self-choice, lack of electricity at government facilities, that was the first pregnancy and the previous two deliveries at home respectively.

Table 4.4: Place of Delivery

Variables	Responses	Frequency	%
Delivered at a government facility	No	40	13.3
	Yes	261	86.7
	Total	**301**	**100.0**
Reasons for choice of place of delivery	Delivered in Government Facility	261	86.7
	Advised by the partner to undergo home delivery.	2	0.6
	At term	1	0.3
	Distance to the facility and knowledge gap in health issues	10	3.2
	Distance	1	0.3
	Ignorance	1	0.3
	Illiteracy	1	0.3
	NA	1	0.3
	Unaware	18	5.9
	Religious beliefs	1	0.3
	Self	1	0.3
	There was no electricity	1	0.3
	This is the first pregnancy	1	0.3
	Two deliveries at home	1	0.3
	Total	**301**	**100.0**

4.3.3 Post-Natal Care

Results indicated that 77 (25.6%) participants never made post-natal care visits after two weeks of delivery. However, 72 (23.9%), 55 (18.3%), and 40 (13.3%) of participants indicated that they made post-natal care visits 8, 1, and 6 times respectively. In addition, 17 (5.6%), 3 (4.0%), 10 (3.3%) and 10 (3.3%) participants stated that they made post-natal care visits 5, 2, 3 and 7 times respectively. Up to 277 (92.0%) of participants made post-natal care visits in the government health facilities. On the contrary, 24 (8.0%) of participants made post-natal care visits in non-government facilities for various reasons.

Table 4.5: Post-Natal Care

Variables	Responses	Frequency	%
In the previous, pregnancy how many post-natal care visits did you make after two weeks of delivery?	0	77	25.6
	1	55	18.3
	2	12	4.0
	3	10	3.3
	4	3	1.0
	5	17	5.6
	6	40	13.3
	7	10	3.3
	8	72	23.9
	9	2	.7
	10	2	.7
	15	1	.3
	Total	301	100.0
Did post-natal care in the question above done at a government health facility?	No	24	8.0
	Yes	277	92.0
	Total	**301**	**100.0**

The result of the study in table 4.6 indicates that 277 (92.0%) of participants made few post-natal care visits whereas the rest did not completely. Among the participants who did not seek post-natal care, 11 (3.7%) indicated that the reason why they did seek post-natal care was that they were ignorant, (3; 1.0%) of participants said it was because that was their first pregnancy while 6 (2.0%) indicated that they had no reason. However, 1 (0.3%) of participants indicated that they did not seek post-natal care because they had had a fresh stillbirth, due to religious beliefs and because she was still pregnant respectively.

Furthermore, among the participants who visited government facilities before, during delivery, and after delivery, 251 (83.4%) indicated that they were not charged for any services before, during, and after delivery. On contrary, 26 (8.6%) of participants' responses showed that they were charged for services they received at the government facilities they visited.

Table 4.6: Reasons for Not Taking Post-Natal Care

Variables	Responses	Frequency	%
If no in the question above what is the reason for not seeking post-natal care?	Attended post-natal care	277	92.0
	First pregnancy	3	1.0
	Fresh stillbirth	1	.3
	Gravida 1	1	.3
	NA	6	2.0
	Ignorant	11	3.7
	Religious beliefs	1	.3
	Still pregnant	1	.3
	Total	**301**	**100.0**
At the government health facility were you charged for any services before, during delivery, and after delivery?	Never Attended PNC	24	8.0
	No	251	83.4
	Yes	26	8.6
	Total	**301**	**100.0**

4.3.4 Relationship between Maternal health-seeking Behavior and Utilization of Maternal Health Service

This study carried a Pearson correlation test between maternal health-seeking behavior and utilization of maternal health service (Table 4.7). Findings indicate that maternal health-seeking behavior had a weak positive correlation with utilization of maternal health service (r= 0.245).

Table 4.7: Relationship between Maternal health-seeking Behavior and Utilization of Maternal Health Service

Variables		Maternal health-seeking Behavior	Utilization of Maternal Health Service
Maternal health-seeking Behavior	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	301	
Utilization of Maternal Health Services	Pearson Correlation	.245*	1
	Sig. (2-tailed)	.002	
	N	301	301

4.3.5 Health Care Providers in Public Health Facilities

From the qualitative data, the study established that most of the individual-level factors health care providers felt affect mothers' utilization of maternal health care were largely similar to those mentioned by the mothers themselves in the quantitative data. In Malava Sub-county, the factors mentioned by health care providers included a deep sense of trust that their privacy and confidentially would be respected by the health providers, especially for HIV-positive mothers. The following paragraphs present the participants' perceived current status of the level of utilization of maternal health care and the determinants of mothers' utilization of these services.

The interviewed healthcare providers indicated that fewer pregnant mothers or mothers receive the recommended four or more ANC visits. Respondents to some extent associated the great respect for traditional birth attendants to the mothers' ignorance, as some of them were not much aware of skilled birth attendance, and TBAs were regarded as heroines within some communities. Some sentiments were:

"Only a few mothers received the WHO recommended optimal level of four or more ANC visits, births in a health facility, and at least one PNC visit"

Mothers aged less than 20 years, living in a rural area, having no education and media exposure, multiparous, poor wealth status, a husband with no education, and husband's employment status appear more likely to use these services"

"Mothers living in Malava Sub-County were less likely to receive the optimum level health care".

4.4 Socio-Economic Factors

The second objective aimed at determining the influence of socio-economic factors on the use of maternal health services among expectant mothers Malava sub-county. Investigator thus administered questionnaires and the responses were recorded and analyzed as shown below.

4.4.1 Perceptions on Health Facility

The researcher administered questionnaires to determine the extent to which the participants were comfortable being attended to by a male health care worker during antenatal care, during childbirth, and after childbirth. The findings of the study in Table 4.8 show that 145 (48.2%) followed by 126 (41.9%) of participants indicated that they were comfortable and very comfortable in that order with the male health care worker during the antenatal care visits. However, the remaining proportions of the participants 28 (9.3%) were uncomfortable while 2 (0.7%) were extremely uncomfortable with the male health care worker during the antenatal care visits.

