DETERMINANTS OF MATERNAL HEALTH CARE SERVICE UTILIZATION AMONG MOTHERS OF MOUNT ELGON CONSTITUENCY BUNGOMA KENYA

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A Thesis Submitted in Partial Fulfillment for the requirements for the award of Master of Science in Advanced Nursing Practice (Community Health Nursing) Degree of Masinde Muliro University of Science and Technology

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DECLARATION

This thesis is my original work prepared with no other than the indicated sources and support and has not been presented elsewhere for a degree or any other award.

Signature..... ..... Date.....

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology a thesis entitled **"Determinants of maternal health care service utilization among mothers of mount Elgon Constituency Bungoma Kenya".**

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DEDICATION

Special dedication to my family for the remarkable and wonderful support throughout this journey.

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ABSTRACT

Since independence, the Government of Kenya has made lots of efforts to reduce maternal mortality and morbidity through some women-oriented programs. These programs are included in the marginalized groups like Ogiek in Mt. Elgon Constituency in Bungoma County. Despite this, Mt. Elgon constituency in Bungoma County still had high maternal mortality and morbidity together with low utilization of maternal health care services. Reports showed low levels of skilled delivery in Mt Elgon Constituency (28%) compared to Bungoma County (41%) and nationally (60%) in the year 2015. The study investigated the determinants of maternal health care service utilization among mothers of Mt. Elgon constituency in Bungoma Kenya. Specifically, to determine the client's characteristics, examine health facility factors, and determine the cultural competence of health care workers and their relationship with maternal health care service utilization in the study area. A descriptive-analytic cross-sectional study was adopted using a mixed method of data collection. A total of 510 respondents were randomly selected using a multistage cluster sampling method and were interviewed from January to March 2019. Data on participant's characteristics, health facility factors, and cultural competence of health care workers were collected with structured questionnaires. Quantitative data was collected from staff using a self-administered questionnaire while caregivers were interviewed using an interviewer-assisted questionnaire. Cultural competence tool was used to assess health care workers cultural competence. Qualitative data was collected using key informant interviews (KII) and focus group discussion (FGD). Data entry and analysis was done using SPSS version 25 computer software. Both descriptive and inferential statistics were used for analysis. Logistic regression was applied then the odds ratio was used to determine the relationship of variables and a p-value of ≤ 0.05 was considered statistically significant. From the results, the main determinants of maternal health care service utilization were age less than 30 years ($p = 0.01$), unemployment ($p = 0.02$), residence less than 6 month old ($p= 0.02$),working days unsuitable ($p= 0.04$), mobile clinic unavailable ($p= 0.06$), use of interpreter ($p= 0.02$), women who were to busy ($p= 0.02$), consultation of health care workers ($p= 0.03$), time is taken to hospital/distance ($p= 0.007$) and the health workers (100%) were culturally incompetent. Overly, Working and having visited the health facility as a patient were found to determine the utilization of maternal health care services. Therefore, there is a need for women's empowerment by the Government and NGOs, the Ministry of Health at the national and county level to comply with WHO recommendation by constructing health facilities within a 5 km radius, and the Nursing Council of Kenya to incorporate cultural competency training in curriculum due to diversity of culture in Kenya. Further research should be conducted on the quality of care to inform the mitigation factors on having visited a facility as a patient.

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LIST OF ABBREVIATIONS AND ACRONYMS

AMPATH	Academic Model for Providing Access to Healthcare
ANC	Antenatal Care
BEMONC	Basic Emergency Obstetric and Neonatal Care
CDSH	Commission on Social Determinants of Health's
CEMONC	Comprehensive Emergency Obstetric and Neonatal Care
COK	Constitution of Kenya
GOK	Government of Kenya
HIS	Health Information System
HIV /AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
KEPH	Key Essential Package for Health
KMTC	Kenya Medical Training College
MDGs	Millennium Development Goals
MHCs	Maternal Health Care Services
MNH	Maternal Neonatal Health
NACOSTI	National Commission for Science, Technology, and Innovation
NARIGP	National Agriculture and Rural Inclusive Growth Project
NGO	Non-government Organization
OP	Operationalization
PHC	Public Health Care
SDG	Sustainable Development Goals
VMG	Vulnerable and Marginalized Groups
VMGP	Vulnerable and Marginalized Groups Population

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter presents the background information about this study, the statement of the problem, justification of the study, main and specific objectives of the study, research questions, significance and the scope of the study, limitation of the study, conceptual framework, and operationalization of variables.

1.2 Background to the Study

Globally, in every minute at least one woman dies from complications due to preventable causes related to pregnancy and childbirth i.e. 529,000 women in a year. Every woman dying during childbirth, around 30 more women suffer injury, infection, or disease, which are approximately 10 million women each year. The more remote or marginalized a woman is the higher the risk (WHO, 2011).

Developing countries record 99% of maternal death and which worsens among the marginalized groups (WHO, 2010). According to the Central Bureau of Statistics (CBS) [Kenya] (MOH) [Kenya] and ORC Macro (2014), it is known that maternal health is both indicators of the society's level of development and the performance of the health care delivery system. The higher the death rates of mothers the lower the development and performance of the health care delivery system worldwide. (WHO, 2010), a report on a study done in 39 Countries showed that 27 out of 39 Countries (which is more than half) health care facilities utilized were public facilities and the services were skewed to outpatient services.

According to (Adamson, *et al.*, 2012), although India had made good progress in reducing maternal mortality, the general population in India was1.8 times more likely to utilize maternal health care services (institutional delivery) with 95%CI: 1.21, 2.89 compared to marginalized communities.

Globally, 50% of all maternal deaths occur in Sub-Saharan Africa. A in this region has 1 in 39 chances of dying in pregnancy or childbirth, compared to a 1 in 3,800 risks in developed countries. Leading causes of maternal deaths are related to obstetric complications around the time of childbirth, and three-quarters of those deaths and significant morbidity can be prevented by the utilization of quality maternal health services (Kinney, 2010). Underutilization among pregnant women in low-income countries is related to age, education, medical insurance, clinical risk factors, the supply of health care and remoteness, or marginalized regions (Bhattacherjee, Datta, Saha & Chakraborty, 2013).

In Kenya, it was established that the rates of maternal mortality were at 488 per 100, 000 live births in 2011 against a target (millennium development goal) of 147 by 2015 while deliveries by skilled health personnel were 43.8% against a 2015 target of 90%. In 2007 the fourth annual progress report of 2011- 2012 on the implementation of the First medium-term plan of vision 2030 revealed a decline of 51% and it was worse in counties with marginalized vulnerable communities (Wachira & Martin, 2011).

Kenya Demographic Health Survey reports (KDHS, 2014) states that the maternal mortality is 362 deaths per 100,000 live births, with a confidence interval of 254-471 compared to the 520 deaths per 100,000 of 2008-09 KDHS that had a confidence interval of 343-696. This showed that there was no evidence that maternal mortality ratio had

declined since the decrease was not statistically significant due to overlapping confidence intervals.

According to Ngari (2010) 75% to 90% of rural communities in Kenya relay on ethnomedicine knowledge and medicine plants for treatment. Among the ogiek (one of the twelve marginalized communities in Kenya) in the Mau forest in Nakuru, 94 traditional plants were identified by study participants, and this correlated with their medicinal uses. The elders were consulted on health issues as they also handed over knowledge to the young $\leq$ 30 years age group and 89% reported that they utilized medicinal plants while 29.2% used modern medicine where women were more expert in the preparation of herbs than men.

Mt. Elgon Constituency which is the home of the Ogiek, a marginalized community, has experienced many conflicts that resulted in Internally Displaced Peoples (IDPs), the majority being women and children and the subdivision of the Constituency into two political Sub Counties (Chelimo, 2010). According to the DHIS (2015) report, the Mt. Elgon area reported the lowest proportion of skilled deliveries (28%) compared to Bungoma County (41%) and nationally (60%). Little is known about the current magnitude of utilization and the cultural factors influencing the use of maternal health services especially by mothers of Mt. Elgon constituency where the study will be conducted. Therefore, this study seeks to examine the determinants of maternal health service utilization among mothers of Mt. Elgon constituency, Bungoma County in Kenya

1.3 Statement of the problem

Globally, the chance of a mother dying or getting a disability during antenatal, delivery, and postnatal periods are closely related to the social and economic background, values, and norms of her culture and the remoteness of her village. The more economically challenged and marginalized a mother is, the higher the risk of death. The rates of maternal mortality also reflect economic challenges between countries more than other measures of survival or health. As a comparison, the United State of America had a maternal death rate of 9.1 per 100000 live births while Kenya was at 14% in 2010 (Binder-Finnema, Lien, Hoa, & Miqvist, 2015).

In Kenya, there are twelve marginalized communities identified using the criteria set by World Bank Operational Policy (OP) 4:10 and the Kenya constitution 2010 article 260 definitions. The Ogiek community of Mt. Elgon in Bungoma County is among the twelve marginalized communities (Fanslow, 2017). Other than the government of Kenya, Non-Governmental Organizations (NGOs) have struggled to increase access to maternal and child health services to marginalized communities through Medical camps and integrated outreaches. But according to (DHIS, 2015), when skilled birth attendants were nationally at 60%, Bungoma County was at 41% and the vulnerable marginalized population of Mt. Elgon constituency was at 28%. This is a clear indication that there is underutilization of maternal health care services in the constituency especially the forested area occupied by the Ogiek community.

Bungoma County quarterly Maternal Perinatal Death Surveillance and Response (MPDSR) reviews meetings of 2017/2018 fourth quarter showed that 50% to 80% of maternal deaths are referrals from Mt. Elgon constituency to Bungoma County referral hospital and Webuye County hospital. What determines maternal health care services

utilization then needs to be understood to improve this situation to attain a sustainable development goal (SDG) number three. Therefore, little is known about the current magnitude of utilization and the cultural factors influencing the use of maternal health services especially by mothers of Mt. Elgon constituency where the study will be conducted. Therefore, this study seeks to analyze the determinants of maternal health service utilization among mothers of Mt. Elgon constituency, Bungoma County in Kenya.

1.4 Broad Objective

To analyze the determinants of maternal health care service utilization among mothers of Mt. Elgon constituency in Bungoma County.

1.5 Specific Objectives

1. To determine client characteristics influencing utilization of maternal health care services among mothers of Mt. Elgon constituency in Bungoma County.
2. To examine health facility factors that affect maternal health care service utilization among mothers of Mt. Elgon constituency in Bungoma County.
3. To determine the cultural competence of health care workers on maternal health care service utilization among mothers of Mt. Elgon constituency in Bungoma County.

1.6 Research Question

1. What is the relationship between the client's characteristics and maternal health care service utilization among mothers of Mt. Elgon constituency in Bungoma County?

2. What is the relationship between health facility factors and maternal health care service utilization among mothers of Mt. Elgon constituency in Bungoma County?
3. What is the relationship between the cultural competence of health care workers and maternal health care service utilization among mothers of Mt. Elgon constituency in Bungoma County?

1.7 Hypothesis

There is no association between client characteristics, health facility factors, and cultural competence of health care workers with maternal health care service utilization among the mothers of Mt. Elgon constituency in Bungoma County.

1.8 Justification

The study draws its legitimacy from the constitutional right of Kenyans. The Kenya Constitution 2010, article 56 requires affirmative action in support of services for marginalized peoples. Previous research has concentrated on the determinants of maternal health care services in the general population with very little focus on marginalized communities. Studies have shown that utilization of maternal health care services is a basic concern in health promotion of maternal health and a basic indicator of economic growth which has not been well addressed in Mt. Elgon constituency given the on and off. Saboat/Ogiek conflicts resulting in Internally Displaced Peoples (IDPs). The majority of IDPs are mothers and children (Chelimo, 2016).

As eluded by Ngari, (2010) that marginalized groups stick to their culture therefore, a descriptive-analytical cross-sectional study design using mixed methods of data collection was appropriate to describe the respondents as they were and analyze the data

comparing the two groups living in the same constituency in a snapshot. The multistage cluster sampling enabled the researcher to reach a larger population for generalization despite the curfew sanction and insecurity in the study area. The gaps were unmasked in a short period to allow intervention from stakeholders in time.

Although cultural competence has been recommended, there is a dearth of literature concerning the level of cultural competence in healthcare professionals involved in the provision of maternal health care nationally and more particularly, in the study area. The use of cultural competence tools used by (Mason, 1995) in assessing health care workers for competence, would enable the researcher to assess cultural competency by the health workers in the study area. The purpose of the present study was to analyze the determinants of maternal health care service utilization among mothers of Mt. Elgon constituency in Bungoma County and to measure the general cultural competence of health professionals in the study area.

1.9 Scope of the Study

Geographically, the study covered the slopes of Mt. Elgon excluding the forest area, parts of Chebyuk ward, and part of the Cheptais ward that was heavily guarded by General Service Unit (GSU) militaries due to insecurity/ curfew in Mt. Elgon Constituency. The study area was chosen because of some reasons including the fact that most people had migrated for safety to settle in selected areas. In the absence of clashes, these areas have high numbers of mothers referred with very severe health conditions to Bungoma County referral hospital.

1.10 Limitations of the Study

The study could have used other tools like the observation of cultural practices related to maternal health services but due to insecurity and curfew, this was not possible. The researcher instead probed the respondents to explain their experiences through FGD and KII. To overcome the language barrier, the researcher selected and trained medical professionals from the same study community who were fluent in both English and the local Sabaot/Dorobo language and who were able to translate the interview tools during the administration of the interview schedules. The study area is known to be volatile and community members are suspicious of any outsiders working on conducting interviews in the area as they fear the data collectors are government agents collecting sensitive information in the area that would intimidate community members. Despite the lack of inclusion of translated instruments in the local language, during the training, each of the questions was read in English and verbally translated to ensure the same meaning was retained. A role-play was used during training where each research assistant acted as a respondent and as the interviewer. The pre-test also enabled the interviewing team to identify areas that required harmonization, which happened to have been rather few.

1.11 Conceptual Framework

The study adopted and modified Tadesse's model of health services utilization (Tadesse, Mulat, & Gashaw, 2014) to analyze the determinants of maternal health services utilization among mothers of Mt. Elgon Constituency in Bungoma County. It is a behavioral model that provides a picture to analyze some individual, environment, and health care worker related variables associated with client decision to seek health care. It was purported that the use of services in health was determined by three

players/categories. These include the predisposing characteristics, enabling characteristics, and need characteristics.

The predisposing characteristics mainly explained the association of client characteristics which in the study were the independent variables to include: age, marital status, educational level, occupation, religion, village, parity (obstetric data), knowledge, gestation age at 1st ANC, Cultural values, attitude towards MCH/FP provider on maternal health care services utilization.

Enabling factors also referred to as intervening variables in the study, explained health facility, health care workers, and family and community resources or factors that support clients to access and afford services. Need factors explored the perceptions of the need for health services and the benefits expected from the health facility treatments. These factors included acceptability and use of services based on a health facility and cultural competence of health care providers like language, traditions, customs, and client priorities.

The assumption was that the availability of maternal health services was not a guarantee that the services would be utilized. Therefore, the cultural qualities of services were a crucial aspect that explained the reason for accessing services at all, late access, or avoids services completely (Hulton, 2000).