Secondly, results show that 167 (55.5%) of participants were just comfortable whereas 114 (37.9%) of participants were very comfortable with the male health care workers during the childbirth visits. On the contrary, 18 (6.0%) of participants were uncomfortable while 2 (0.7%) were very uncomfortable with the male health care workers during the childbirth visits. Lastly, study results indicate that after childbirth, 160 (53.2%) of participants were just comfortable with male health care workers while 126 (41.9%) participants were very comfortable with male health care workers. Amazingly, 13 (4.3%) of participants indicated that they were uncomfortable with the male health care workers after childbirth whereas 2 (0.7%) of participants' responses showed that they were very uncomfortable with male health care workers after childbirth.

Table 4.8: Perceptions on a Male Health Care Worker

Variables	Responses	Frequency	%
	Comfortable	145	48.2
	Extremely uncomfortable	2	.7
Antenatal Care	Uncomfortable	28	9.3
	Very Comfortable	126	41.9
	Total (n)	**301**	**100.0**
	Comfortable	167	55.5
	Extremely uncomfortable	2	.7
During Child Birth	Uncomfortable	18	6.0
	Very Comfortable	114	37.9
	Total (n)	**301**	**100.0**
	Comfortable	160	53.2
	Extremely uncomfortable	2	.7
After Child Birth	Uncomfortable	13	4.3
	Very Comfortable	126	41.9
	Total (n)	**301**	**100.0**

4.4.2 Attitude of Staff at Health-Facilities during Clinic Visits

Table 4.9 shows that 298 (99.0%) of participants indicated that health care staff in the health facilities they visited during antenatal care had a friendly attitude. In contrast, 3 (1.0%) of participants indicated that health care staffs in the health facilities they visited during antenatal care were harsh to them. Secondly, 289 (96.0%) of participants indicated that health care staffs in the health facilities they visited during childbirth were friendly to them. However, 12 (4.0%) of participants showed that during childbirth, the health care staffs they encountered were harsh to them. Up to 296 (98.3%) of participants observed that after birth, the health care staff they encountered were friendly whereas 5 (1.7%) of participants indicated that health care staff who attend to them after childbirth were not competent.

Table 4.9: Attitude of Staff

Variables	Responses	Frequency	%
	Friendly	298	99.0
Antenatal Care	Harsh	3	1.0
	Total (n)	**301**	**100.0**
	Friendly	289	96.0
During Child Birth	Harsh	12	4.0
	Total (n)	**301**	**100.0**
	Friendly	296	98.3
After Child Birth	Ignorant	5	1.7
	Total (n)	**301**	**100.0**

4.4.3 Socioeconomic Factors and Utilization of Maternal Health Service

Pearson correlation analysis was done to determine the relationship between socio-economic factors and utilization of maternal health service. A correlation coefficient value (r) in the range of 0.1 to 0.29 is considered weak, 0.3 to 0.49 is considered moderate while 0.5 to 1.0 is considered strong. Table below indicate that participants who were comfortable being attended to by a male healthcare provider had high positive correlation with utilization of maternal health service (r= 0.515).

Table 4.10: Relationship between Socioeconomic Factors and Utilization of Maternal Health Service

Variables		Comfortable being attended to male healthcare provider	Utilization of Maternal Health Service
Comfortable being attended to male healthcare provider	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	301	
Utilization of Maternal Health Services	Pearson Correlation	.515*	1
	Sig. (2-tailed)	.005	
	N	301	301

4.4.4 Health Care Providers in Public Health Facilities

From the qualitative data, the study was established that the concern of all maternal health stakeholders was to improve maternal health and reduce maternal deaths to the barest minimum. This remains elusive in low and middle-income countries as the majority of factors

that drive maternal deaths to stem from the socio-cultural environment especially in rural areas, such as Malava Sub County.

Barriers mentioned by Health Care Providers in Malava were ignorance of the importance of these services, lack of money for transport, in some areas confidence in traditional birth attendants to undertake home deliveries, and personal religious convictions.

> *"In this area, residents have low income which is a contributing factor for low uptake of maternal health. Sometimes, even getting their transport fare to the facility is a problem," Health Provider, IDI, Malava County Hospital.*

4.5 Health Facility Factors and Uptake of Maternal Service

The third objective aimed at determining the role of health facility factors on the uptake of maternal services in Malava Sub County. Results in Table 4.11 gave the responses of participants concerning the role of health facility factors on the uptake of maternal services in Malava Sub County. Findings indicate that 162 (53.8%) of participants lived more than 1hr walk to a government-owned health facility, 112 (37.2%) of participants lived at a distance of 30 minutes to 1-hour walk from a government-owned health facility. However, 27 (9.0%) of participants indicated that they lived at a distance of fewer than 30 minutes' walk from the government-owned facility.

Secondly, study findings showed that 162 (53.8%) participants indicated that the facility level nearest to their home was health center, followed by 77 (25.6%) of participants who indicated that the facility level nearest to their homes was a dispensary and lastly 62 (20.6%) of participants indicated that facility-level nearest to their home was a Sub County hospital. Thirdly, study results showed that 297 (98.7%) of participants agreed that health facilities provided them with sufficient privacy whenever they were seeking health care while 4 (1.3%) of participants said that the health facility did not provide sufficient privacy whenever they were seeking health care. Furthermore, findings of the study show that during antenatal care, 245 (81.4%), 51 (16.9%), and 5 (1.7%) of participants could take more than 1hr, 30 min. to 1 hour, and less than 30 min respectively to access health care facility. However, 260 (86.4%),

21 (7.0%), and 20 (6.6%) of participants indicated that it could take more than 1hr, 30 min. to 1 hour, and less than 30 min respectively to reach a nearby health care facility. Lastly, the findings of the study show that 234 (77.7%), 52 (17.3%), and 15 (5.0%) of participants showed that after child birth, they took more than 1hr, 30 min. to 1 hour, and less than 30 min to reach a nearby health care facility.