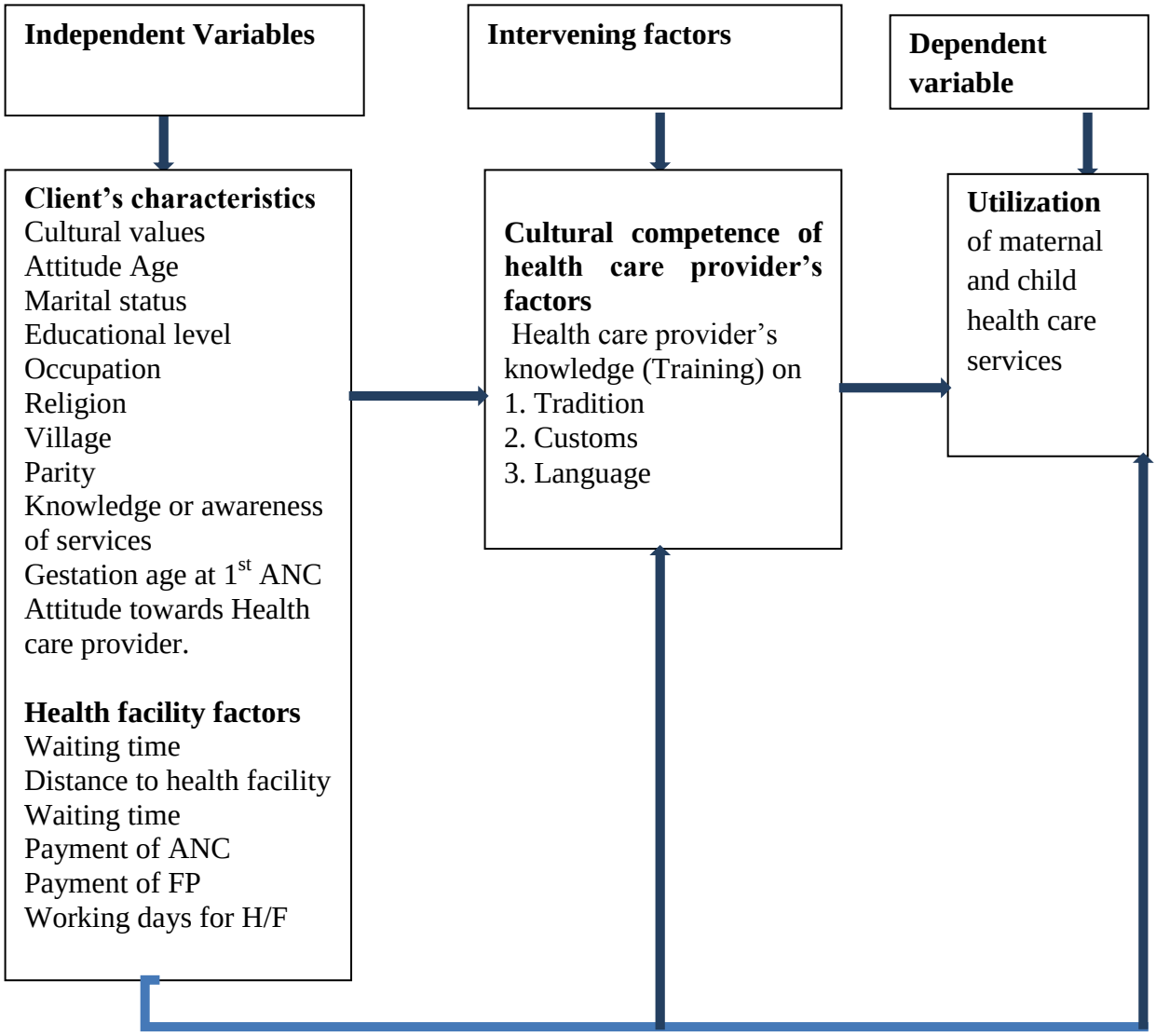


Figure 1.1 Conceptual Framework

Source: Adapted and modified from the cross-sectional study at University of Gondar hospital, northwest Ethiopia (Tadesse, Mulat, & Gashaw, 2014)

1.12 Operational Definition of Terms

Acceptability is the cultural acknowledgment of the ANC, Skilled delivery, and postnatal service in health facilities by health care providers.

Access The ability to reach out for Antenatal, delivery, and postnatal services approved by culture when the need arises.

Affordable The ability to purchase Antenatal, delivery, and postnatal services approved by Ogiek community elders when the need arises.

Availability The presence of physical and human resources, referral system, information system, use of appropriate technology (ultrasound, X-ray, and digital test machines in the laboratory) recognized standard for good practices and management of emergencies on ANC, Delivery and postnatal services.

Cultural competence is the ability of health care workers and the health organization to provide socially, culturally, and linguistically sound services as well as a competent health care system that can improve health outcomes and the quality of care while eliminating racism and ethnic disparity in health.

Cultural factors are practices, ideas, customs of managing mothers during antenatal, delivery, and postnatal period handed over from one generation to the next generation and believed to be right e.g cord care, position in the delivery room, disposal of placenta and care of the neonate.

Maternal health care services include Focused antenatal care, skilled delivery, and targeted postnatal visits.

Maternal Health is the well being of a woman during pregnancy childbirth and postnatal period.

The marginalized communities are people with a smaller population compared to others that preserve their unique culture at all costs

Utilization It is the usage of maternal health services or the ability to be served by the services by visiting a physician for care.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter presents a review of literature from journals, internet, and previously done researches on determinants of maternal health services utilization among vulnerable marginalized populations globally, regionally, Kenya, and Mt. Elgon constituency. It will highlight the trends in maternal mortality, maternal health, client characteristics influencing utilization of services, health facility factors, and cultural factors associated with health care providers affecting the use of maternal health services. The conclusion is the summary of the literature on determinants of maternal health services, gaps brought forth, and areas that need further research.

2.2 Maternal Health care services

A general picture of maternal health care services utilization to include antenatal care, delivery, and postnatal services was highlighted globally, Africa, and Kenya.

2.2.1 Antenatal care

Globally, maternal health care services are provided in four visits to the health facility to a woman during pregnancy periods aimed at improving maternal health and reducing maternal mortality and morbidity Islam *et al.*, (2015). The available services include health education on danger signs during pregnancy, counseling on HIV/AIDS and STI, nutrition, palpation, testing for HIV/AIDS, malaria, VDRL, blood group, urine analysis, and administration of Tetanus toxoid vaccine Worku & Woldesenbet, (2015). Client attendances of four recommended visits improve management outcomes of

complications occurring during pregnancy WHO, (2011). Utilization of Antenatal care (ANC) services dictate a high probability of future use of Delivery and postnatal services WHO, (2015). Disparities exist between the developed and developing countries as well as rural and urban areas are due to several factors including need, enabling, predisposing, and health services Oladipo, (2014). In Bangladesh, Islam, *et al.*, (2015) showed that inequalities in ANC checkup exist of which wealth and education associated with inequalities had reduced by 9% and 6% in the general population but increased by 0.6% per year in the rural/marginalized areas. India's study revealed that marginalized women would be left behind in the utilization of ANC due to stigma because most health care workers come from the general population (Adamson *et al.*, 2012).

In Africa, a study in Ethiopia showed that mothers who received four or more ANC visits had increased from 10% in 2000 to 32% in 2016; three visits increased from 27% to 62% in the general population but recommended much concentration in the vulnerable marginalized population Mekonnen & Mekonnen, (2002). In the eastern part of Ethiopia, 46.2% of ANC clients start using the services in their second trimester and 61.7% of the mothers had less than four recommended visits during pregnancy Zalalem, Belayihum, Teji & Admassu, (2014). Sub Sahara Africa had more barriers to the utilization of ANC services than the entire continent of Africa Tey, (2013). The more rural /marginalized mothers are the less the ANC services utilization due to delayed services or absence of services Kinney, Kerber, Black, Cohen, Francis & Coovadia, (2010). According to Lamouche, (2012) study, the culture of the native communities/ marginalized communities increases the use of native medicine reducing the chances of using health facility services.

Kenya's maternal health care services use on ANC showed that 76% of mothers delayed attendant and 14% of teenage pregnancy never attended ANC services (Mungai, 2017).

KDHS report (2014) showed that women receive antenatal care from a medical professional, that is either doctors 29%, nurse and midwife 63%, and traditional birth attendants <1% and some do not receive at all 7 %. These results showed that there was a shift away from the use of nurses and midwives from 70% in 2003 down to 63% in 2008-09 towards doctors from 18% in 2003 up to 29% in 2008-09. Tey, (2013) explains that there are characteristics of variables that predict whether a mother pregnant, in labor or post-delivery, would or would not seek medical advice or help in a health facility which includes but not limited to demographic and socioeconomic factors, family stress and stressful life events social support, health needs and regular source of care.

2.2.2 Delivery services

Worldwide, approximately 70% of maternal deaths are associated to direct obstetric complications during childbirth which includes mainly Hemorrhage 25%, infection 15%, unsafe abortion associated complications 13%, hypertension 12% and obstructed labor 8% WHO, UNPFA& UNICEF, (2010). There is need for basic emergency obstetric and neonatal care (BEMONC) to provide quality care to mothers and newborn because of the results that showed that majority of mothers die at birth or within 24 hours of childbirth and 66.7% of BEMONC services were not meeting the standards WHO, (2011). A study in Sindh Province in Pakistan showed that availability of BEMONC services in readiness for a mother to deliver in a facility requires input (material, infrastructure and human resources), process (proper approved standard of care during delivery has to be adhered to) and output (maternal satisfaction and use of service) of which only 6.3% met the requirements (Kumar, Ahmed, Anwar, & Somrongthong, 2019).

Africa carries 50% of the global maternal death Kinney, (2010). In Nigeria, the blame was on policymakers whereby facilities were inadequately and inequitably distributed based on the marginalized communities Awoyemi, Obayelu & Opaluwa, (2011). According to WHO, (2012) revised partograph was the required tool to be used in observing a mother in labor to enable the midwife to take emergency action in time to save both the mother and the newborn. In Ethiopia, a study showed that only 25.3% gave birth in health facilities where 20.9% delivered babies in rural compared to 35.9% in Urban Zalalem *et al.*, (2014).

Kenya's skilled delivery was at 60% nationally when Bungoma County was at 41% and Mt. Elgon Constituency was at 28% Kenya National Bureau Statistics KNBS, (2015). Kenya National Bureau of Statistics (KNBS, 2009) showed that preterm babies (born alive before 37 weeks of pregnancy are completed) number is rising. Preterm birth is based on gestational age: extremely preterm (<28 weeks), very preterm (28 to <32 weeks). Every year, an estimated 15 million babies are born preterm (before 37 completed weeks of gestation), and this number is rising. Preterm birth complications are the leading cause of death among children under 5 years of age, responsible for nearly 1 million deaths in 2013 WHO, (2010). The population of Kenya was 39.4 million with life expectancy at birth of 58.9 years, Live births of 1.5million, Skilled birth attendances; 61%. Prematurity – 35%. Asphyxia – 29%. Sepsis- 24%. Newborn deaths account for 42% of the under-five mortality rate and 60% of infant mortality rate (KNBS, 2016).

2.2.3 Postnatal services

Globally, the highest numbers of mothers lose their life after delivery in Africa south of Sahara Berman, Pallas, Smith, Curry & Bradley, (2011). This, therefore, poses a great danger to mothers' lives. It is estimated that 125000 mothers die in their first week after

giving birth of which majority die within 24 hours WHO, (2011). Hemorrhage was found to claim 34% maternal death while sepsis and infection 10% Vogel, (2013). According to KNBS, (2016), Kenya's postnatal mothers' data is not better as most mothers were asked to return to health facilities mostly at six weeks after giving birth. Chelimo, (2016) & Simiyu, (2008) explained the difficult times that postnatal mothers pass through in Mt. Elgon constituency with multiple internal conflicts and cultural constraints which make that fail to attend these particular services among other services.

The package of postnatal services on maternal survival and well being would be quite significant and therefore WHO, (2013) recommended that, after delivery, a mother is supposed to be observed with her baby in four targeted visits. During the four visits, mothers care, immunization, nutrition promotion, family planning, prevention of mother to child transmission of HIV, integrated management of adulthood illness (IMAI) and psychological counseling would be well addressed in time (Charlotte, Daly, Toure, & Pyande, 2006) .

2.3 Determinants of Maternal health care services

These are variables that ascertain whether a mother would or would not seek care as per the described WHO, (2010) definition of maternal health care service utilization of health care services. These include client characteristics, health facility-related factors, and health provider-related factors.

It is explained that there are characteristics of variables that ascertain whether a mother pregnant, in labor or post-delivery, would or would not seek medical advice or help in a health facility which includes but not limited to demographic and socioeconomic factors, family stress and stressful life events social support, health needs and regular source of care (Tey, 2013). The owned characteristics in a person like a body structure, values, and

beliefs considered worth which includes: age, sex, and marital status, level of education, parity, religion, occupation status, and location of stay/residence (Eriksson, *et al.*, 2010).

2.3.1 Client Characteristics

According to Hopkins& Ramsundar, (2006), client characteristics are the body functions, body structures, principles, values, beliefs, spirituality, and qualities considered worth by the person who has them. Client's socio-demographic factors include age, marital status, level of education, parity, religion, occupational status, and even residence plays a major role in determining maternal health utilization of health care services (Bharti, *et al.*, 2016).

2.3.1.1 Age

According to the study in the South East of Nigeria, it was revealed that younger mothers were more likely not to seek medical help compared to older mothers (Emelumadu, *et al.,* 2014). In Burkina Faso a study was done on ANC attendance which showed that age 15 to 19 years was at 46%, age 20 to 24 years 55.2%, and 25 and above years 67.1 %. Age as a factor showed that an increase in attendance of ANC clinic was directly proportional to an increase per year of age (Gies, 2009).

Respiratory infections (RI) and Diarrhea are found to be the most common illnesses in childhood. Ninety percent of children less than five years are found to be suffering from ARI where 2/3 of them received advice/ treatment from health providers of whom ½ received antibiotics. Diarrhea is most common at age 6 to 11 months (27%) whereby 58% of them are taken to a health facility for rehydration with Oral rehydration salts (ORS) (Worku & Woldesenbet, 2015).

2.3.1.2 Marital Status

In Malawi, a study was done on compliance with preventive therapy of malaria during pregnancy by the use of single-dose anti-malaria called sulfadiazine pyrimethamine (SP). According to the study women who were married staying with their spouses had a higher probability of compliance with the preventive therapy of malaria during pregnancy compared to unmarried, single, and window (Kibusi, 2015). In Uganda, a study on determinants of maternal health services showed that being a Muslim married reduced a woman's chance to utilize health services than Muslim unmarried (Rutaremwa, *et al.*, 2015).

2.3.1.3 Education and Awareness

Globally, studies have shown that the education status of a mother was highly associated with the utilization of health services. High numbers of women with secondary education and above utilized health services compared to below secondary education (Pandey, Pandey, & Singh, 2015). The major barrier towards the utilization of maternal health services in Tea Gardens of Darjeeling in India was found to be ignorance (Bhattacherjee, Datta, Saha & Chakraborty, 2013). In Africa, a study was done on socio-demographic factors that influence women's utilization of trained personnel at birth in Northern Ghana which showed that health education improves women's utilization of skilled delivery services (Sakeah, *et al.*, 2014).

In Kenya, studies show that educated/urban women are more likely to be informed of signs of pregnancy complications than less educated/ rural women and worst among the marginalized groups. Women in the highest wealth quintile are almost twice as likely to

receive information on pregnancy complications as are those in the lowest wealth quintile. Except for Nairobi and Central provinces, less than half of women in other provinces have been informed of signs of pregnancy complications (KDHS, 2008-2009).

2.3.1.4 Religion

A study conducted in both South Asia and Sub Sahara Africa revealed that 68% of Christians utilized health services to include ANC, delivery in a health facility, and postnatal care of which 95% were Catholics against 32% non-Christian of whom 99% were Muslims. This showed therefore that religion can influence the utilization of maternal and child health services (Tey, 2013).