Table 4.11: Health Facility Attributes

Variables	Responses	Frequency	Percent
How far do you live from a government-owned health facility?	30 min. to 1 hour	112	37.2
	More than 1hr	162	53.8
	Less than 30 min	27	9.0
	Total (n)	**301**	**100.0**
Facility Level nearest to your home?	Dispensary	77	25.6
	Health center	162	53.8
	Sub County Hospital	62	20.6
	Total (n)	**301**	**100.0**
Does the health facility provide sufficient privacy when seeking health care?	No	4	1.3
	Yes	297	98.7
	Total (n)	**301**	**100.0**
Antenatal Care	30 min. to 1 hour	51	16.9
	More than 1hr	245	81.4
	Less than 30 min	5	1.7
	Total (n)	**301**	**100.0**
During Child Birth	30 min. to 1 hour	21	7.0
	More than 1hr	260	86.4
	Less than 30 min	20	6.6
	Total (n)	**301**	**100.0**
After Child Birth	30 min. to 1 hour	52	17.3
	More than 1hr	234	77.7
	Less than 30 min	15	5.0
	Total (n)	**301**	**100.0**

4.5.1 Relationship between Health Facility Factors and Utilization of Maternal Health Service

The study carried a Pearson correlation test between health facility factors and utilization of maternal health service (Table 4.12). Findings in Table 4.12 indicate that distance to health facilities had strong positive correlation to utilization of maternal health service (r= 0.525). However, privacy to the patients at the healthcare facilities had a moderate positive correlation with utilization of maternal health service (r= 0.465).

Table 4.12: Relationship between Health Facility Factors and Utilization of Maternal Health Service

Variables		Distance	Privacy	Utilization of Maternal Health Service
Distance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	301		
Privacy	Pearson Correlation	.465*	1	
	Sig. (2-tailed)	.002		
	N	301	301	
Utilization of Maternal Health Services	Pearson Correlation	.525*	.413*	1
	Sig. (2-tailed)	.006	.001	
	N	301	301	301

4.5.2 Health Care Providers in Public Health Facilities

Based on health facility factors influencing the uptake of maternal services, the study established that poor or low uptake of maternal health care among pregnant mothers is influenced by several factors. These include inadequate, ill-equipped, and poorly staffed health facilities; long distances to health facilities; conservative cultural practices; and gender biases.

According to health care providers, the desire to ensure that the newborn was registered and granted a birth certificate was perceived to be a reason for some mothers to seek maternal healthcare under the new targeted healthcare policy for facility delivery. Normally, the birth notification document that is required to make a birth certificate is provided at the facility after delivery, hence mothers who do not deliver at the facility often struggle to have a birth certificate issued for their newborn.

> *"The reason why some mothers are motivated to visit the health facility when pregnant is that they are afraid of delivering at home. When you deliver at home, their babies are not registered," Health Care Provider, IDI, Kuvasali Health Centre.*

4.6 Perceptions of Expectant Mothers on Maternal Health Services

The fourth objective aimed at assessing the perceptions of pregnant mothers on maternal health services in Malava Sub County. Investigator thus administered questionnaires and the responses were recorded and analyzed as shown below.

4.6.1 Factors considered when seeking maternal health services

To determine health experiences of the participants, the researcher administered questionnaires structured in a manner to help obtain views of participants on what they consider while seeking health care. Based on the health-seeking behaviors of the participants, results in Table 4.13 show that 244 (81.1%) of participants do not own any form of health insurance, which is private or public cover while only 57 (18.9%) indicated that they have health insurance cover. Concerning any complications experienced in current pregnancy 263 (87.4%) of participants indicated that they had not had any complications in their current pregnancy whereas only 38 (12.6%) said that they had complications in their current pregnancy. However, among the participants who had complications during their current pregnancies, 37 (12.3%) sought medical assistance while 1 (0.3%) administered self-medication. Based on the question of whether respondents had been asked to pay for any amount during medication, 298 (99.0%) indicated they had not been asked to make any payment while 3 (1.0%) indicated that they had been asked to make some payment. With regards to the question on who decides for participants to seek maternal health care in their households, 239 (79.4%) make decisions on their own whereas 31 (10.3%) of participants depend on their husbands to make for them decisions. However, 31 (10.3%) of participants' decision to seek maternal health care is determined by others apart from self and partner.

Table 4.13: Factors Considered In Health-Seeking

Variables	Responses	Frequency	Percent
Own health insurance Private or Public cover	No	244	81.1
	Yes	57	18.9
	Total (n)	**301**	**100.0**
Experienced complications with current pregnancy	No	263	87.4
	Yes	38	12.6
	Total (n)	**301**	**100.0**
Managing complication	No Response	263	87.4
	Self-medication	1	.3
	Sought Medical assistance	37	12.3
	Total (n)	**301**	**100.0**
Asked to pay for any amount during visits	No	298	99.0
	Yes	3	1.0
	Total (n)	**301**	**100.0**
Decision maker on maternal health care seeking	Husband/Partner	31	10.3
	Make own Decision	239	79.4
	Others Specify	31	10.3
	Total (n)	**301**	**100.0**

4.6.2 Source of Information on Services Provided in the Facility

Regarding the sources of information on services provided in the facility visited by the participants, findings of the study in Table 4.14 showed that the majority 82 (27.2%) obtained information from health care providers followed by 72 (23.9%) who obtained information from mass media and thirdly 59 (19.6%) who obtained information from community health volunteers. Moreover, 22 (7.3%), 10 (3.3%), and 8 (2.7%) of participants indicated that they obtained information from pinned posters, facility/community outreaches, and barazas respectively. However, 48 (15.9%) of participants did not specify from where they obtain information on the services provided in the facility.

Table 4.14: Source of Information on Services Provided in the Facility

Variables	Responses	Frequency	Percent
Source of information on services provided in the facility visited	Barazas	8	2.7
	Community Health Volunteer	59	19.6
	Facility/community Outreaches	10	3.3
	Health care provider	82	27.2
	Mass Media	72	23.9
	Others Specify	48	15.9
	Posters	22	7.3
	Total (n)	**301**	**100.0**

4.6.3 Satisfaction with the Overall Services you received

In response to the question on satisfaction with the overall services you received from the facility, 297 (98.7%) of participants indicated that they were satisfied with the overall services during antenatal care whereas 4 (1.3%) of participants were somewhat satisfied. Furthermore, the majority (280; 93.0%) of the respondents indicated that they were satisfied with the overall service during childbirth. However, 13 (4.3%) of participants did not give their responses while only 8 (2.7%) of participants were somewhat satisfied with the overall services during childbirth. Lastly, responses show that 93.0% of participants were satisfied, 1 (0.3%) were not satisfied whereas 8 (2.7%) of participants were somewhat satisfied with the overall service after child birth. However, the rest of the participants 12 (4.0%) did not give their responses regarding their level of satisfaction with the overall services after childbirth.