2.3.1.5 Occupation

Globally, Studies show unequal utilization of services based on the number of dependents in a household. In families with many dependents where regular income was from a household head, utilization of services was lower compared to families with few dependents or where both partners were employed/ were earning some income (WHO, 2017). In Bangladesh study showed that contraceptive use was higher among employed women of every level of education (primary 69%, secondary 59% and higher 68%) compared to unemployed counterpart (primary 62%, secondary 59% and higher 65% (Islam, *et al.*, 2015). In Eastern Nepal, jobless couples with unnecessary expenditure on health services were proved to increase or reduce the chances of the utilization of ANC, skilled Delivery, and postnatal services (Lama & Krishna, 2014).

A study on wealth and antenatal care in Ghana showed that wealth positively influences health service utilization and poverty negatively influences the utilization of health services. The type of employment was not well spell out but was highlighted in terms of

the amount of income (Arthur, 2012). According to (Eriksson, *et al.*, 2010), there is a positive relationship between professional ANC coverage and wealth quintile. It was evident in the study that women with the highest wealth quintile were more likely to receive care from professionals/ consultants than those of the lowest wealth quintile.

In Bangladesh's study, it was found out that there was a high fertility rate and high population rate among the poor compared to the rich hence the poor families had more under five years old children and more children than the rich (Islam, *et al.,* 2015).

2.3.1.6 Place of Residence

Globally, studies showed that the distribution of sources of antenatal services differs for rural and urban women. In urban areas, women visited government hospitals and private hospitals and clinics for services more than women in rural areas or hard to reach areas who visit government health facilities (KDHS, 2014). According to a study in Kenya on the utilization of maternal health services, the high chance of a mother dying or getting a disability during antenatal and delivery period is closely related to the remoteness of her dueling place. This means therefore that the more marginalized a mother is, the higher the risk of death (Achia & Mageto, 2015).

The top cause of maternal/neonatal death in developing countries where a high proportion of deliveries is conducted at home or in places where hygienic conditions do not exist is tetanus. To prevent this woman of reproductive age is required to receive five doses of tetanus toxoid (TT) injection to be protected (Akunga, Menya, & Kabue, 2014). KDHS reports (2014) showed that 55% of mothers in Kenya receive two or more doses of tetanus toxoid during pregnancy. It explains further that mothers in urban and those with lower parity most likely receive two TT injections than those who have higher parity and reside in rural areas. 73% of recent births are protected from neonatal tetanus

whereby the births to less educated women are less likely to be protected against neonatal tetanus than those to more educated women. In Kenya the coverage against neonatal tetanus in provinces varies per province, for example, the lowest in North Eastern province is at 63% to highest in the central province is at 82%.

2.3.1.7 Parity

According to a study in Ethiopia, parity was studied but had no significant (Babalola & Fatusi, 2009). Parity was seen as a circumstance factor which among other factors has an association with their choice of utilization (Hossain & others, 2010). According to (Emelumadu, *et al.,* 2014), in a study done in rural Nigeria found that parity as a factor is associated with ANC visits number and time of booking ANC. Women who were grand multiparous in that study were found to have booked for ANC after the first trimester and had attended ANC less than 4 times prior delivery. It was also seen that mothers with an unwanted pregnancy were less likely to seek care in a health facility compared to those with wanted pregnancy (Kant, *et al.,* 2015).

Study on chronic diseases patient's experiences with accessing health care in rural and remote areas showed that most of the chronic diseases in urban area worsen in rural areas and hard to reach areas which include: Asthma, diabetes mellitus, gastritis, arthritis, cancer, epilepsy, mental disorder, high blood pressure, asthma and fistulas in gynecology for example births to older women and those of higher birth orders are more likely to receive less no of checkup compared with births to younger women and those of lower birth order. (Brundisini, *et al.,* 2013).

During delivery, studies show that 44% of birth in Kenya are delivered by the skilled birth attendant, 28% traditional birth attendants, 21% relatives, and 7% unassisted mothers. Births to older women and those of higher birth orders are more likely to occur

with no assistance compared with births to younger women and those of lower birth order. Urban areas and mothers who have education or wealth are more likely to be assisted by skilled attendants than mothers from rural marginalized areas or who have low levels of education. Based on provinces western province record lowest 26% of birth by a skilled attendant, 32% North Eastern, and Nairobi 89% (Mahapatro, 2012).

2.3.1.8 Gestation Age at 1st ANC

This care aims at preventing adverse pregnancy outcomes when care is sought early in pregnancy and continued through delivery. Evidence shows that early detection of problems in pregnancy lead to early/ timely referrals especially the high-risk categories or where there is a complication (Ronsmans, Graham, Lancet, group, & others, 2006). In Kenya ¾ of the population lives in rural areas where physical barriers pose a great challenge to health care delivery. The guideline on focused antenatal care shows that pregnant women without any complication need to attend four antenatal visits before the delivery in a health facility. The first antenatal visit has to be within the first three months of pregnancy/ below 16 weeks of gestation, the second visit has to be 16 to 28 weeks of gestation, third visit between 28 weeks to 32 weeks of gestation, and fourth visit at about 36 weeks gestation. More frequent visits or different schedules are recommended if women have problems and complications that require treatment and additional monitoring (Black, et al., 2016). It was also seen that mothers with an unwanted pregnancy were less likely to seek care in a health facility compared to those with wanted pregnancy (Kant, *et al.*, 2015).

In Kenya, 47% of pregnant mothers make four or more antenatal visits to health facilities. In urban areas, 60% of women make four-plus visits to antenatal care compared to 44% of rural women. It was found that only 15% of women receive care in

the first trimester and 52% receive it before the sixth month of pregnancy.5.7 was found to be the median number of months of pregnancy for antenatal care first visit (KDHS, 2014).

2.3.1.9 Attitude towards MCH/FP Provider

A study on determinants of postnatal care use in Kenya showed that postnatal uptake in Kenya is at 47% which is too low to prevent diseases to children at an early age. The main barrier was identified by the mother to be the attitude towards male health care providers. Mothers were comfortable to be seen by male nurses when sick or in pain but not when they are well or rather not sick (Akunga, Menya, & Kabue, 2014).

2.3.1.10 Support from the family/community

Culturally among the marginalized community, a woman is taken as one of the children of the man (husband) and therefore has no power to decide on her own. The husband or mothers in law are the ones to permit utilizing all traditional means of treatment (Muriuki, *et al.*, 2017).

According to Oladipo, (2014) who examined the relationship between utilization patterns based on a set of economic variables which include third-party influence, family income, insurance coverage, motivational benefits, cost/prices of health services, availability and free care for all or certain categories of illnesses and the proximity of services found that there was an association between the variables and the use or uptake of services by 80%.

2.3.2 Health Facility factors

In Kenya, 83% of women attended antenatal services in government centers commonly government hospitals and dispensaries, 16% in private facilities. Women in Nairobi

utilize private sources more than all other provinces in the country. Eastern and coast provinces women mostly visit government sources for antenatal care services while 5% of women in the western province receive antenatal care services at home (KDHS, 2008-2009).

2.3.2.1 Distance to the health facility

The kilometers traveled to a facility reduced the probability to seek help in a health facility by 4.4% and nearness to facility increased institution delivery by 10% which confirmed that distance in rural India was a barrier to seeking the advice of both minor and major health problems. Mother seeks help from husband, mothers in law, traditional birth attendants' magicians before they reach to the distance hospital (Kumar & Narayan, 2014).

A study done on determinants of delay in care-seeking among mothers with under-five children with fever in the Dodoma Region in central Tanzania showed that 55% of children with fever are taken to the health facility for care with 24 hours. There was a median delay of two days. The delay was caused by a distance of over five kilometers away from the child resident area and the child living with one parent or non-biological parent (Kassile, Lokina, Mujinja, & Mmbando, 2014). The cost will focus on a single trip per person from home to facility and the period taken to travel. Transport is identified as a key constraint on achieving the maternal goals in many developing countries in Africa (Zelalem, Belayihun, Teji, & Admassu, 2014). There are few or no health care facilities or means to transport people to health facilities. It was seen that 90% of children often die at home without their families seeking health care due to lack of transport or cost of transport especially services requiring a referral (UNFPA, WHO, & UNICEF, 2010).

According to Yerramilli & Fonseca, (2014) study on assessing geographical inaccessibility to health care, the most popular features affecting the health status and health outcomes involve distance between people`s geographical region and health facilities and the travel period to arrive at those health facilities. The health facility is supposed to be five kilometers from people's residence and the working period to be less than one hour. In developing countries, most clients have to pay a fee to enable them to reach the facility (Cleland, *et al.,* 2015).

2.3.2.2 Waiting time

In Kenya, measures of service volume in government facilities of a similar level of infrastructure and staffing found that the average number of these services delivered in each facility was approximately 2000 visits per year or 5-10 per day. Yet some facilities reported no service delivery of important services and others reported five to six times above the average. This was confirmed in a study with other countries that 35% of health workers are absent during official working hours and some rural facilities close due to the absence of staff (Berman, Pallas, Smith, Curry, & Bradley, 2011)

2.3.2.3 Payment of ANC

A study in Vietnam revealed that "limited negotiation power and autonomy" among the marginalized people coupled with understaffing in health care facilities and poorly equipped facilities lead to the high demand of the same services and hence high rise of the cost of health care services in privately owned facilities (UNFPA, WHO, & UNICEF, 2010).

2.3.2.4 Payment of FP

A study on client satisfaction with services in Uganda's public health facilities showed that the nearer the clients were to Kampala the higher their satisfaction and further them were from the city the lower their satisfaction. There was more shortage of most resources as one move to the rural compared to urban (Pandey, Pandey, & Singh, 2015).

2.3.2.5 Working days for Health Facility

Globally, developed countries experience a lower rate of maternal death than in developing countries. The lower nations account for 99% of maternal death mainly Sub-Saharan Africa plus Southern Asia. The trends, therefore, revealed that those high-income countries are well equipped with infrastructure, medical and healthcare personnel; better and consistent use of advanced medical technologies and have fewer barriers to access health care services than their counterpart low-income Countries (UNFPA, WHO, & UNICEF, 2010). A study done in India showed that 15.8% of women felt the waiting time was acceptable while the rest felt it was not acceptable. Some of the factors attributed to these were staff shortage and low standard of education among the clients and low income (Mahapatro, 2012).

KDHS report (2008-09) showed that women receive antenatal care from a medical professional, that is either doctors 29%, nurse and midwife 63%, and traditional birth attendants <1% and some do not receive at all 7 %. These results showed that there was a shift away from the use of nurses and midwives from 70% in 2003 down to 63% in 2008-09 towards doctors from 18% in 2003 up to 29% in 2008-09.

2.3.3 Health Provider's Cultural Competence

Health care organizations provide services to clients from diverse cultural backgrounds hence the need for culturally appropriate client-centered systems and services for best health care (Mccalman, Jongen, & Bainbridge, 2017). Increased diversity of the nation, therefore, brings opportunities and challenges for health care workers, systems, and policymakers to provide culturally competent care. Cultural competence is the ability of health care workers and the health organization to provide socially, culturally, and linguistically sound services as well as competent health care system that can improve health outcome and the quality of care while eliminating racism and ethnic disparity in health (Shepherd, Esqueda, Newton, Sivasubramaniam, & Paradies, 2019). The study focused on the cultural competence of health care workers to include knowledge of traditions, language, and customs.

Reports from a previous study conducted in the study area that aimed to determine why Sabaots of Mt. Elgon continue to practice female genital manipulation (FGM) found deep-rooted culture meant to initiate girls to womanhood and stop women and young mothers from craving for sex until their husbands returned from war or long-distance places away from home. Most advice on minor health problems was given by circumcisers. The problems experienced during this time included the rising risk of maternal and infant mortality, psychological stress, sexual and reproductive health issues, severe pain, hemorrhage, tetanus infection, cysts, and urine incontinence (Mafabi, 2011).

2.3.3.1 Knowledge of Language

Globally, ethnic minorities and immigrants are identified to be the most disadvantaged. They score very low on social inclusion like employment with high scores in school

dropout, homeless, and criminal prosperity. Unlike the European Union which strives to increase the labor market participation of these marginalized populations to promote their political, social and cultural (language barrier) lifestyle to the same level as the majority population (Bossuyt, 2009). Besides, language and communication are seen to pose a barrier in the health care delivery of services and it is important to have a supporting language and communication for marginalized groups particularly concerning the provision of interpreting services to facilitate intercultural communication (Schyve, 2007).

A study conducted in Slovenia showed some degree of effectiveness in the patient outcome or nurse cultural competence training in Slovenia although it was insufficient to allow a conclusion on the effectiveness of intervention strategies used (Licen, Karnjus, Bogataj, Rebec, & Prosen, 2019). A study of health care workers on cultural competence in Ethiopia revealed that the highest competent worker was at 57.3% majority was only aware of their own culture and not the culture of the people they serve. A few mothers who were interviewed in this study showed culture competence discordance in services received. It came out clearly that female health workers were six times culture competent than males (Aragaw, Yigzaw, Tetemke, & Others, 2015).

2.3.3.2 Knowledge of Traditions

In Africa, most girls who undergo FGM as cultural practices are willing 54%, and 45% were forced. The same was reflected on forced marriage and forced widow inheritance (UNFPA & UNICEF, 2011).

A study carried out in Nakuru in Kenya showed that 72% of Ogiek of River Njoro watershed believes in medicinal plants to be more effective against more than 80% of diseases in that community and only 23 % indicated that medicinal plants were effective

against 50 to 80% of diseases. However, the study found out that the belief of Ogiek is declining when other communities settle in the area which makes the current generation have less knowledge on plants and there medicinal value leading to the destruction of the habitats (Ngari, 2010).

A study on the influence of peacebuilding strategies on ethnic cohesion among communities in Mt. Elgon Sub County revealed that female genital mutilation (FGM) is done in Mt. Elgon (Chelimo, 2016).

2.3.3.3 Knowledge on Customs

Cultural competence in Ethiopia, assessed health worker's knowledge of cultural, skills, and cultural selection of patient preference. Seventy percent (70%) of staff did not ask to know the needs of families based on the traditional background to include delivery of women and burial of placenta before and after throwing it away. Eighty-four point three percent (84.3%) were found to be culturally incompetent in service to the community, 12% were aware and 15% were competent and proficient. Seventeen point seven percent (17.7%) of health care workers never allowed members of mother's families to assist the sick, 33.95 restricted mothers their chosen position during delivery and 35% allowed mothers to deliver only on delivery couches. Evidence shows that environments favorable to the nursing team`s professional practice can bear fruits of the lower level of emotional exhaustion, higher quality of care, and positive perception of the safety attitudes to attract or turn away clients (Guirardello, 2017).

The sabots of Mt. Elgon Constituency like other Ogiek are strict and stick to their culture. There were ethnic divisions after Saboat land defense force (SLDF) which drove the Ogiek community in and beyond the forest. None Sabaots (also called *madoadoa* meaning foreigners, outsiders, and intruders) are scattered on boundaries of Mt. Elgon

constituency. Therefore, the psychosocial trauma has to be addressed in health care services delivery and has to be addressed in a culturally coherent manner before the delivery of any service (Chelimo, 2016).

2.3.3.4 Assessment tool on Cultural Competence

Cultural awareness was the lowest requirement for cultural competence. It was conducting self-examination of providers' own biases towards women's cultures and the in-depth exploration of one's cultural and professional background. Cultural skill refers to the ability of health care providers to conduct an assessment to collect relevant cultural data regarding the woman's presenting problem as well as accurately conducting a culturally-based physical assessment. Cultural encounter refers to directly engaging in face-to-face cultural interactions with clients from culturally diverse backgrounds to modify existing beliefs about a health-related culture of women and to prevent possible stereotyping. Cultural competence was an educative process that involves developing self-awareness, learning to appreciate the difference, valuing cultural practices other than one's own, and acting flexibly in ways that accommodate these values. Scores for cultural competence of maternal healthcare providers were interpreted as follows: 91–100 % = culturally proficient; 75–90 % = culturally competent; 51–74 % = culturally aware; 25–50 % = culturally incompetent. Cultural competent- health workers were labeled culturally competent if they kindly answered 75 % of the questions. Culturally incompetent; health workers were labeled culturally incompetent if they answered <75 % of questions.