Table 4.15: Satisfaction with the Overall Services at Health Care Facility

Variables	Responses	Frequency	Percent
Antenatal Care	Satisfied	297	98.7
	Somewhat satisfied	4	1.3
	Total	**301**	**100.0**
During Child Birth	No Answer	13	4.3
	Satisfied	280	93.0
	Somewhat satisfied	8	2.7
	Total	**301**	**100.0**
After Child Birth	Dissatisfied	1	.3
	No Answer	12	4.0
	Satisfied	280	93.0
	Somewhat satisfied	8	2.7
	Total	**301**	**100.0**

4.6.5 Were you satisfied with the way the health provider treated you?

Concerning how the participants were satisfied with how they were treated by health providers, 298 (99.0%) of participants showed that they were satisfied with the health provider treatment during antenatal care while 3 (1.0%) was somewhat satisfied with the health provider treatment during antenatal care. However, most of the respondents 280 (93.0%) indicated that they were satisfied with the treatment they received during childbirth from the health providers. In addition, 15 (5.0%) of respondents did not give their responses while only 6 (2.0%) of respondents were somewhat satisfied with the treatment offered to them by health providers. Responses showed that 280 (93.0%) of participants were satisfied with the treatment they received from health providers after childbirth whereas 7 (2.3%) of participants were somewhat satisfied. However, the rest of the participants (14; 4.7%) did not give their responses regarding their level of satisfaction from health providers' treatment.

Table 4.16: Satisfaction with Health Care Services

Variables	Responses	Frequency	Percent
	Satisfied	298	99.0
Antenatal Care	Somewhat satisfied	3	1.0
	Total (n)	**301**	**100.0**
	No response	15	5.0
	Satisfied	280	93.0
During Child Birth	Somewhat satisfied	6	2.0
	Total (n)	**301**	**100.0**
	No response	14	4.7
	Satisfied	280	93.0
After Child Birth	Somewhat satisfied	7	2.3
	Total (n)	**301**	**100.0**

4.6.6 Satisfaction with the Other Staff's Services

Responses in Table 4.17 indicate that apart from the health provider, the respondents' level of satisfaction during the treatment was as follows. Almost all of the respondents (298; 99.0%) were somewhat satisfied with the antenatal care they received while 2 (0.7%) was satisfied with the antenatal care they received whereas 1 (0.3%) respondent did not give her response.

In addition, the majority of the respondents (282; 93.7%) indicated that they were somewhat satisfied with the treatment they received during childbirth. However, (15; 5.0%) of respondents did not give their responses while only (4: 1.3%) of respondents were just satisfied.

Lastly, responses show that (283; 94.0%) of participants were somewhat satisfied with how they were treated after childbirth whereas (4; 1.3%) of participants were satisfied. However, the rest of the participants (14; 4.7%) did not give their responses.

Table 4.17: Satisfaction with the Other Staff's Services

Variables	Responses	Frequency	%
Antenatal Care	No Answer	1	.3
	Somewhat satisfied	298	99.0
	Satisfied	2	.7
	Total (n)	**301**	**100.0**
	No Answer	15	5.0
	Somewhat satisfied	282	93.7
During Child Birth	Satisfied	4	1.3
	Total (n)	**301**	**100.0**
	No Answer	14	4.7
	Somewhat satisfied	283	94.0
After Child Birth	Satisfied	4	1.3
	Total (n)	**301**	**100.0**

4.6.7 Relationship between Perceptions on Maternal Health Services and Utilization of Maternal Health Service

A correlation coefficient enables the researcher to quantify the strength of the linear relationship between two or numerical variables. This study carried a Pearson correlation test between Satisfaction with healthcare services and utilization of maternal health service (Table 4.18). Findings in Table 4.18 indicate that Satisfaction with healthcare services and utilization of maternal health service had moderate positive correlation (r= 0.411), Satisfaction with other staffs is positively correlated with utilization of maternal health service (r=.512).

Table 4.18: Relationship between Perceptions on Maternal Health Services and Utilization of Maternal Health Service

Variables		Satisfaction with healthcare services	Satisfaction with other staffs	Utilization of Maternal Health Service
Satisfaction with healthcare services	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	301		
Satisfaction with other staffs	Pearson Correlation	0.387*	1	
	Sig. (2-tailed)	0.001		
	N	301	301	
Utilization of Maternal Health Services	Pearson Correlation	0.411*	0.512	1
	Sig. (2-tailed)	0.001	<0.001	
	N	301	301	301

4.6.8 Health Care Providers in Public Health Facilities

Furthermore, interview results show that the most common socio-cultural factors raised across the study sites were poverty, community and male-partner perceptions on maternal health care. Most of the socio-cultural level factors mentioned by healthcare providers were also emphasized by the mothers' respondents. Factors that were only mentioned by the healthcare providers in Malava Sub-County included great respect for and availability of traditional birth attendants (TBAs) to undertake deliveries in some rural areas; and cultural perception of pregnancy as a normal condition that may discourage some mothers from seeking ANC and facility delivery services. In some settings, pregnant mothers who regularly attended ANC sessions were perceived as '*not strong enough*.

> *"People think that when you are pregnant it is a normal condition and you do not have to go to the health facility. They feel that when you go there you are a coward." Healthcare Provider, IDI, – Malava Sub-County*

"There are some men who do not believe the maternal health care uptake because they think that traditional methods are sufficient for their mothers" Health Care Provider, IDI – Kasavali Health Centre.

"The main barriers to the uptake of maternal healthcare in Malava Sub County were linked to strong male-partner opposition," Health Care Provider, IDI–Chombeli Health Centre.

The respondents also indicated that a cultural practice of concealing a pregnancy for the first trimester was a major barrier to early ANC service uptake. This is a practice that is not only limited to uneducated mothers in rural areas but also common among educated mothers in the cities. Lastly, the occasional financial costs incurred by mothers to travel to the facility also discouraged some mothers from seeking maternal services.

4.7 Inferential analysis

4.7.1 Regression Analysis

Table 4.19: Multiple Regression Analysis Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.833[a]	0.694	0.659	0.039

a. Predictors: (Constant), Maternal health-seeking Behavior, Socio-Economic Factors Health Facility Factors, Perceptions on Maternal Health Services

ANOVA for All Variables

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.298	1	0.232	0.312	0.001[b]
Residual	29.321	300	0.323		
Total	30.619	301			

a. Dependent Variable: Utilization of Maternal Health Services

b. Predictors: (Constant), Maternal health-seeking Behavior, Socio-Economic Factors Health Facility Factors, Perceptions on Maternal Health Services

A regression analysis was carried out to determine the level of significance that existed in

relationships between all the independent variables; maternal health-seeking behavior, socio-economic factors health facility factors, perceptions of maternal health services, and dependent variable; utilization of Maternal Health Services. The regression model was: $Y= \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3+ \beta 4X4 + e$. According to the findings that are highlighted in Table 4.19 the study reveals a significant relationship with all combined variables on Maternal health-seeking Behavior, Socio-Economic Factors Health Facility Factors, Perceptions on Maternal Health Services and utilization of maternal health services, r (.445); $P \leq 0.05$ (Table 4.20). According to Chambers, *et al.,* (2017), analysis of variance is a tool used in statistics that divides an observed aggregate variability found within a data set into two parts, systematic factors, and random factors. The ANOVA results: F (1, 300) = .312; $P \leq 0.50$; indicated that the means differences between and within the variables were statistically significant (Table 4.20).

Multiple Regression Analysis Coefficients

Table 4.20: Multiple Regression Analysis Coefficients

Variables	**Unstandardized**		**Standardized**	**t**	**Sig**
	B	Std. Error	Beta		
(Constant)	0.626	0.428		1.676	0.020
Maternal Health-Seeking Behavior	0.271	0.045	0.449	0.578	0.000
Socio-Economic Factors	0.315	0.270	0.286	1.054	0.010
Health Facility Factors	0.512	0.128	0.213	1.224	0.020
Perceptions on Maternal Health Services	0.256	0.068	0.426	0.657	0.01

a. Dependent Variable: Utilization of Maternal Health Services

The study indicated a regression coefficient ß (.449); $P \leq 0.05$ between Maternal health-seeking Behavior and Utilization of Maternal Health Services; a regression coefficient ß (.286); $P \leq 0.05$ between Socio-Economic Factors and Utilization of Maternal Health Services; a regression coefficient ß (.213); $P \leq 0.05$ between Health Facility Factors and Utilization of Maternal Health Services and a regression coefficient ß (.426); $P \leq 0.05$ between Perceptions on Maternal Health Services and Utilization of Maternal Health Services. All the combined variables were significant statistically as indicated in Table 4.20.

The formula used to compute the relationship was;

Utilization of Maternal Health Services = .626 + .271X1 + .315X2+.512X3 + .256 X4

Where **X1** = Maternal Health-Seeking Behavior

X2= Socio-Economic Factors

X3 = Health Facility Factors

X4 = Perceptions on Maternal Health Services

CHAPTER FIVE: DISCUSSION

This chapter deals with the discussion of the study results. The study also identified the maternal health-seeking behavior of pregnant mothers, the effect of socio-economic factors on the use of maternal health services among expectant mothers, the role of health facility factors in the provision of maternal services, and the perception of expectant mothers in maternal health services in Malava Sub County.

Specifically, the study aimed at establishing maternal health-seeking behavior, the influence of socio-economic factors on the use of maternal health services, the role of health facility factors in the provision of maternal services, and the perception of pregnant mothers on the uptake of maternal health services in Malava Sub County. The study found that most participants were aged (15-24) and (25-34) respectively. This is conferred with the study conducted by Emelumadu *et al.,* (2014) which observed that most pregnant mothers who seek maternal health services fall between age brackets (18-34) years. The same research also revealed that young females had greater expectations of health care delivery compared to elderly females since they are always afraid of pregnancy-related risks. Majority of the participants were married, were Christian and they preferred to have between 1 and 3 children. Almost the same proportion of the participants had received a formal education, together with their spouse. This finding was in support that education is vital and contributes to a great extent to understand the importance of maternal health services among pregnant mothers and their spouses (Banke-Thomas, *et al.,* 2017). Ultimately, the study found that most participants earned between 0-2,500 per month. This concurred with (Benova *et al.*, 2014) who observed that high rates of maternal and infant mortality in Kenya are highly attributable to socio-economic inequalities in education and earnings.

This study found that although the majority of participants first made an antenatal visit when they were less than 16 weeks pregnant and the rest had ante-natal care at 16-24 weeks, 28-32 weeks, and more than 36 weeks pregnant, respectively, the uptake for maternal health care was still low in Malava Sub County. Mengesha *et al.* (2021) acknowledges that low maternal health services uptake is always a result of low education level, traditions, and ignorance of the significance of maternal health services among mothers.

Second, the results of the study indicate that the majority of participants made only 4 ante-natal care visits. Majority of the participants did not attend ante-natal care for several reasons, such as being unaware of the services, and religious beliefs. The finding concurred with other studies. Alabi, (2016) observed that generally, in rural sets ups; there is low or non-attendance to ante-natal care. Nonetheless, a smaller percentage of participants had no explanation for why they did not attend ante-natal treatment. In general, findings were contrary to the WHO (2013) recommendation that mothers are suggested to make at least 4 post-natal visits in the first 6 weeks for full clinical examination after childbirth. Most mothers only made 0-3 post-natal visits after childbirth.

The study also found that the majority of participants during previous pregnancy delivered at the government facility. In addition, most of the participants who visited government facilities before, during, and after delivery indicated that they had not been charged for any services before, during, and after delivery. This was in support of earlier reports which showed that other factors such as cost and distance to health care facilities are plausible barriers in trying to handle pregnancy complications (Ochieng & Odhiambo, 2019; Qureshi *et al.*, 2016).

Study findings also showed that the majority of participants were comfortable or very comfortable with a male health care worker during ante-natal care visits. Furthermore, most of the participants were just comfortable or very comfortable with a male health care worker during childbirth visits. Second, almost all participants indicated that the health care workers in the health care facilities they visited during ante-natal care had a friendly attitude; the majority indicated that the male health care staff in the health care facilities they visited during childbirth was polite to them. In addition, the results of the study showed that most of the participants found that they were friendly after childbirth. The study finding was in support of Maina *et al.* (2016)who established that attitude of health care providers to patients/clients plays a critical role in influencing women's habit to seek medical attention.

Based on the attitude of healthcare workers, most of the participants indicated that healthcare staffs in the health facilities were friendly to them during antenatal care. Similarly, the majority

of study participants showed that health care staffs in the health facilities during childbirth were also friendly to them. In addition, the majority of participants observed that the health care staff they encountered after childbirth were friendly. The outcome supported Mannava *et al.* (2015) observation which shows that care providers' attitudes and behaviors affect clients' perceptions such as friendly service providers promote satisfaction in health centers.