2.4 Summary of Literature Review

Some studies have been done on this topic. The impact of culture and the diversity of culture on the utilization of maternal health care services has not been well explored. The

use of cultural competence tools to assess the health care providers Knowledge, skills, and attitude has not been embraced. This study, therefore, is going to inform policy and Health care systems on universal health care for a marginalized population with the cultural competence tool to assess health care providers.

Unique client Characteristics concerning maternal health care services among the population under study has not been explored as the study area experiences frequent conflicts posing insecurity. The FGD and KII used will avail views to inform the health care system and policymakers to reconstruct the plans towards client satisfaction.

Health facility factors studies were covered in many studies globally but the contrary findings in the study area not complying with WHO recommendation would advise the Health care system and policymakers on priority areas in strategic planning.

CHAPTER THREE

METHODOLOGY

3.1 Overview

This chapter describes the specific procedures and strategies that were employed in data collection and analysis so that it could answer the research questions. The chapter focused on research design, location of study, study population, sampling procedures and determination of sample size, research instruments and data collection procedures, measurements and coding, data analysis methods, and the ethical considerations.

3.2 Study Design

A descriptive-analytic cross-sectional study was adopted where both qualitative and quantitative methods of data collection were used. Data was collected from the targeted population from January 2019 to March 2019 to take advantage of single time (snapshot) data gathering given the time allocated for the study to be completed.

3.3 Study Area

The study was carried out in Mt. Elgon constituency in both Cheptais and Mt. Elgon Sub Counties. They fall within the vulnerable marginalized community/ group (VMG) of Ogiek (Dorobo) which was among the twelve marginalized communities identified as VMG as per the criteria set by World Bank OP 4:10 and the Kenya constitution 2010 article 260 in Kenya. Which included: Sengwer of Trans-Nzoia, Ogiek of Mt Elgon in Bungoma and Trans-Nzoia Counties, and Mau Forest Complex of Nakuru, Narok, and Nandi Counties, Endorois of Baringo County, Dorobo of Kinale Forest from Kiambu County and of Mathew ranges from Samburu County (MOH, 2016). It covers approximately 944 square kilometers ($km^{2)}$. The neighbors include Uganda in the West

and North, Transnzoia in the East and Kimilili, Kabuchai, and Sirisia Sub Counties in the South(MOH, 2016).

There have been many conflicts in Mt. Elgon as witnessed in 1963, 1975,1983, 1987, 1992,1997, 2006, the most recent 2007 called Sabaot Land Defence Force (SLDF) which left about 600 people dead and over 84000 people displaced (Chelimo, 2016), and the current Parakachai killings that have led to the ongoing curfew sanction in Cheptais and Kopsiro parts of Mt. Elgon Constituency.

The Ogiek community being hunter-gatherer was displaced to the forest and beyond the forest where they graze there animal and they do not officially own the land.

The constituency has two Sub Counties namely Cheptais and Mt. Elgon. There were six wards, two in Mt. Elgon and four in Cheptais namely Kaptama, Elgon, Chebyuk, Kapkateny, Cheptais, and Cheskaki. Mt. Elgon constituency has thirty-two health facilities. All these health facilities were registered to offer maternal health care services and data on the services were uploaded on the District Health information system as shown in the table below (DHIS, 2015).

The population was postnatal mothers in Mt. Elgon Constituency who delivered in the last year preceding the study. The Constituency was divided into two political Sub counties namely; Mt. Elgon and Cheptais, six wards namely: Kapsokwony, kaptama in Mt. Elgon while Chebyuk, Kapkateny, Cheskaki and cheptais in Cheptais. According to (KNBS, 2009), the population estimate was at 172,377 live in the southern part compared to the northern part which was covered by the forest.

It is a multi-ethnic population with sabaot being majority 60% (103,427) of population. The Sabaots being a sub-tribe of Kalenjin further comprise of dialectical groups namely: Someek, Bok, Koony, Sabiny, Bongomek, and Ogiek. Ogiek was 20% (20,686) of the sabaot dwellers and lives in the northern and higher part of the three wards of Mt. Elgon

Constituency namely Chepyuk, Elgon and Kaptama who are mainly pastoralists foraging in the forest. They keep donkeys which are vital transportation means. Their area was well known as hard to reach area (Chepkitale) as there no roads and means of transport with no network. The remaining Sabaots form 80% and settled in the lower region who were agropastoralists. Bukusu were 25%, Iteso 13%, and other remaining communities formed 2% (Chelimo, 2016).

Table 3.1 List of health facilities in the Mt. Elgon constituency per Ward

MT. ELGON CONSTITUENCY						
Sub Counties	**Mt. Elgon**		**Cheptais**			
Wards	**Kaptama**	**Elgon**	**Chebyuk**	**Kapkateny**	**Cheptais**	**Cheskaki**
Facility1	Kaptama Health Centre (Level 3)	Kapsokwony sub-county hospital (Level 4)	Kubura Dispensary (Level 2)	Kapkatenyi Dispensary (Level 2)	Cheptais Sub County Hospital (Level 4)	Cheskaki Dispensary (Level 2)
Facility 2	Chesinende Dispensary (Level 2)	Kamuneru Dispensary (Level 2)	Kopsiro Health center (Level 3)	Kapsambu Dispensary (Level 2)	Chebkube Dispensary (Level 2)	Tuikut Dispensary (Level 2)
Facility 3	Kaboywo Dispensary (Level 2)	Sacha Dispensary (Level 2)		Ruanda Dispensary(Level 2)	Wasio Dispensary (Level 2)	Kapkota Dispensary (Level 2)
Facility 4	Chepkerer Dispensary (Level 2)	Sambocho Health center (Level 3)			Kanganga Dispensary (Level 2)	Marigo Dispensary (Level 2)
Facility 5	Kaptalelio Dispensary (Level 2)	Koshok Dispensary (Level 2)			Nalondo Dispensary (Level 2)	
Facility 6	Kamenjo Dispensary (Level 2)	Chemworemwo Dispensary (Level 2)			Spicas Clinic (Level 2)	
Facility 7	Kaborom Dispensary (Level 2)	Chemses Dispensary (Level 2)				
Facility 8	Chemoge Dispensary (Level 2)	Chebon Clinic (Level 2)				
Facility 9	Kapchebon Dispensary (Level 2)					

In tier one there are forty-nine community units in the constituency as shown in the table below.

Table 3.2 List of community units in Mt. Elgon constituency per Ward.

	MT. ELGON CONSTITUENCY					
Sub Counties	**Mt. Elgon**		**Cheptais**			
Wards	**Kaptama**	**Elgon**	**Chebyuk**	**Kapkateny**	**Cheptais**	**Cheskaki**
CU 1	Chesinende	Koshok	Emia	Cheptonon	Ngachi	Chemondi North
CU 2	Kaptalelio	Bugaa	Kubura	Terem	Cheptais South	Chemondi South
CU 3	Kaptama	Kapsokwony	Kaimugul South	Toywondet	Chebkube	Sasuri
CU 4	Kaborom	Chemoremwo	Kaimugul North	Masaek	Kanganga	Toroso
CU 5	Kipyeto	Chemses	Chepkurukuru South	Kapkirongo	Ngachi Township	Cheskaki
CU 6	Kamenjo	Nomorio	Chepkurukuru North	Chongeywo	Chebwek	Marigo
CU 7	Kaboywo	Kibuk	Korungotuny			
CU 8	Chemog	Kimobo	Chepyuk			
CU 9	Chepkerer	Sambocho				
CU 10	Kongit	Sacha				
CU 11	Laboot	Kamuneru				
CU 12	Toobo					

The topography of hills contributed to the poor road network and limited phone and internet network which made it hard to call for help on phone, to refer mothers in the advanced first stage of labor from home to a facility. Out of 32 Health facilities in the constituency, only three (sub-county hospital) operated for twenty-four hours as a basic emergency obstetric and neonatal care (BEMONC) facility not as a comprehensive emergency obstetric and neonatal care (CEMONC) facility.

Ogiek community had unique cultural practices to include; FGM, Use of soil, cow dung, bats stool, and traditional herbs to treat newborn umbilical cord after birth. Herbs were also used to induce labor and in augmentation of labor. Also in sabots, a woman was traditionally regarded as a child and could not make independent decisions. Punishments

included the physical wife biting and the use of Oloibon powers (powers of the dark) alluded in (Mdard, 2010).

3.4 Target Population

The target population was mothers who were residents of Mt. Elgon Constituency and health care providers working in the health facilities in the study area.

3.5 Inclusion and Exclusion Criteria

3.5.1 Inclusion Criteria

Postnatal mothers who delivered in the last twelve months before the study and were residents in Mt. Elgon Constituency. Also included in the study were health care providers who were working in the study area.

3.5.2 Exclusion Criteria

Postnatal mothers were found to be mentally ill.

Postnatal mothers who were critically ill in the hospital.

Newly employed health workers.

3.6 Sampling

3.6.1 Sampling Procedure

A multistage sampling method was used. The two sub-counties in one constituency were purposively selected. The four Wards were randomly selected where the sub-locations were drawn. Due to the insecurity that leads to 2019 curfew sanction, probability proportion size (PPS) sampling was used to select sub-locations. Simple random sampling was done in the sub-locations to select 26 villages where the households were drawn. In each village, registered households were randomly sampled to select the homes to be visited. Random sampling was used to select 510 households in the villages.

In the household, only one eligible client was interviewed. Participants for the self-administered questionnaire were randomly selected from the 32 facilities to include medical officers, clinical officers, and nurses. The wards, sub-locations, villages, households, and eligible clients were mapped as shown in the table below.

Table 3.3 Multistage

Mt. Elgon Constituency		
Mt. Elgon Sub-County		**Cheptais Sub-County**
6 Wards	2 wards	2 wards
15 Sub locations	5 Sub locations	5 Sub locations
26 Villages	13 villages	13 Villages
510 households	20 households	19 households

3.6.2 Sample Size Calculation Formulae

The desired sample size was determined using Cochran *(1963:75)* (Israel, 1992) and multiplied by the design effect (MOH, 2016)

$$n = \frac{\mathrm{D}(\mathrm{Z}^2\mathrm{pq})}{\mathrm{e}^2}$$

Where n was the sample size, Z^2 was the abscissa of the normal curve that cuts off an area α at the tails; (1- α) equals the desired confidence level e.g 95% (1.96); P was the estimated proportion of an attribute that is present in the population (28% skilled deliveries); q was 1-p (72% unskilled deliveries) and e was the desired level of precision (0.05). D was the design effect (1.5)

$$\mathrm{n} = \frac{1.5(1.96^2 \mathrm{x}\ 0.28\ \mathrm{x}\ 0.72)}{0.05^2}$$

$$\mathrm{n} = 464$$

According to (Singh & Masuku, 2014) and (Kish, 1965). The sample size was increased by ten percent (10%) to compensate for nonresponse.

Loading 10% to cater for non-responses $\frac{10}{100} \times 464 = 46$

Sample size plus ten percent, therefore, was $464 + 46 = 510$

The sample for the study was 510.

3.7 Development of Research Instruments

The researcher adopted and modified questionnaires, Key Informant Interviews (KII) and Focused Group Discussion (FGD) theme used in the similar environmental conditions by (Achia & Mageto, 2015) and (Scharlach, et al., 2006) in the northeastern parts of Kenya and (Mason, 1995) in Portland's state university.

The researcher used a structured interviewer-administered questionnaire divided into sections. Section 1 captured the client characteristics data to include gender, age, marital status, level of education, Religion, occupational status, the period of employment, the period of stay in the area, Number of children under five years, Number of dependants in the household and self-rating of poverty. Section 2 community health needs identification. Section 3 assessed the health facility factors Section 4 Support or affordability of maternal health care services. Section 5 assessed the cultural competence of health care workers on the utilization of services. The KII and FGD had the same themes administered to staff and mothers respectively.

3.7.1 Pilot of the Study

The pilot was carried out in Kimilili Sub County. Two wards were sampled to include Kamsinga and Kibigei where four research assistants who were trained for two days assisted to collect data. This was done to assist the researcher to discover gaps in the research instruments, check the clarity of questions as well as training assistants practically on how to use tools during data collection in the field and how to store collected data. The results showed that there was an association of client characteristic (p 0.04) cultural competence of health care worker (p 0.03) to maternal health care

service utilization. This helped the researcher to modify spelling mistakes in the tools to meet the objectives.

3.7.2 Validity of Instruments

According to Leedy &Ormrod, (2005) and Silverman, (2013) content and construct validity were supposed to be established by referring the instruments for professional judgment to check whether it measures what it was claimed to measure. In this case, the researcher sought a piece of advice from the two supervisors and other experts from the Department of Clinical Nursing and Health Informatics in the School of Nursing and Midwifery at Masinde Muliro University of Science and Technology in Kakamega. The corrections and suggestions were used to produce the final copy of the questionnaire.

3.7.3 Instrument Reliability

The consistency and accuracy of the instrument were determined before it was used for actual data collection in the pilot study. To minimize error only eligible clients were interviewed. Both questionnaires for mothers and that on cultural competence were tested for their reliability and each had a Cronbach alpha of 0.84.

3.8 Data Collection Procedure

In the field, the researcher conducted two-day orientation training for four research assistants on the tools that were used. The research assistants assisted to collect data from participants using an interview assisted questionnaire to mothers and self-administered questionnaires to staff.

Using the sub-county community strategy data, all the households registered by malaria program for net distribution were used to map households in Mt. Elgon Constituency. One research assistant was allocated in each of the randomly selected four wards. Thirty-nine villages were randomly selected by village elders picking folded papers with village

names from the randomly selected sub-locations. In each village the first house was randomly selected by tossing a coin then the next household was systematically selected ie the third house was selected until 510 households were reached. The non-selected villages in the Ogiek dominated sites were conveniently selected for FGDs where five groups of six participants each were selected in both Cheptais and Mt. Elgon Sub counties of Mt. Elgon Constituency.

The Sub-County health facility returns were used to map and randomly select the health facilities where 20 staff was randomly selected by research assistants picking papers folded with names of facility written on. In the facilities selected only one staff who consent first after explanation of intention to carry out a study was given a questionnaire to answer and return. The remaining ten facilities were conveniently selected for the facility in charge to respond to the KII.

3.9 Data Analysis

All collected data were checked for quality and completeness before analysis. All statistical analyses for quantitative data were cleaned, coded and analyzed using the statistical package for social sciences (SPSS statistics version 25) computer software program by two experienced data entry clerks under supervision of data analyst who carried out logical cross-checks, error listing and duplicate checks using SAS™ for Windows version 8.0. Descriptive statistics: Frequency, means, percentages, the standard deviation was done. The bivariate analysis was done followed by logistic regression. The relationship between independent and dependent variables was tested using the odds ratio using a 95% confidence interval whereby a p-value of <0.05 would reject the null hypothesis in favor of the alternative hypothesis. Scores for cultural competence of maternal health care providers was interpreted as follows: 91-100% = culturally proficient; 75-90% = culturally competent; 51-74% = culturally aware; 25-50% =

culturally incompetent. Cultural competent – health workers were labeled culturally competent if they had kindly answered 75 % of questions. Culturally incompetent- health workers were labeled culturally incompetent if they had answered <75% of the questions.

Qualitative data was processed and analysis of themes from FGD and KII was done using the prior themes shown below.