From the qualitative results, it was established that most of the socioeconomic factors mentioned by healthcare providers were also emphasized by the mothers' respondents. These include great respect for and availability of traditional birth attendants (TBAs) to undertake deliveries in some rural areas; and cultural perception of pregnancy as a normal condition that may discourage some mothers from seeking ANC and facility delivery services. In some settings, pregnant mothers who regularly attended ANC sessions were perceived as '*not strong enough*. Ogu (2016) acknowledges that social-cultural factors are major contributors to none or low uptake of maternal health services among mothers or mothers.

5.1.4 Role of Health Facility Factors on the Uptake of Maternal Services

The study, therefore, established that participants resided in places where they could take more than 1hr to walk to a government-owned health facility. In addition, the study found that most of the participants had facility-level nearest to their home being health center followed by those whose facility-level nearest to their homes was a dispensary. Moreover, the majority of the participants agreed that health facilities provided them with sufficient privacy whenever they were seeking health care. This concurred with (Caulfield *et al.*, 2016) who established that access features such as distance to health services, cost, and accessibility of transportation determine the uptake of maternal services. For instance, distance to healthcare and accessibility to transport was established as an obstacle to the use of skilled birth attendance. Results from qualitative data were in support of these findings, since they demonstrated that health facility factors influencing the uptake of maternal services range from inadequate, ill-equipped, and poorly staffed health facilities; long distances to health facilities; conservative cultural practices; and gender biases.

Findings indicated that most of the participants do not own any form of health insurance, had not had any complications in their current pregnancy, and had not been asked to pay for any amount during medication. The participants were key decision-makers as far as seeking maternal health care was concerned. This finding was in support of Wamucii (2018) who did a study among Maasai mothers in Kenya established that Maasai males have negative perceptions on pregnancy thus they rarely offer adequate support to their women counterparts. As a result of this, even male health care workers in health care facilities were less likely to attend to expectant mothers owing to cultural norms and beliefs.

Study findings indicated that participants relied on health care providers as the main sources of information on services provided in the facility they visited. Other sources of information cited by the participants were mass media, community health volunteers, pinned posters, Facility/community Outreaches, and Barazas respectively. The finding contradicted (Finlayson & Downe, 2013) finding that showed that females in a low-income rely on family and close friends as the primary sources of information during their pregnancy.

The study also established that most of the participants were satisfied with the health provider treatment during antenatal care, the majority were satisfied with the treatment they received during childbirth from the health providers and the majority of participants were satisfied with the treatment they received from health providers after childbirth. However, apart from the health provider, the respondents' level of satisfaction with other staff services during the treatment was; most of the participants were somewhat satisfied with the antenatal care they received majority were somewhat satisfied with the treatment they received during childbirth and somewhat satisfied with how they were treated after childbirth. The result of this study conferred with Nigeria's cross-sectional study which established that females using maternity facilities expressed elevated rates of satisfaction with the quality of services they received. The same research also disclosed that young females had greater expectations of health care delivery compared to elderly females (Emelumadu *et al.*, 2014).

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

The study concluded that maternal health services utilization is generally low in Malava Sub County. The cause for low maternal health services uptake was identified to be lack of awareness among some pregnant mothers, as well as their religious beliefs. Due to cultural factors, pregnant mothers were always comfortable being attended to by male health care workers during the antenatal care visits, childbirth visits, and post-natal visits. In addition, the study established that health care providers in the health facilities they visited during antenatal care, childbirth, and post-natal care were friendly. Regarding the third objective, the study concluded that distance to health facilities directly influenced the frequency of their visits to health facilities in search of maternal health services. They had to walk for about 1 hour to the nearby government-owned health facility. Furthermore, the women do not own any private or public health insurance cover, lowering their tendency to seek maternal health services.

6.2 Recommendations

1. To improve maternal health care health seeking behavior, the county government ought to place health services as close as possible to the community where people live. This could be achieved by training more midwives as well as community health workers who act as a vital connection between communities and health facilities in Kenya.

2. There is need for the rural women to be encouraged to join women development groups through which they can actively participate in an income generating activities. There is also need to embrace the use of existing media network (local radio stations, outreach programs, the Church to pass on awareness to communities) to offer educational programs to pregnant women on the immense contribution of male nurses, since this can help diffuse negative traditional perception on male midwifery.

3. To improve the uptake of maternal health care in Malava Sub County, Hospital management is requested to increase the awareness of maternal health care and to include it among the community priorities during dialog days, action days, and other group discussions. Healthcare providers also ought to be trained on how to enhance their social

relationships with clients to make services more user-friendly. This would theoretically, and ultimately, increase the use of the services.

4. To diffuse negative perceptions of pregnant mothers on maternal health services, there is need for creation of awareness on the important of maternal services to women. This will help in recognizing the contribution of health care providers towards promoting uptake of maternal health services.

6.3 Areas for Further Research

Further research is recommended in the area of determinants of the use of maternal health care services, with a strong emphasis on health system and ethno demographic factors. This could be done in a larger coverage, like 2-3 counties spread across Kenya, and using many more and complex data analysis approaches.

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APPENDIX 1: INFORMED CONSENT

STUDY TITLE: DETERMINANTS OF UPTAKE OF MATERNAL SERVICES AMONG EXPECTANT MOTHERS IN KAKAMEGA COUNTY: A CASE OF HEALTH FACILITIES IN MALAVA SUB-COUNTY, KAKAMEGA COUNTY, KENYA

Facility name ……

Good morning/Good afternoon. My name is Lydiah Mongina Bwana I am a Post-graduate student at Jaramogi Oginga Odinga University pursuing a master's degree in Public Health. I am conducting a survey on determinants of Uptake of Maternal Services among Expectant Mothers in Kakamega County: A Case of Health Facilities in Malava Sub-County, Kakamega County, Kenya

Voluntary Participation: Your participation in the study is voluntary and you may refuse to answer any question or choose to stop participating for any reason at any time.

Reward: You will not be rewarded for participating in this survey. Additionally, you will not be asked to pay any amount to participate in the survey.

Confidentiality: All information you provide during the research will be held in confidence your name will not be recorded on the questionnaire and focus group discussion conversations. Questionnaires and Interview recordings will be kept in a secure location for safe-keeping.