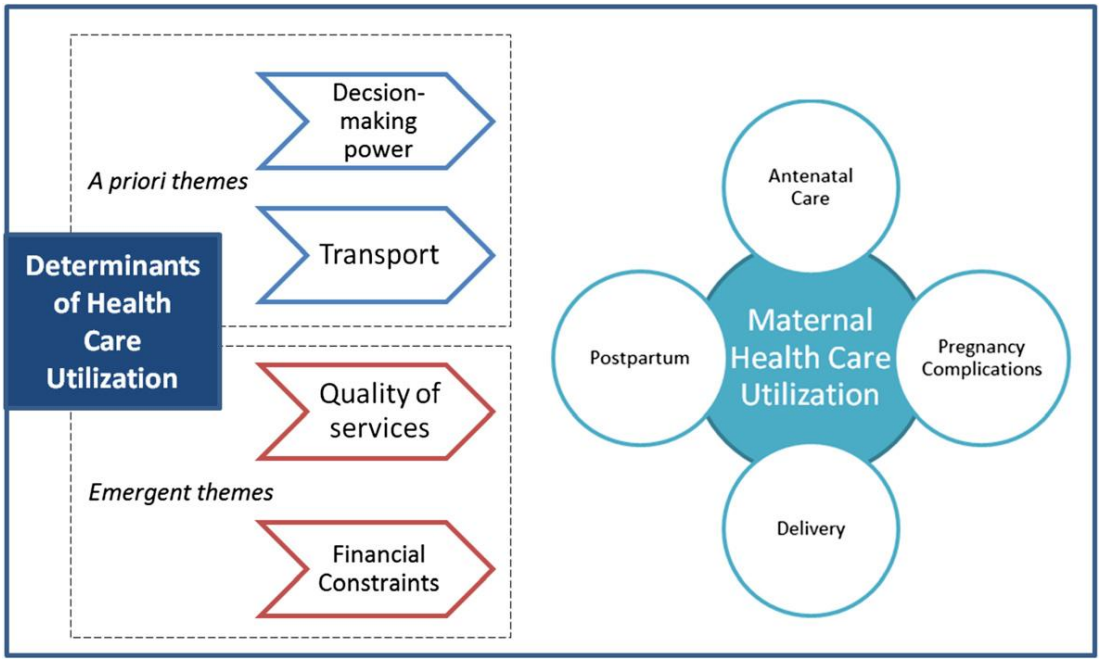


Figure 3.1 Thematic analysis structures
(Adapted from Vidler *et al.*, Reproductive Health (2016)

3.10 Dissemination of Research Findings

The data were synthesized qualitatively using codes to synthesize the results and come up with conclusions that then would be disseminated to the university, the ministry of health, and the community where the research was done through the provincial administration and county administration.

3.11 Ethical Considerations

The researcher observed the principle for ethical research to include: Research merit and integrity, respect of human beings, Beneficence, justice, privacy and confidentiality and least but not last informed consent (Vanclay, Bianes, & Taylor, 2013).

3.11.1 Research merit and integrity

Approval of the study was sought from the Institutional Ethical Review Committee of Masinde Muliro University of Science and Technology and National Commission for Science, Technology, and Innovation. Permission to survey in Bungoma County was sought through research and an ethical review committee of the County, the two Sub-County Medical Officer of Health (SCMOH), and the two Sub County administrators. The researcher observed five universal ethical principles, including respect for participants, beneficence, justice, confidentiality, and informed consent. The study was conducted by a qualified researcher and reviewed by competently qualified supervisors who ensured all steps were followed.

3.11.2 Respect for human beings

The researcher recognized participant's intrinsic values by allowing them to exercise autonomy and make their own culturally accepted decision before they sign a voluntary and informed consent. The study participant was explained that they had a right to participate or not without losing their human rights. As human beings, they were guaranteed freedom from harm psychologically because research assistants were their sons and daughter and physically as there was no test. There was freedom from exploitation as the information collected was to be used to improve health and not to be used against them.

3.11.3 Beneficence

There was no harm caused to any participant, whether physical, psychological, social, and economic. Local research assistants were used to preventing social, emotional, and psychological issues related to culture. No exploitation was practiced on a participant to benefit the researcher. Any benefits and risks were shared by the client so that she makes her own decision on whether to participate in the study or not without any cohesion. Those who opted out would do so without loss of any benefit or required care. Unforeseen risks and guarantee of anonymity, benefits, and compensation or lack of them were explained to the respondents.

3.11.4 Justice

The researcher observed dignity by ensuring a fair process of recruitment by simple random sampling, to ensure no participant exploitation but instead actively protect participant wellbeing by anonymity on questionnaires and used the shortest time possible to answer questions. The results from the study would be revealed and disseminated transparently despite the outcome of the research. The benefits of the research would be shared with all stakeholders.

3.11.5 Privacy and confidentiality

Information given by the respondent was kept confidential and anonymous. The respondents were free to ask questions for clarification where necessary and privacy was maintained. All data collected from the participant was kept confidential, under key and lock by the researcher and only shared by concerned research parties.

3.11.6 Informed consent

The participants read and understood or were explained to all the contents of informed consent to include: the title of the study, principal investigator's name and contacts, the purpose of the study, procedures to be followed, risks and benefits of the study, confidentiality of the information given and voluntary conditions to participate. The participant came up with an informed decision on whether to participate or not. Participants who decided to participate then sign or put a fingerprint to verify that she willingly accepted to respond to the questions on the questionnaire.

CHAPTER FOUR

RESULTS

4.1 Overview

This chapter presents the analyzed data and their interpretation and discussion while answering the research questions. The chapter looks at the response rate on the client's characteristics, health facility factors, and the cultural competence of health care workers on maternal and child health service utilization among mothers of Mt. Elgon constituency in Bungoma County.

4.2 Socio-demographic characteristics of respondents by sub-county of residence

Table 4.1 shows the socio-demographic characteristics of respondents who were interviewed. A total of 510 respondents took part in the study with the majority (n=372; 72.9%) being from Mt. Elgon sub-county while 27% (n=138) were from Cheptais Sub-county due to curfew which obstructed movement in the large part of Cheptais and Chepyuk/Kopsiro wards. The mean age of respondents from Mt. Elgon Sub County (25.8±7.3) was comparable with that of respondents from Cheptais Sub County (26.3±7.2) through the youngest respondent aged 10 years was from Mt. Elgon Sub County. The difference in mean age between the two sub-counties was not statistically significant (t=0.6; df=508; p = 0.6). Likewise, there was no significant difference in the respondents' age groups (p= 0.7).

A comparison of the marital status of respondents shows that the majority from Mt. Elgon sub-county (n=279; 75%) and Cheptais sub-county (n=102; 73.9%) were married. Again, there was no statistically significant difference in the marital status between the two sub-counties (p=0.4). Level of education revealed that, more than half of the respondents from Mt. Elgon sub-county (n=205; 55.4%) and Cheptais sub-county (n=81; 58.7%) with no significant difference statistically (p=0.6). The predominant religious

group in both sub-counties was Christianity with the highest proportion being from Cheptais sub-county (n=134; 97.1%) followed by Mt. Elgon sub-county (n=348; 93.6%). However, their difference was not statistically significant (p=0.1).

As regards respondents' occupation, both in Mt. Elgon sub county (n=229; 61.6%) and Cheptais sub county (n=91; 65.9%) were housewives, the difference being non-significant statistically (p=0.5).

Respondents were asked about the number of people bringing income in the household in the past 6 months. In both sub-counties, more than two-thirds of caregivers from Mt. Elgon sub-county (n=263; 70.7%) and Cheptais sub-county (n=104; 75.4%) had none, the difference not being statistically significant (p=0.4). Most of the households in Mt. Elgon sub-county (n=260; 69.9%) and Cheptais sub-county (n=109; 79%) had one under five-year-old child with no statistically significant difference (p=0.2).

Generally, the two groups in Mt. Elgon and Cheptais were similar in terms of their socio-demographic characteristics as is implied by the non-statistically significant p values.

Table 4.1 Sociodemographic characteristics of respondents by sub-county of residence

Variable	Response	Mt. Elgon		Cheptais		p-value
		n	%	n	%	
Age group in years	10 – 19	86	23.12	36	26.1	0.7
	20 – 29	191	51.34	67	48.6	
	30 – 39	79	21.24	27	19.6	
	≥40	16	4.30	8	5.8	
	Total	372	100.0	138	100.0	
Mean age±SD (Range) in years		25.8±7.3 (10.0 – 47.0)		26.3±7.2 (16.0 – 47.0)		t=-0.6; df=508; p=0.5
Marital status	Single	67	18.0	25	18.1	0.4
	Married	279	75.0	102	73.9	
	Divorced	0	0.0	1	0.2	
	Widowed	26	7.0	10	7.3	
	Total	372	100.0	138	100.0	
Level of education	None	73	19.7	29	21.0	0.6
	Primary	205	55.4	81	58.7	
	Secondary	92	24.9	28	20.3	
	Total	370	100.0	138	100.0	
Religion	Christians	348	93.6	134	97.1	0.1
	Traditional	24	6.5	4	2.9	
	Total	372	100.0	138	100.0	
Occupation	Housewife	229	61.6	91	65.9	0.5
	Farmer	2	0.5	0	0.0	
	Pastoralist	24	6.5	4	2.9	
	Teacher	29	7.8	10	7.3	
	Other	88	23.7	23	9.1	
	Total	372	100.0	138	100.0	
No. of people bringing income in the household in the past 6 months	None	263	70.7	104	75.4	0.4
	1	96	25.8	32	23.2	
	2	13	3.5	2	1.5	
	Total	372	100.0	138	100.0	
No. of under five children in the house	1	260	69.9	109	79.0	0.2
	2	86	23.1	25	18.1	
	More than 2	26	7.0	4	2.9	
	Total	372	100.0	138	100.0	

4.3 Client's characteristics influencing the utilization of maternal health care services.

Several characteristics were explored namely: socio-demographic characteristics, Family composition, client health needs and Histories of pregnancy, labor, delivery or death,

4.3.1 Socio-demographic characteristics associated with the utilization of MCH services

Table 4.2 shows the socio-demographic characteristics associated with the utilization of maternal health services. Sub-county was used as the explanatory variable while the utilization of health services was used as the response variable. Control variables were the sociodemographic variables. The results show that among the respondents aged less than 30 years, being mothers from Mt. Elgon sub-county is statistically significantly associated with utilization of health care services (OR: 0.5; 95% CI: 0.3 – 0.9; p = 0.01) while this was not the case with those aged 30 years and above (OR: 1.4; 95% CI: 0.7 – 3.0; p = 0.35). A significantly lower proportion of respondents from Mt. Elgon Sub County (64.7%) compared to those from the Cheptais sub-county (77.6%) were able to use MCH services. There was a marginal statistically significant association between respondents who were married and utilization of MCH services (OR: 0.6; 95% CI: 0.4 – 1.1; p = 0.08). A smaller proportion of married respondents from Mt. Elgon Sub County (66.7%) were able to use the services unlike their counterparts from Cheptais Sub County (75.4%). Among the unmarried who are residents from the two Sub Counties, the difference was not statistically significant. Further analysis shows a statistically significant relationship between those with none or primary education and use of the services as depicted by a lower proportion of respondents (66.3%) from Mt. Elgon Sub County as opposed to those from Cheptais Sub County (77%) from the same education category (OR: 0.6; 95% CI: 0.4 – 0.9; p = 0.03). Among the socio-demographic variables

that produce significant results, albeit marginal, was having been employed (OR: 3.7; 95% CI: 0.9 – 15.3; p = 0.06). The results suggest that those who were employed and were residents of Mt. Elgon Sub County were almost four times more likely to use MCH services unlike those from Cheptais Sub County. In contrast, respondents from Mt. Elgon Sub County who were not employed were less likely to use services in comparison to their colleagues from Cheptais Sub County (OR: 0.6; 95% CI: 0.4 – 0.9; p = 0.02).

Similar findings were noted concerning the length of stay in the respective sub-counties. Having stayed for at most 6 months or less in the Mt. Elgon sub-county was marginally statistically associated with utilization of MCH services (OR: 3.7; 95% CI: 0.9 – 15.3; p = 0.06) in contrast to those from Cheptais Sub County in the same category. Those who had stayed for at least 6 months from Mt. Elgon Sub County were about four times more likely to have utilized the services. On the other hand, respondents who had stayed for more than 6 months and residents of Mt. Elgon sub-county were 40% less likely to have used the services (OR: 0.6; 95% CI: 0.4 – 0.9; p = 0.02). *"…We receive our health care services as directed by our cultural elders and husbands. That is from traditional birth attendants who are clans mate and multipurpose providers because they are circumcisers, fortune tellers, and have knowledge of traditional herbs used for treatment…*." FGD3 participants 3

Table 4.2 Socio-demographic characteristics influencing utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
<30 years age group	Mt. Elgon	64.7	35.3	255	0.5	0.3 – 0.9	0.01
	Cheptais	77.6	22.4	125			
≥30 years age group	Mt. Elgon	67.4	32.6	86	1.4	0.7 – 3.0	0.35
	Cheptais	59.1	40.9	44			
Married	Mt. Elgon	66.7	33.3	255	0.6	0.4 – 1.1	0.08
	Cheptais	75.4	24.6	126			
Not married	Mt. Elgon	61.6	38.4	86	0.9	0.4 – 1.8	0.7
	Cheptais	65.1	34.9	43			
None or primary education	Mt. Elgon	66.3	33.7	255	0.6	0.4 – 0.9	0.03
	Cheptais	77.0	23.0	135			
Secondary and above	Mt. Elgon	62.8	37.2	86	1.3	0.6 – 3.0	0.5
	Cheptais	55.9	44.1	34			
Works	Mt. Elgon	60.0	40.0	25	3.7	0.9 – 15.3	0.06
	Cheptais	28.6	71.4	14			
Does not work	Mt. Elgon	65.8	34.2	316	0.6	0.4 – 0.9	0.02
	Cheptais	76.8	23.2	155			
≤6 months stay	Mt. Elgon	60.0	40.0	25	3.7	0.9 – 15.3	0.06
	Cheptais	28.6	71.4	14			
>6 months stay	Mt. Elgon	65.8	34.2	316	0.6	0.4 – 0.9	0.02
	Cheptais	76.8	23.2	155			

4.3.2 Family composition factors associated with utilization of maternal health services

Table 4.3 presents family composition factors associated with the utilization of maternal health services. Attempts to examine the relationship between various family composition factors and their relationship with the utilization of MCH services yielded statistically non-significant results. This was the case for family size, the number of under-five-year-old children in a household, and the number of family members bringing income in the past 6 months. For all those variables, a smaller proportion of respondents

from Mt. Elgon sub-county utilized MCH services unlike their counterparts though results, as pointed out, were not statistically significant.

"*… I cannot go to the hospital without permission from my husband or my mother in law if my husband is not around or else……".*FGD 1 Participant 5

Table 4.3 Association between family composition and utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
2 – 5 family size in the past 6 months	Mt. Elgon	61.0	39.0	82	0.5	0.2 – 1.4	0.2
	Cheptais	74.1	25.9	27			
> 5 family size in the past 6 months	Mt. Elgon	66.8	33.2	259	0.8	0.5 – 1.2	0.2
	Cheptais	72.5	27.5	142			
One under-five-year-old child	Mt. Elgon	68.2	31.8	154	0.6	0.4 – 1.2	0.1
	Cheptais	76.8	23.2	95			
More than one under-five year old children	Mt. Elgon	63.1	36.9	187	0.8	0.5 – 1.5	0.5
	Cheptais	67.6	32.4	74			
No family member bringing income in past 6 months	Mt. Elgon	69.1	30.9	243	0.8	0.5 – 1.3	0.4
	Cheptais	73.4	26.6	124			
At least one family member bringing income in past 6 months	Mt. Elgon	56.1	43.9	98	0.5	0.2 – 1.1	0.09
	Cheptais	71.1	28.9	45			

4.3.3 Relationship between health needs and utilization of maternal health care services

Table 4.4 illustrates the relationship between health needs and utilization of maternal health services in the study area. A factor that was statistically significantly associated with receiving/ utilization of MCH services was self-rating of health status (OR: 0.6; 95% CI: 0.4 – 1.0; p = 0.05). Respondents from Mt. Elgon Sub County who considered themselves as experiencing poor health were 40% less likely to utilize MCH services compared with those from Cheptais Sub County. Other health needs factors that included

having a chronic illness, asthma, or rating one's health as good or excellent but no statistically significant results.

" ……a real circumcised woman should not show that she is in pain while in labor nor reveal that she is pregnant too early instead people should just learn that you were expectant after delivery…….". FGD 2 Participant 4

Table 4.4. Relationship between health needs and utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
Has chronic illness	Mt. Elgon	67.9	32.1	184	0.8	0.5 – 1.4	0.4
	Cheptais	72.3	27.7	101			
Does not suffer from chronic illness	Mt. Elgon	62.4	37.6	157	0.6	0.3 – 1.1	0.1
	Cheptais	73.5	26.5	68			
Suffers from asthma	Mt. Elgon	76.2	23.8	42	0.6	0.2 – 2.3	0.5
	Cheptais	83.3	16.7	24			
Does not suffer from asthma	Mt. Elgon	63.9	36.1	299	0.7	0.5 – 1.1	0.1
	Cheptais	71.0	29.0	145			
Rate her health as good or excellent	Mt. Elgon	70.0	30.0	120	1.0	0.5 – 1.9	0.9
	Cheptais	70.9	29.1	55			
Rate her health as poor	Mt. Elgon	62.9	37.1	221	0.6	0.4 – 1.0	0.05
	Cheptais	73.7	26.3	114			

4.3.4 Relationship between the history of pregnancy, labor, delivery or death in the family and utilization of maternal health services

Table 4.5 shows the relationship between the history of pregnancy, labor, delivery, or death in the family and the utilization of maternal health services. In the bivariate analysis on the influence of the history of pregnancy, labor, delivery, or death in the family and the utilization of maternal health services showed the following results. None of the factors examined produced any statistically significant results. However, for all these factors: the history of complications during pregnancy in the family, history of complications during delivery or weeks following delivery, history of death due to

complications of pregnancy/labor/delivery in the family or history of respondents or her relative having lost a child under five years of age, a comparatively smaller proportion of respondents from Mt. Elgon were able to utilize MCH services.

Table 4.5 Relationship between the history of pregnancy, labor, delivery or death in the family and utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
Has had measles cases amongst her children or relative's children	Mt. Elgon	63.2	36.8	106	0.7	0.3 – 1.3	0.2
	Cheptais	72.6	27.4	51			
Has not had measles cases amongst her children or relative's children	Mt. Elgon	66.4	33.6	235	0.7	0.5 – 1.2	0.2
	Cheptais	72.9	27.1	118			
Has had polio cases amongst her children or relative's children	Mt. Elgon	55.9	44.1	68	0.7	0.3 – 1.8	0.5
	Cheptais	63.3	36.7	30			
Has not had polio cases amongst her children or relative's children	Mt. Elgon	67.8	32.2	273	0.7	0.4 – 1.1	0.1
	Cheptais	74.8	25.2	139			
Has had tetanus cases amongst her children or relative's children	Mt. Elgon	63.2	36.8	106	0.7	0.3 – 1.3	0.2
	Cheptais	72.6	27.4	51			
Has not had tetanus cases amongst her children or relative's children	Mt. Elgon	66.4	33.6	235	0.7	0.5 – 1.2	0.2
	Cheptais	72.9	27.1	118			
Has never had any cases of illness amongst her children or relative's children	Mt. Elgon	63.6	36.4	88	0.6	0.3 – 1.5	0.3
	Cheptais	73.5	26.5	34			
Has had cases of illness amongst her children or relative's children	Mt. Elgon	66.0	34.0	253	0.7	0.5 – 1.2	0.2
	Cheptais	72.6	27.4	135			

4.4 Health facility factors

Factors examined to include service availability, accessibility, time taken to the health facility, affordability of services, cognition of services, facility ownership, insurance cover an appointment, and cultural competence as shown below:

4.4.1 Association between service availability and utilization of maternal health services

Table 4.6 presents the relationship between service availability and utilization of maternal health services in the study area. Results show a statistically significant association between working days not being suitable for the respondent and the community and utilization of MCH services (OR: 0.5; 95% CI: 0.3 – 1.0; p = 0.04). Half (50%) of the respondents from Mt. Elgon who complained about unsuitable working days were less likely to utilize MCH services in comparison with their colleagues from Cheptais. There was a marginal statistically significant relationship between mobile/outreach clinic not being available every week in the study area and utilization of MCH services (OR: 0.7; 95% CI: 0.4 – 1.0; p = 0.06). Likewise, the association between availability of some of the services which were not-MCH related like availability of X-Ray services was marginally statistically associated with the use of MCH services (OR: 0.7; 95% CI: 0.4 – 1.0; p = 0.08). This was also the case where respondents stated that mobile/outreach clinic was not open once/twice every week (OR: 0.7; 95% CI: 0.4 – 1.0; p = 0.08). In each of these two cases, a marginally statistically significant proportion of respondents from Mt. Elgon compared with those from Cheptais utilized the MCH services. *"....There are frequent stock-outs of pharmaceuticals and non pharmaceuticals which posed a challenge and therefore many of us preferred visiting health facilities only when drugs are available, secondly, our facilities have no staff houses which complicates the situation more in case of night emergencies and the distance where health care*

*workers commute from makes them arrive late and leave early, therefore, facilities open late and close early which is unfair for us and the community at large……".*FGD5 Participants 3

Table 4.6 Association between service availability and utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
All the MCH services are offered in the nearest health facility	Mt. Elgon	65.4	34.6	341	0.7	0.5 – 1.1	0.09
	Cheptais	72.8	27.2	169			
All non-MCH services are available	Mt. Elgon	64.4	35.6	59	1.1	0.3 – 3.9	0.8
	Cheptais	61.5	38.5	13			
Some of the non-MCH services are not available	Mt. Elgon	65.6	34.4	282	0.7	0.4 – 1.0	0.08
	Cheptais	73.7	26.3	156			
Mobile/Outreach Clinic available in the area	Mt. Elgon	63.8	36.2	58	0.4	0.2 – 1.2	0.1
	Cheptais	80.0	20.0	35			
Mobile/Outreach Clinic not available in the area	Mt. Elgon	65.7	34.3	283	0.8	0.5 – 1.2	0.3
	Cheptais	70.9	29.1	134			
Mobile/Outreach Clinic available every week in the area	Mt. Elgon	66.7	33.3	12	3.0	0.3 – 25.8	0.6
	Cheptais	40.0	60.0	5			
Mobile/Outreach Clinic not available every week in the area	Mt. Elgon	65.4	34.7	329	0.7	0.4 – 1.0	0.06
	Cheptais	73.8	26.2	164			
Mobile/Outreach Clinic does not open daily	Mt. Elgon	65.4	34.6	341	0.7	0.5 – 1.1	0.09
	Cheptais	72.8	27.2	169			
Mobile/Outreach Clinic open once/twice every week	Mt. Elgon	68.9	31.1	61	0.9	0.3 – 2.6	0.8
	Cheptais	71.4	28.6	21			
Mobile/Outreach Clinic not open once/twice every week	Mt. Elgon	64.6	35.4	280	0.7	0.4 – 1.0	0.08
	Cheptais	73.0	27.0	148			
Working days suitable for respondent and the community	Mt. Elgon	68.2	31.8	173	0.9	0.5 – 1.6	0.7
	Cheptais	70.1	29.9	97			
Working days not suitable for respondent and the community	Mt. Elgon	62.5	37.5	168	0.5	0.3 – 1.0	0.04
	Cheptais	76.4	23.6	72			
Facility open 24 hours per day	Mt. Elgon	65.4	34.6	341	0.7	0.5 – 1.1	0.09
	Cheptais	72.8	27.2	169			

4.4.2 Association between service accessibility and utilization of maternal health services

Table 4.7 shows the relationship between service accessibility and utilization of maternal health services. Only one accessibility factor was statistically significantly associated with the utilization of MCH services. Where respondents reported having not been to the nearest health facility, 40% of those from Mt. Elgon were less likely to have utilized MCH services (OR: 0.6; 95% CI: 0.4 – 1.0; p = 0.05). The following accessibility factors were not statistically significantly associated with utilization of the services: being born in the sub-county, nearest health facility is a dispensary, having been to the nearest health facility and need for transport to the nearest facility. For all these accessibility factors, the proportion of respondents from Mt. Elgon who utilized MCH services was smaller than those from Cheptais.

"… the problem of staff shortage cannot make me admire to go back in a dispensary because you sit waiting for one client to be served, even to be referred to the next facility if she or he has a big problem by that same staff before you are served. I stayed in our dispensary for a full day waiting for a nurse who had left me with the key of the hospital to refer a mother in labor to Webuye referral hospital……" **FGD5 Participants 1**

Table 4.7 Association between service accessibility and utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
Born in the sub-county	Mt. Elgon	71.1	28.9	135	0.7	0.4 – 1.4	0.4
	Cheptais	76.9	23.1	78			
Not born in the sub-county	Mt. Elgon	61.7	38.3	206	0.7	0.4 – 1.2	0.2
	Cheptais	69.2	30.8	91			
The nearest facility is a dispensary	Mt. Elgon	69.7	30.3	244	0.7	0.5 – 1.2	0.2
	Cheptais	75.8	24.2	128			
The nearest facility is not a dispensary	Mt. Elgon	54.6	45.4	97	0.7	0.3 – 1.5	0.3
	Cheptais	63.4	36.6	41			
Has been to the above facility as a patient	Mt. Elgon	73.9	26.1	115	0.8	0.3 – 2.0	0.6
	Cheptais	77.8	22.2	36			
Has not been to the above facility as a patient	Mt. Elgon	61.1	38.9	226	0.6	0.4 – 1.0	0.05
	Cheptais	71.4	28.6	133			
Need transport to get to the nearest facility in the area	Mt. Elgon	72.1	27.9	104	0.9	0.5 – 1.7	0.7
	Cheptais	74.4	25.6	78			
Does not need transport to get to the nearest facility in the area	Mt. Elgon	62.5	37.6	237	0.7	0.4 – 1.1	0.1
	Cheptais	71.4	28.6	91			

4.4.3 Time taken to reach the nearest health facility and utilization of maternal and child health services

Table 4.8 illustrates the time taken to the nearest health facility and its relationship with the utilization of maternal health services. Respondents from Mt. Elgon who would take more than one hour to reach the nearest health facility by foot (OR: 0.5; 95% CI: 0.3 – 0.8; p = 0.007), or take less than 30 minutes by boda-boda (OR: 0.6; 95% CI: 0.4 – 1.0; p = 0.05) or less than 30 minutes by vehicle (OR: 0.6; 95% CI: 0.4 – 1.0; p = 0.05) or less than one hour by donkey (OR: 0.6; 95% CI: 0.4 – 1.0; p = 0.05) were less likely to utilize maternal and child health services. The association between these factors and the utilization of MCH services was statistically significant. *"…..Our biggest problem is the*

long distances to health facilities and our poor terrain in the constituency which complicates the roots of health facilities. Taking my baby to child welfare clinic, I walk for four to six hours because the motorbikes are risky to travel with on this terrain with a small baby….".FGD2 Participants 2.

Table 4.8 Association between the time taken to the nearest health facility and utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
Time to facility by foot less than 1 hour	Mt. Elgon	68.8	31.2	141	0.2	0.6 – 2.1	0.6
	Cheptais	65.3	34.7	75			
Time to facility by foot more than 1 hour	Mt. Elgon	63.0	37.0	200	0.5	0.3 – 0.8	0.007
	Cheptais	78.7	21.3	94			
Time to facility by boda boda less than 30 min	Mt. Elgon	53.7	46.3	203	0.6	0.4 – 1.0	0.05
	Cheptais	65.4	34.6	107			
Time to facility by boda boda more than 30 min	Mt. Elgon	82.6	17.4	138	0.8	0.4 – 1.9	0.6
	Cheptais	85.5	14.5	62			
Time to facility by donkey less than 1 hour	Mt. Elgon	53.7	46.3	203	0.6	0.4 – 1.0	0.05
	Cheptais	65.4	34.6	107			
Time to facility by donkey more than 1 hour	Mt. Elgon	82.6	17.4	138	0.8	0.4 – 1.9	0.6
	Cheptais	85.5	14.5	62			
Time to facility by vehicle less than 30 min	Mt. Elgon	53.7	46.3	203	0.6	0.4 – 1.0	0.05
	Cheptais	65.4	34.6	107			
Time to facility by vehicle more than 30 min	Mt. Elgon	82.6	17.4	138	0.8	0.4 – 1.9	0.6
	Cheptais	85.5	14.5	62			

4.4.4 Relationship between the affordability of services and utilization of maternal health services

Table 4.9 illustrates the relationship between the payment of services and the utilization of maternal health services. Where respondents were to pay for ANC services (OR: 0.2; 95% CI: 0.1 – 0.6; p = 0.002) or not pay for FP services (OR: 0.5; 95% CI: 0.3 – 0.8; p =

0.007), a statistically significant smaller proportion were able to utilize MCH services. Even where such respondents were not paying for services at government facilities, a marginally statistically significantly smaller proportion from Mt. Elgon was able to utilize MCH services (OR: 0.6; 95% CI: 0.3 – 1.0; p = 0.06). Payment or non-payment for delivery services was not statistically significantly associated with the use of MCH services.

"*…The cost of living is too high. They tell us that MCH/FP services are free but they hide taxes in the laboratory where we pay a lot. Paying or not paying for services like family planning does not matter because our elders and leaders are not for family planning. They have told us that more voters attract more seats in the government and Mt. Elgon people are very few…..".* **FDG2 Participant 3**

Table 4.9 Relationship between payment of services and utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
Pay for services at the government health facility	Mt. Elgon	85.1	14.9	148	1.3	0.6 – 2.6	0.4
	Cheptais	81.3	18.7	91			
Does not pay for services at government health facility	Mt. Elgon	50.3	49.7	193	0.6	0.3 – 1.0	0.06
	Cheptais	62.8	37.2	79			
Pays for FP services	Mt. Elgon	66.9	33.1	133	1.3	0.7 – 2.6	0.4
	Cheptais	60.0	40.0	55			
Does not pays for FP services	Mt. Elgon	64.4	35.6	208	0.5	0.3 – 0.8	0.007
	Cheptais	79.0	21.0	114			
Pays for ANC services	Mt. Elgon	48.9	51.1	45	0.2	0.1 – 0.6	0.002
	Cheptais	82.4	17.6	34			
Does not pay for ANC services	Mt. Elgon	67.9	32.1	296	0.9	0.6 – 1.4	0.6
	Cheptais	70.4	29.6	135			
Pays for normal delivery services	Mt. Elgon	64.2	35.8	53	0.7	0.3 – 1.7	0.4
	Cheptais	72.5	27.5	40			
Does not pay for normal delivery services	Mt. Elgon	65.6	34.4	288	0.7	0.4 – 1.1	0.1
	Cheptais	72.9	27.1	129			

4.4.5 Association between cognition and utilization of maternal health services

Table 4.10 shows the association between cognition and utilization of maternal health services. The use of interpreters during respondent's or relative's visits to the health facility was statistically significantly associated with the use of MCH services (OR: 0.2; 95% CI: 0.01 – 0.81; p = 0.02). Where such interpreters were used in Mt. Elgon, 80% of the respondents were less likely to have utilized MCH services.