Participant Statement

I have understood the nature of this study. I have been provided with opportunity to ask questions and I am satisfied by the answers provided and wish to participate. My signature or thumbprint below indicates my consent

……. **…….**

Signature or thumbprint

APPENDIX 2: QUESTIONNAIRE

PART ONE: SOCIO- DEMOGAPHIC AND ECONOMIC CHARACTERSTICS

1. **What is your age……...?**

2. What is your Marital Status?

   ☐ Single ☐ Married ☐ Widowed ☐ Divorced

3. At What age did you get Married…….

4. What is your Religion…….

   ☐ Christian ☐ Muslim ☐ Other

5. How many children do you have…….

6. Have you ever attended school?

   ☐ Yes ☐ No

7. What is your highest level of education achieved?

   ☐ Primary Incomplete ☐ Primary Complete ☐ Secondary Incomplete
   ☐ Secondary Complete ☐ College/University

8. Has your partner ever attended school?

   ☐ Yes ☐ No

9. What is the level of education of Husband/Partner?

   ☐ Primary Incomplete ☐ Primary Complete ☐ Secondary Incomplete
   ☐ Secondary Complete ☐ College/University

10. What is your Monthly Household's income level?

    ☐ Ksh 0-2500 ☐ Ksh 2501- 5000
    ☐ Ksh 5001-10000 ☐ Ksh 10001-15000
    ☐ Above Ksh 15001

SECTION TWO: MATERNAL HEALTH UTILIZATION

11. In the current pregnancy, after how many weeks did you make your first antenatal visit?

    ☐ <16 weeks ☐ 16-24 weeks ☐ 28-32 weeks ☐ >36weeks

12. In previous pregnancy, how many antenatal care visits did you make…….?

13. If none what is the possible reason why……

14. In the previous pregnancy, how many antenatal visits did you attend…….?

CHILD BIRTH

15. In previous pregnancy, did you deliver at a government facility? ☐ Yes ☐ No

16. If no, what informed the choice of place of delivery.....?

POST-NATAL CARE

17. In previous, pregnancy how many post-natal care visits did you make after two weeks of delivery…….

18. Did post-natal care in question above done at a government health facility?

19. If no in question above what is reason for not seeking post-natal care?

20. At the government health facility were you charged for any services before, during delivery, and after delivery? ☐ Yes ☐ No

SECTION THREE: PERCEPTIONS ON HEALTH FACILITY

To what extent are you comfortable being attended to by a male health care worker during

Level of Maternal Care	Very Comfortable	Comfortable	Uncomfortable	Extremely uncomfortable
Antenatal Care				
During Child Birth				
After Child Birth				

21. How would you describe attitude of staff at health-facilities during these clinic visits?

Level of Maternal Care	Friendly	Ignorant	Harsh
Antenatal Care			
During Child Birth			
After Child Birth			

SECTION FOUR: HEALTH FACILITY ATTRIBUTES

22. How far do you live to a government owned health facility?

☐ Less than 30 min ☐ 30 min. to 1 hour ☐ More than 1hr

23. Facility Level nearest to your home?

☐ Dispensary ☐ Health centre ☐ Sub County Hospital

24. Does the health facility provide sufficient privacy when seeking health care?

☐ Yes ☐ No

25. What was the average amount of time that you waited to see a medical staff when you visited the clinic?

Level of Maternal Care	<30m	30-60 mins	More than 1hr
Antenatal Care			
During Child Birth			
After Child Birth			

SECTION FIVE: HEALTH-SEEKING BEHAVIOUR

26. Do you own any form of health insurance (Private or Public) cover?
    ☐ Yes ☐ No

27. Have you experienced any complications with your current pregnancy?

    ☐ Yes ☐ No

28. If yes in above, how you managed to sort the complication?

    ☐ Self-medication ☐ Sought Medical assistance

29. Have you ever been asked to pay for any amount during? ☐ Yes ☐ No

30. Who makes decision to seek maternal health care in your house-hold?

☐ Make own Decision ☐ Husband/Partner ☐ Others Specify

31. What is your source of information on services provided in the facility you visited?

    ☐ Health care provider ☐ Community Health Volunteer ☐ Mass Media

    ☐ Barazas ☐ Posters ☐ Facility/community Outreaches ☐ Others Specify

32. Are you satisfied with the overall services you received from this facility……...?

Level of Maternal Care	Satisfied	Somewhat satisfied	Dissatisfied	No Answer
Antenatal Care				
During Child Birth				
After Child Birth				

33. Were you satisfied with the way the health provider treated you?

Level of Maternal Care	Satisfied	Somewhat satisfied	Dissatisfied	No Answer
Antenatal Care				
During Child Birth				
After Child Birth				

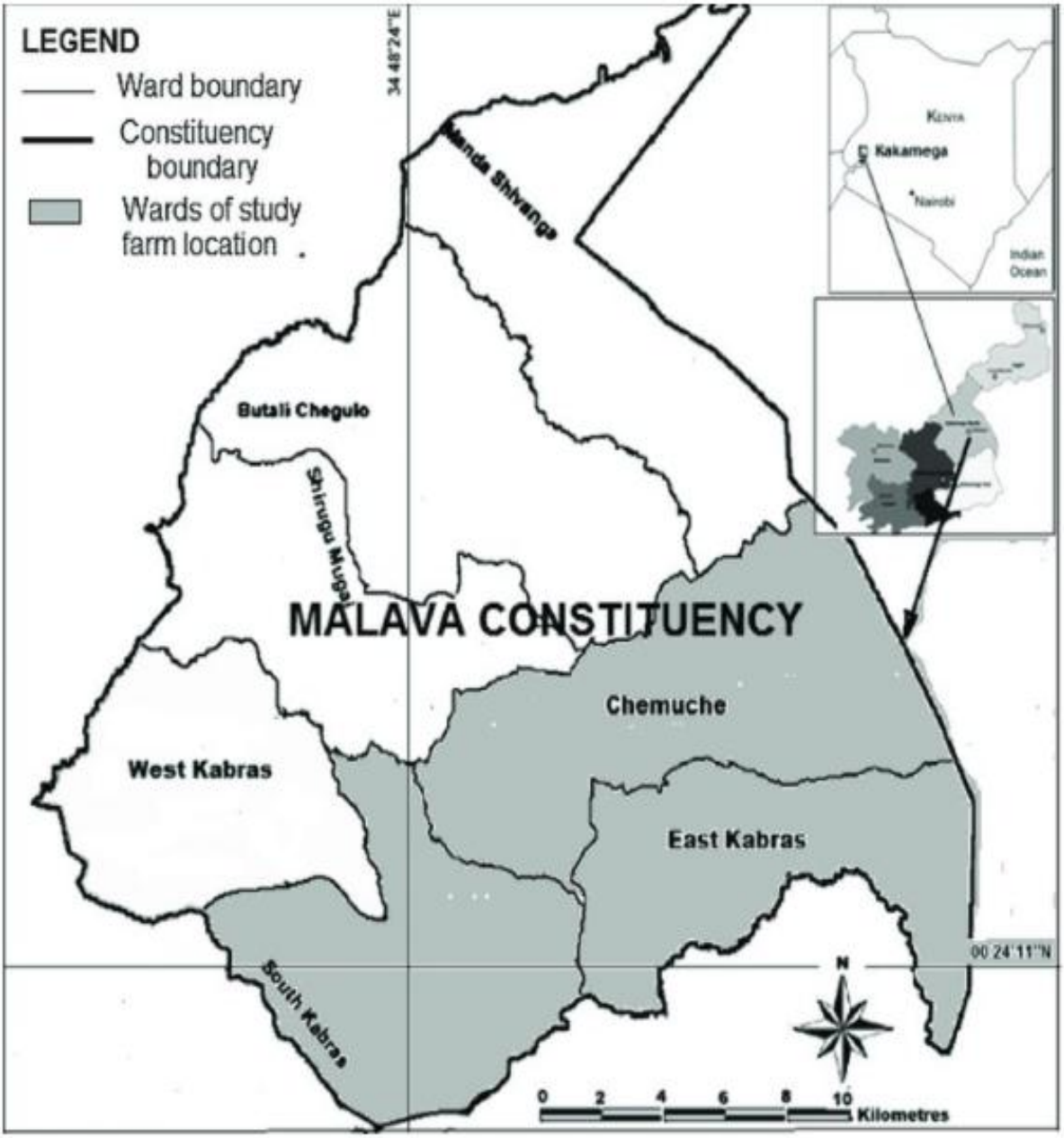
34. Apart from the health provider were you satisfied with the way other staff treated you?