On the other hand, the use of English/Swahili, clarity, and sufficiency of information given was not statistically significantly associated with the utilization of MCH services. As would be expected, though not statistically significant, a higher proportion of respondents from Mt. Elgon (55.3%) than their counterparts from Cheptais (44.4%) used

MCH services where the vernacular language was used (p = 0.7) "*This is supported by researcher experience in the constituency where more saboat staff are deployed in MCH/FP clinic in both sub-counties."*

Table 4.10 Association between cognition and utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
Interpreter has been used during respondent's or relative's visits to health facilities	Mt. Elgon	42.3	57.7	26	0.2	0.01 – 0.81	0.02
	Cheptais	77.8	22.2	18			
An interpreter has not been used during the respondent's or relative's visits to health facilities	Mt. Elgon	67.3	32.7	315	0.8	0.5 – 1.2	0.3
	Cheptais	72.2	27.8	151			
Use of English/Swahili for communication	Mt. Elgon	66.7	33.3	303	0.7	0.4 – 1.1	0.09
	Cheptais	74.4	25.6	160			
Use of vernacular language for communication	Mt. Elgon	55.3	44.7	38	1.5	0.4 – 6.7	0.7
	Cheptais	44.4	55.6	9			
Information given is not enough and clear for one to understand his/her condition and treatment or take an informed decision about one's health	Mt. Elgon	65.6	34.4	195	0.7	0.4 – 1.2	0.2
	Cheptais	72.6	27.4	95			
Information given is enough and clear for one to understand his/her condition and treatment or take an informed decision about one's health	Mt. Elgon	65.1	34.9	146	0.7	0.4 – 1.3	0.2
	Cheptais	73.0	27.0	74			

4.4.6 Relationship between ownership of facility and utilization of maternal health services

Table 4.11 shows the relationship between ownership of facility and utilization of maternal health services. Respondents from Mt. Elgon who felt that waiting time for all MCH services was unacceptable were 50% less likely to utilize the services (OR: 0.5; 95% CI: 0.3 – 0.8; p = 0.004), and this was statistically significant. Where facilities were owned by the government, respondents from Mt. Elgon were less likely to utilize MCH services. Thirty percent of such respondents did not use the services (OR: 0.7; 95% CI: 0.5 – 1.0; p = 0.07), though the association was but marginally statistically significant. A higher proportion of respondents from Mt. Elgon (49.4%) than those from Cheptais (36.6%) who said that waiting time for all MCH services was acceptable utilized MCH services even though the results were not statistically significant (OR: 1.7; 95% CI: 0.8 – 3.6; p = 0.2). Waiting time at the nearest facility of more than 30 minutes was not statistically significantly associated with utilization of MCH services. The focus group discussion supported the results 3/5 from Mt. Elgon and 3/5 from Cheptais said that "… *It is a tough experience because we look at our staff like small gods and when we find them in the facility, we have to be very patient on the queue because they are very few, and most of them are men serving us women despite the cultural limits of a man during pregnancy, delivery and postnatal period…*" FGD 1 participant 2

Table 4.11 Relationship between ownership of facility and utilization of maternal health services

Confounders	Explanatory Variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
Facility owned by the government	Mt. Elgon	62.4	37.6	314	0.7	0.5 – 1.0	0.07
	Cheptais	70.7	29.3	157			
Waiting time at the nearest facility is more than 30 min	Mt. Elgon	65.4	34.6	341	0.7	0.5 – 1.1	0.09
	Cheptais	72.8	27.2	169			
Waiting time at the other facility is more than 30 min	Mt. Elgon	65.4	34.6	341	0.7	0.5 – 1.1	0.09
	Cheptais	72.8	27.2	169			
Waiting time acceptable	Mt. Elgon	51.4	48.6	144	0.7	0.4 – 1.1	0.1
	Cheptais	61.9	38.1	84			
Waiting time not acceptable	Mt. Elgon	75.6	24.4	197	0.6	0.3 – 1.2	0.1
	Cheptais	83.5	16.5	85			
Waiting time for all MCH services is acceptable	Mt. Elgon	49.4	50.6	87	1.7	0.8 – 3.6	0.2
	Cheptais	36.6	63.4	94			
Waiting time for all MCH services is unacceptable	Mt. Elgon	70.9	29.1	254	0.5	0.3 – 0.8	0.004
	Cheptais	84.4	15.6	128			

4.4.7 Relationship between appointment and insurance cover and utilization of maternal health services

Table 4.12 shows the relationship between appointment and medical insurance cover and utilization of maternal and child health services. A statistically significantly smaller proportion of respondents from Mt. Elgon have likely utilized MCH services if they missed a clinical appointment because they were too busy to go or had no one to leave with the children (OR: 0.5; 95% CI: 0.3 – 0.9; p = 0.02). The situation was the same even where they did not miss the clinical appointment (OR: 0.5; 95% CI: 0.3 – 1.0; p = 0.05), the results being statistically significant. Lack of medical insurance cover or cash

payment for services received were not statistically significantly associated with utilization of maternal and child health services.

Table 4.12 Relationship between appointment and insurance cover and utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
Missed a clinical appointment	Mt. Elgon	65.6	34.4	209	0.9	0.5 – 1.5	0.7
	Cheptais	68.2	31.8	88			
Did not miss a clinical appointment	Mt. Elgon	65.2	34.9	132	0.5	0.3 – 1.0	0.05
	Cheptais	77.8	22.2	81			
Missed a clinical appointment because of distance	Mt. Elgon	70.4	29.6	162	1.0	0.6 – 1.9	0.9
	Cheptais	69.7	30.3	76			
Missed a clinical appointment because respondent was too busy to go or had no one to leave with children	Mt. Elgon	60.9	39.1	179	0.5	0.3 – 0.9	0.02
	Cheptais	75.3	24.7	93			
Respondent has no medical insurance cover	Mt. Elgon	65.4	34.6	341	0.7	0.5 – 1.1	0.09
	Cheptais	72.8	27.2	169			
Pays cash for medical services	Mt. Elgon	65.4	34.6	341	0.7	0.5 – 1.1	0.09
	Cheptais	72.8	27.2	169			

4.4.8 Relationship between cultural competence and utilization of maternal health services

Table 4.13 shows the relationship between cultural competence and the utilization of maternal health services. The results show a statistically significant association between respondents consulting health professionals for advice when respondents or family experience small health problems with a comparatively smaller proportion of respondents from Mt. Elgon utilizing MCH services (OR: 0.5; 95% CI: 0.2 – 0.9; p = 0.03). surprisingly, even where respondents from Mt. Elgon were sometimes treated with

appropriate cultural respect by facility staff (OR: 0.6; 95% CI: 0.4 – 0.9; p = 0.03) or where health professionals sometimes take respondent's culture and religion into account when interacting with them (OR: 0.6; 95% CI: 0.4 – 0.9; p = 0.03), still a statistically significantly smaller proportion were able to utilize MCH services. Respondents from Mt. Elgon who did not consult elders for advice when respondents or family experienced small health problems were also less likely to utilize MCH services through the association was marginally statistically significant (OR: 0.7; 95% CI: 0.4 – 1.0; p = 0.08). The qualitative data results supported this when a participant who was a traditional birth attendant said that "…*what clients experience is not good because most of the time they are served by one nurse in a facility who most of them are too young to serve them and are men. Culturally men have boundaries in matters of mothers and children of which the male health care workers breach the culturally wrong boundaries…."* **FGD 1 Participant 3**

Table 4.13 Relationship between cultural competence and utilization of maternal health services

Confounders	Explanatory variable	Utilized Maternal health Services		Total (n)	OR	95% CI	p-value
		Yes (%)	No (%)				
Consults health professionals for advice when respondent or family experience small health problems	Mt. Elgon	70.3	29.7	155	0.5	0.2 – 0.9	0.03
	Cheptais	83.3	16.7	84			
Does not consults health professionals for advice when respondent or family experience small health problems	Mt. Elgon	61.3	38.7	186	0.9	0.6 – 1.6	0.9
	Cheptais	62.4	37.6	85			
Does not consult elders for advice when respondent or family experience small health problems	Mt. Elgon	56.8	43.2	273	0.7	0.4 – 1.0	0.08
	Cheptais	65.9	34.1	135			
Sometimes treated with appropriate cultural respect by facility staff	Mt. Elgon	48.0	52.0	227	0.6	0.4 – 0.9	0.03
	Cheptais	60.3	39.7	116			
Health professionals always take my culture and religion into account when interacting with me	Mt. Elgon	53.7	46.3	203	0.7	0.4 – 1.1	0.1
	Cheptais	62.7	37.3	110			
Health professionals do not always take my culture and religion into account when interacting with me	Mt. Elgon	82.6	17.4	138	0.4	0.2 – 1.2	0.1
	Cheptais	91.5	8.5	59			
Health professionals **sometimes** take my culture and religion into account when interacting with me	Mt. Elgon	48.0	52.0	227	0.6	0.4 – 0.9	0.03
	Cheptais	60.3	39.7	116			

4.4.9 Multivariate logistic regression of determinants of utilization of maternal health services

This study examined the determinants of utilization of maternal health services in the study area. Multivariate logistic regression of determinants was performed by putting all the factors that had a marginal or significant association ($p \leq 0.07$) with the outcome to determine the recommended model as shown in table 4.14. Results of multivariate

logistic regression identified only two factors as determinants that are independently associated with the utilization of maternal health services in Mt. Elgon Sub-County. These included women who are employed (OR: 2.8; 95% CI: 1.1 – 7.3; p=0.03) and having visited facility as a patient (OR: 0.5; 95% CI: 0.3 – 0.9; p=0.03).

Besides, there is a tendency for perception on respondent's health status being excellent or good (p = 0.5), use of interpreter (p = 0.2), all MCH services being available (p = 0.3), services being available once a week (p = 0.4) and paying for ANC services (p = 0.1) to be associated with utilization of MCH services. Although these factors are not statistically significant, their confidence intervals include higher value odds ratio upper limits of between 2.1 and 4.2.

Table 4.14 Multivariate logistic regression of determinants of utilization of maternal health services

Risk factor	Overall OR	95% CI	p-value
Working	2.8	1.1– 7.3	0.03
Has visited the nearest health facility as a patient	0.5	0.3 – 0.9	0.03
Less than 30 years	0.7	0.5 – 1.2	0.2
Married	0.9	0.5 – 1.4	0.6
None or primary school level	1.0	0.5 – 1.7	0.9
Health status excellent or good	1.2	0.7 – 2.1	0.5
Use of interpreter	1.5	0.8 – 3.1	0.2
All MCH services available	1.3	0.8 – 2.4	0.3
Services available once a week	1.5	0.5 – 4.2	0.4
Services available once/twice a week	1.0	0.6 – 1.8	0.9
Work days are suitable	0.9	0.6 – 1.4	0.5
Pays for FP	1.3	0.8 – 2.0	0.2
Pays for ANC	1.6	0.9 – **2.7**	0.1

4.5 Cultural Competence of Health Care Workers

The competence of health care worker was determined including the socio-demographics of staff, the professional characteristics, cultural awareness, knowledge on community gatekeepers, knowledge on community cultural issues and personal involvement, resources and linkage, organization policy and procedures, communication of policy matters and cultural competence assessment tool

4.5.1 Socio-demographic characteristics of staff by workplace sub-county

A total of 20 health workers were interviewed and their data analyzed (100%). Table 4.15 presents the results by sub-county. There were more males in Mt. Elgon (69.2%) and Cheptais (57.1%) than females. Most of the respondents were younger (20 – 29 years old) in Mt. Elgon (38.55) and Cheptais (42.9%). The mean age was comparable with a slight difference in Mt. Elgon (34.6±8.3) compared to Cheptais (33.7±6.2). The majority of the participants in Mt. Elgon (69.2%) and Cheptais (85.7%) were married. Similarly, over three-quarters in both sub-counties were Christians. The leading ethnic group in Mt. Elgon (38.5%) and Cheptais (71.4%) were Sabaots.

Table 4.15 Socio-demographic characteristics of staff by workplace sub-county

Variable	Response	Mt. Elgon		Cheptais	
		n	%	N	%
Gender	Male	9	69.2	4	57.1
	Female	4	30.8	3	42.9
	Total	13	100.0	7	100.0
Age group in years	20 - 29	5	38.5	3	42.9
	30 - 39	4	30.8	2	28.6
	40 – 49	3	23.1	2	28.6
	≥ 50	1	7.7	0	0.0
	Total	13	100.0	7	100.0
Mean age±SD (Range) in years		34.6±8.3 (24.0 – 50.0)		33.7±6.2 (28.0 – 42.0)	
Marital status	Single	3	23.1	1	14.3
	Married	9	69.2	6	85.7
	Divorced	1	7.7	0	0.0
	Total	13	100.0	7	100.0
Religion	Christians	11	84.6	7	100.0
	Islam	1	7.7	0	0.0
	Other	1	7.7	0	0.0
	Total	13	100.0	7	100.0
Tribe	Sabaot	5	38.5	5	71.4
	Ogiek	1	7.7	1	14.3
	Luhya	2	15.4	1	14.3
	Kony	1	7.7	0	0.0
	Teso	1	7.7	0	0.0
	Kalenjin	2	15.4	0	0.0
	Kisii	1	7.7	0	0.0
	Total	13	100.0	7	100.0

4.5.2 Professional characteristics of staff by sub-county

Table 4.16 shows the professional characteristics of staff by sub-county. Over one-third in Mt. Elgon (38.5%) and Cheptais (71.4%) were nursing officers. Most of the staff had worked for more than 12 months.

Table 4.16 Professional characteristics of staff by workplace sub-county

Variable	Response	Mt. Elgon		Cheptais	
		n	%	N	%
Profession	Clinical Officer	1	7.7	0	0.0
	Nursing Officer	5	38.5	5	71.4
	Public Health Officer	4	30.8	2	28.6
	Pharmaceutical Technologist	3	23.1	0	0.0
	Total	13	100.0	7	100.0
Duration on the job in months	≤ 6	1	7.7	0	0.0
	7 – 12	1	7.7	0	0.0
	> 12	11	84.6	7	100.0
	Total	13	100.0	138	100.0

4.5.3 Cultural awareness of the community's demographics

Health workers were asked 11 questions to assess their level of cultural awareness about the community's demographics. The questions covered knowledge in the community where they work. The result revealed that most of the staff in Mt. Elgon (84.6%) and Cheptais (85.7%) could describe the community by tribes in the service area very well. Seventy-seven percent from Mt. Elgon and 71.4% from Cheptais were could describe within tribe differences very well. Over two-thirds in each sub-county could describe within tribe strengths and tribe social problems very well. Items with poor performance included knowledge by tribe's unemployment rates (28.6%), differences in income differentials and birth and death rates were less than 70% of the respondents knew very well.

Table 4.17 Cultural awareness of the community's demographics

Variable	Responses	Mt. Elgon		Cheptais	
		n=13	%	n=7	%
Ability to describe the communities by tribes in your service area	Barely	2	15.4	1	14.3
	Very well	11	84.6	6	85.7
Ability to describe within the tribe's differences	Barely	3	23.1	2	28.6
	Very well	2	76.9	5	71.4
Ability to describe within the tribe's strengths	Barely	4	30.8	2	28.6
	Very well	9	69.2	5	71.4
Ability to describe within the tribe's social problems	Barely	1	7.69	2	28.6
	Very well	12	92.3	5	71.4
Knowledge of the community's by tribe's unemployment rates	Barely	5	38.5	5	71.4
	Very well	8	61.5	2	28.6
Knowledge on the community by tribe's geographic locations	Barely	3	23.1	2	28.6
	Very well	10	76.9	5	71.4
Knowledge on the community by tribe's income differentials	Barely	9	69.2	5	71.4
	Very well	4	30.8	2	28.6
Knowledge of the community's by tribe's educational attainment	Barely	3	23.1	3	42.9
	Very well	10	76.9	4	57.1
Knowledge of the community's by tribe's birth/death rates	Barely	8	61.5	3	42.9
	Very well	5	38.5	4	57.1
Knowledge of the community's by tribe's crime rates	Barely	8	61.5	2	28.6
	Very well	5	38.5	5	71.4
Knowledge of the community's by tribe's homicide rates	Barely	10	76.9	2	28.6
	Very well	3	23.1	5	71.4

4.5.4 Knowledge on the community gatekeepers in the service area

Participants were asked 8 questions on their knowledge on community gatekeepers in the service area as presented in Table 4.18. There was comparatively higher knowledge among staff in Mt. Elgon (84.6%) and Cheptais (85.7%) and on the tribe's business people for the former (76.9%) and the latter sub-county (71.4%), respectively. The poorest performance was on knowledge on tribe's advocates were 46.2% of the staff in Mt. Elgon and 28.6% in Cheptais knew very well. Equally, knowledge of social service

agency was barely understood among staff in Mt. Elgon (46.25) and Cheptais (42.9%). The highest proportion of staff from Mt. Elgon (84.6%) and Cheptais (85.7%) knew the tribe's formal leaders very well.