Level of Maternal Care	Satisfied	Somewhat satisfied	Dissatisfied	No Answer
Antenatal Care				
During Child Birth				
After Child Birth				

APPENDIX 3: INTERVIEW SCHEDULES

1. What is the maternal health-seeking behavior of pregnant mothers in Malava Sub-County?
2. How do socio-economic factors influence the use of maternal health services among expectant mothers Malava Sub-County?
3. How do health facility factors influence the uptake of maternal services in Malava Sub-County?
4. What are the perceptions of expectant mothers on maternal health services in Malava Sub-County?
5. What factors do you think affects pregnant mothers' utilization of health services during pregnancy and childbirth?
6. Do you have any ideas how socio-cultural factors have affected this?

APPENDIX 4: MAP OF THE STUDY AREA



APPENDIX 5: LETTER OF INTRODUCTION FROM BOARD OF POST GRADUATE STUDIES

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

BOARD OF POSTGRADUATE STUDIES

Office of the Director

Tel. 057-2501804
Email: bps@jooust.ac.ke

P.O. BOX 210 - 40601
BONDO

Our Ref: H152/4228/2015

Date: 24th June 2019

TO WHOM IT MAY CONCERN

RE: BWANA MONG'INA LYDIAH – H152/4228/2015

The above person is a bona fide postgraduate student of Jaramogi Oginga Odinga University of Science and Technology in the School of Health Sciences pursuing Master of Science in Epidemiology and Biostatistics. She has been authorized by the University to undertake research on the topic: ***"Determinants of uptake of Free Maternity Services among Pregnant women in Kakamega County: A Case of Health Facilities in Malava Sub-County, Kakamega County, Kenya".***

Any assistance accorded to her shall be appreciated.

Thank you.

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY
P. O. BOX 210 - 40601, BONDO
DATE .....
DIRECTOR BOARD OF POST GRADUATE STUDIES

Prof. Dennis Ochuodho
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

APPENDIX 6: AUTHORIZATION LETTER FROM ETHICS REVIEW BOARD

JARAMOGI OGINGA ODINGA
UNIVERSITY OF SCIENCE AND TECHNOLOGY

DIVISION OF RESEARCH, INNOVATION AND OUTREACH
JOOUST-ETHICS REVIEW OFFICE

Tel. 057-2501804
Email: erc@jooust.ac.ke
Website: www.jooust.ac.ke

P.O. BOX 210 - 40601
BONDO

OUR REF: JOOUST/DVC-RIO/ERC/E2

7th November, 2019

Lydia Bwana Mong'ina
SHS
JOOUST

Dear Ms. Mong'ina,

RE: APPROVAL TO CONDUCT RESEARCH TITLED *"DETERMINANTS OF FREE MATERNITY SERVICES AMONG PREGNANT WOMEN IN KAKAMEGA COUNTY: A CASE STUDY OF HEALTH FACILITIES IN MALAVA SUB-COUNTY, KAKAMEGA COUNTY, KENYA"*

This is to inform you that JOOUST ERC has reviewed and approved your above research proposal. Your application approval number is **7/14/ERC/11/19-C2.** The approval period is from 6th November, 2019 – 5th November, 2020.

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations and violations) are submitted for review and approval by JOOUST IERC.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to NACOSTI IERC within 72 hours of notification.
iv. Any changes, anticipated or otherwise that may increase the risks of affected safety or welfare of study participants and others or affect the integrity of the research must be reported to NACOSTI IERC within 72 hours.
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to JOOUST IERC.

Prior to commencing your study, you will be expected to obtain a research permit from National Commission for Science, Technology and Innovation (NACOSTI) https:oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

Prof. Francis Aniga wa
Chairman, JOOUST ERC

Cc: Deputy Vice-Chancellor, RIO Director, BPS Dean, SHS

APPENDIX 7: AUTHORIZATION LETTER FROM NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 899828

Date of Issue: 18/December/2019

RESEARCH LICENSE

This is to Certify that Miss. Lydiah Bwana of Jaramogi Oginga Odinga University of Science and Technology, has been licensed to conduct research in Kakamega on the topic: DETERMINANTS OF UPTAKE OF FREE MATERNITY SERVICES AMONG PREGNANT WOMEN IN KAKAMEGA COUNTY: A CASE OF HEALTH FACILITIES IN MALAVA SUB-COUNTY, KAKAMEGA COUNTY, KENYA for the period ending : 18/December/2020.

License No: NACOSTI/P/19/2822

899828

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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