Table 4.18 Knowledge on of the community gatekeepers in the service area

Variable	Responses	Mt. Elgon		Cheptais	
		n=13	%	n=7	%
Knowledge on the community by tribe's social historian	Barely	6	46.2	3	42.9
	Very well	7	53.8	4	57.1
Knowledge on the community by tribe's informal supports/natural helpers	Barely	9	69.2	3	42.9
	Very well	4	30.8	4	57.1
Knowledge on the community by tribe's social service agency	Barely	7	53.8	4	57.1
	Very well	6	46.2	3	42.9
Knowledge on the community by tribe's formal leaders	Barely	2	15.4	1	14.3
	Very well	11	84.6	6	85.7
Knowledge on the community by tribe's informal leaders	Barely	4	30.8	5	71.4
	Very well	9	69.2	2	28.6
Knowledge on the community by tribe's business people	Barely	3	23.1	2	28.6
	Very well	10	76.9	5	71.4
Knowledge on the community by tribe's advocates	Barely	7	53.8	5	71.4
	Very well	6	46.2	2	28.6
Knowledge community by tribe's clergy/spiritualists	Barely	2	15.4	4	57.1
	Very well	11	84.6	3	42.9

4.5.5 Knowledge on the community cultural issues

Table 4.19 shows the knowledge level of the community's cultural issues. Notably, over three-quarters in both the two sub-counties knew very well the tribe's area needs, area languages, and the tribe's non-utilization of maternal health care views. However, this was not the case with staff from Cheptais (28.6%) compared with those from Mt. Elgon (84.6%) where the proportion of those who knew very well the tribe's beliefs, customs, norms, and values was very low.

Table 4.19 Knowledge on the community cultural issues

Variable	Responses	Mt. Elgon		Cheptais	
		n=13	%	n=7	%
Knowledge on the community by tribe's belief, customs, norms, values in the area	Barely	2	15.4	5	71.4
	Very well	11	84.6	2	28.6
Knowledge on the community by tribe's area social services go unaddressed by the formal service system	Barely	5	38.5	2	28.6
	Very well	8	61.5	5	71.4
Knowledge on the community by tribe's area social service problems	Barely	7	53.8	3	42.9
	Very well	6	46.2	4	57.1
Knowledge on the community by tribe's area conflicts	Barely	4	30.8	2	28.6
	Very well	9	69.2	5	71.4
Knowledge on the community by tribe's social protocol	Barely	7	53.8	3	42.9
	Very well	6	46.2	4	57.1
Knowledge on the community by tribe's non-utilization of maternal/child health care view in the area	Barely	3	23.1	1	14.3
	Very well	10	76.9	6	85.7
Knowledge on the community by tribe's area languages	Barely	1	7.7	1	14.3
	Very well	12	92.3	6	85.7
Knowledge on the community by tribe's area needs of tribes in the community	Barely	2	15.4	0	0.0
	Very well	11	84.6	7	100.00

4.5.6 Personal involvement

Staff's involvement in community matters was examined as displayed in Table 4.21. There was a higher level of interaction in the local area, involvement in the community's forum /neighborhood meetings attendance, and safety matters. In these three areas, more than two-thirds of the respondents often participate. However, staff seldom gets involved in businesses owned by community members as shown by a lower proportion for Mt. Elgon (38.5%) and Cheptais (28.6%). Staff in Cheptais (85.7%) more often attend cultural functions compared with their colleagues from Mt. Elgon (46.2%).

Table 4.20 Personal involvement

Variable	Responses	Mt. Elgon		Cheptais	
		n=13	%	n=7	%
Personal involvement in tribe cultural functions attendance	Seldom	4	30.8	3	42.9
	Often	9	69.2	4	57.1
Personal involvement in tribe interaction in local area	Seldom	2	15.4	0	0.0
	Often	11	84.6	7	100.0
Personal involvement in tribe community forums/neighborhood meetings attendance	Seldom	3	23.1	2	28.6
	Often	10	76.9	5	71.4
Personal involvement in businesses owned by people in the area	Seldom	8	61.5	5	71.4
	Often	5	*38.5*	*2*	*28.6*
Personal involvement in tribal recreational/leisure activity	Seldom	8	61.5	3	42.9
	Often	5	38.5	4	57.1
Personal involvement in safety with local communities	Seldom	2	15.4	0	0.0
	Often	11	84.6	7	100.0
Personal involvement tribe cultural functions attendance	Seldom	7	53.8	1	14.3
	Often	6	46.2	6	85.7
Personal involvement in community-based advocacy group meetings of local tribes	Seldom	5	38.5	2	28.6
	Often	8	61.5	5	71.4

4.5.7 Resources and linkages

Table 4.21 illustrates resources and linkages where staffs are involved in their respective workplace communities. Participants confirmed being aware of the availability of resources and linkages in MCH services in both sub-counties. Similarly, more than two-thirds know very well the availability of child welfare services and public health services. This notwithstanding, a very small proportion of staff in Mt. Elgon know very well about resources and linkages in housing (7.7%). This was also the case where a smaller proportion often utilizes cultural consultants that help in a cultural context where 46.2% and 28.6% of staff in Mt. Elgon and Cheptais, respectively. The utilization of interpreters to work with Sabaot speaking persons was equally low among staff in Mt. Elgon (38.5%) and Cheptais (28.6%).

Table 4.21 Resources and linkages

Variable	Responses	Mt. Elgon		Cheptais	
		n=13	%	n=7	%
Resources and linkages in housing	Barely	12	92.3	4	57.1
	Very well	1	**7.7**	3	42.9
Resources and linkages in alcohol/substance abuse treatment	Barely	11	84.6	3	42.9
	Very well	2	15.4	4	57.1
Resources and linkages in maternal health services	Barely	0	0.0	0	0.0
	Very well	13	100.0	7	100.0
Resources and linkages in public health services	Barely	0	0.0	1	14.3
	Very well	13	100.0	6	85.7
Resources and linkages in child welfare services	Barely	0	0.0	2	28.6
	Very well	13	100.0	5	71.4
Resources and linkages in youth development services	Barely	8	61.5	3	42.9
	Very well	5	38.5	4	57.1
Resources and linkages in assessment utilizing tribes as respondents	Once or twice	7	53.8	4	57.1
	A number of times	6	46.2	3	42.9
Resources and linkages in advocacy link to opinions on diverse/important issues	A few	6	46.2	3	42.9
	Many	7	53.8	4	57.1
Resources and linkages in an open house to consumers, providers on service delivery to the community	Seldom	7	53.8	4	57.1
	Often	6	46.2	3	42.9
Resources and linkages in utilizing cultural consultants to help in cultural context	Seldom	7	53.8	5	71.4
	Often	6	46.2	2	28.6
Resources and linkages in utilizing interpreters to work with sabot speaking persons	Seldom	8	61.5	5	71.4
	Often	5	38.5	2	28.6

4.5.8 Organizational policy and procedures

Participants were asked about knowledge on organizational policy and procedures in the community where they work as shown in Table 4.22. Higher knowledge was on policy being either being currently written or in place was on concerning policy or procedures for providing/facilitating childcare were 84.6% of staff in Mt. Elgon and 57.1% in Cheptais confirmed such policy or procedures being in place. Generally, less than thirty-percent are aware of there being policy and procedure in culture-specific assessment instruments for diagnosis, culture-specific treatment approaches, policy, and procedures

in considering culture in service plans and policy and procedures in translating ministry materials to languages reflecting linguistic diversity in the area.

Table 4.22 Organizational policy and procedures

Variable	**Responses**	**Mt. Elgon**		**Cheptais**	
		n=13	**%**	**n=7**	**%**
Use of culture-specific assessment instruments for diagnosis	No policy or considering policy	10	76.9	7	100.0
	Currently writing or policy in place	3	23.1	0	0.0
Use of culture-specific treatment approaches	No policy or considering policy	11	84.6	6	85.7
	Currently writing or policy in place	2	15.4	1	14.3
Envision community empowerment as a treatment goal	No policy or considering policy	9	69.2	4	57.1
	Currently writing or policy in place	4	30.8	3	42.9
Review case practice regularly to determine relevancy to the client's tribe	No policy or considering policy	9	69.2	6	85.7
	Currently writing or policy in place	4	30.8	1	14.3
Provide or facilitate childcare	No policy or considering policy	2	15.4	3	42.9
	Currently writing or policy in place	11	84.6	4	57.1
Consider *culture* in service plans	No policy or considering policy	11	84.6	5	71.4
	Currently writing or policy in place	2	15.4	2	28.6
Take referrals from non-traditional sources	No policy or considering policy	7	53.8	3	42.9
	Currently writing or policy in place	6	46.2	4	57.1
Translate ministry materials into languages that reflect the linguistic diversity in your service area.	No policy or considering policy	10	76.9	5	71.4
	Currently writing or policy in place	3	23.1	2	28.6
Solicit input from groups of tribes concerning the physical plant location and interior design.	No policy or considering policy	11	84.6	4	57.1
	Currently writing or policy in place	2	15.4	3	42.9
Advocate for a better quality of life for a person tribe in addition to providing services.	No policy or considering policy	9	69.2	3	42.9
	Currently writing or policy in place	4	30.8	4	57.1

4.5.9 Communication of policy matters

Policy communication in the workplace area was explored as shown in Table 4.23. The community tribe is minimally aware of the program and the services and resources being offered in health facilities. In Mt. Elgon, none of the staff confirmed awareness among the tribes of the programs and services being offered. This happens in both sub-counties. Somehow, policies are communicated to Ministry staff very well in Cheptais (71.4%) but not so in Mt. Elgon (53.8%).

Table 4.23 Communication of policy matters

Variable	**Responses**	**Mt. Elgon**		**Cheptais**	
		n=13	**%**	**n=7**	**%**
How well policies communicated to ministry staff	Barely	6	46.2	2	28.6
	Very well	7	53.8	5	71.4
Information on the ethnicity or culture of clients specifically recorded in your organization management information system	Minimally	8	61.5	2	28.6
	Pretty well	5	38.5	5	71.4
Community tribes are aware of your program and the services and resources you offer	Not at all	13	100.0	6	85.7
	Pretty well	0	0.0	1	14.3
Organizational policy and procedures in assurance community tribes are aware of program and services/resources offered	Minimally	7	53.8	1	14.3
	Very well	6	46.2	6	85.7

4.5.10 Cultural competence assessment

The result of cultural competence assessment shows that over three-quarters of male and female staffs in the two sub-counties are culturally incompetent. The situation was the same for the different age categories, marital status, and religion and to some extent, by the tribe. Overall, all the respondents scored less than 75% of the questions suggesting that they are culturally incompetent as shown in table 4.24.

Table 4.24 Cultural competence by socio-demographic characteristics by sub-county

Variable	Response	Mt. Elgon		Cheptais	
		Culturally aware (%)	Incompetent (%)	Culturally aware (%)	Incompetent (%)
Gender	Male	1 (12.5)	7 (87.5)	1 (20.0)	4 (80.0)
	Female	1 (20.0)	4 (80.0)	0 (0.0)	2 (100.0)
Age group in years	20 - 29	1 (14.3)	6 (85.7)	0 (0.0)	1 (100.0)
	30 - 39	1 (50.0)	1 (50.0)	1 (25.0)	3 (75.0)
	40 - 49	0 (0.0)	4 (100.0)	0 (0.0)	1 (100.0)
	≥ 50	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
Marital status	Single	1 (25.0)	3 (75.0)	0 (0.0)	0 (0.0)
	Married	1 (12.5)	7 (87.5)	1 (14.3)	6 (85.7)
	Divorced	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)
Religion	Christians	2 (18.2)	9 (81.8)	1 (14.3)	6 (85.7)
	Islam	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)
	Other	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)
Tribe	Sabaot	1 (10.0)	9 (90.0)	0 (0.0)	0 (0.0)
	Ogiek	1 (100.0)	1 (100.0)	0 (0.0)	0 (0.0)
	Luhya	0 (0.0)	0 (0.0)	2 (100.0)	1 (100.0)
	Kony	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)
	Teso	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)
	Kalenjin	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)
	Kisii	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)

4.5.11 Profile of research participants in qualitative data

Out of the 75 participants, 20 health care workers participated through Key informant interview and 55 mothers participated in focus group discussion. The health care worker majority were nursing officers 10/20, Public health officers 6/20, Pharmaceutical technologists3/20, and Clinical officers 1/20. The ten planned focus group discussion participants were age group 16 to 20 years ten participants, 21 to25 years eleven participants, 26 to30 years thirteen participants, 31 to 35years ten participants, and 36 above were eleven participants. All the health care providers were married accept one who divorced. All mothers in the focus group discussion were housewives with 47/55 married and 8/55 that were single (one single from Mt. Elgon and seven from cheptias).

CHAPTER FIVE

DISCUSSION

5.1 Overview

The main objective of the study was to analyze the determinants of maternal health care service utilization among mothers of Mt. Elgon constituency in Bungoma County. More specifically, examined client characteristics, health facility factors, and cultural competence of health care providers and their influence on the utilization of maternal health care services among mothers of Mt. Elgon constituency in Bungoma County.

Broadly stated, the predictors that were identified by participants which played a major role in maternal health care utilization included socio-demographic characteristics of clients, health facility factors, and the cultural competence of health care workers.

5.2 Socio-demographic characteristics of clients

The study revealed a statistically significant relationship between age and use of maternal health care services ($p = 0.01$). Among those aged below 30 years and residents of Mt. Elgon, a significantly smaller proportion of respondents in this age group utilized the services. Similar findings were reported by Vilder, *et al.*, (2016) who found out that a significantly smaller number of mothers of less than thirty years of age were utilizing maternal health services in India. In the study area, underutilization of maternal health services could be attributed to Mt. Elgon terrain which is mountainous. Access to health facilities in this area requires the use of motorized transport and one spends at least Ksh. 500 (USD 5) which most of the young women may not have, unlike the older age group that are more economically independent. The results are supported further by the participants of the age group 20 to 30 years who took part in FGD 4.

Another explanation that was advanced on the possible reason why the younger age groups do not utilize the services is cultural. A study conducted by Ngari (2010) among the Ogiek community (of which Mt. Elgon Sub County is included) revealed elders' influence on the younger mother's decision to go to the hospital by encouraging them to use herbs for treatment before visiting the health facilities. The older women, on the other hand, know the herbs and can decide whether to use the herbs or go to the hospital.

In this study, there was a statistically significant relationship between those with none or primary education and participants with secondary education and above in Mt. Elgon regarding the utilization of maternal health care services. Among those with none or primary education in the same location, 40% were less likely to have used the health facilities compared to those who had attained at least secondary education who were 1.3 times more likely to have utilized the MCH services. It appears that education plays a major role in the utilization of maternal health care services. The chances of getting employment are higher which improves access to health facilities although after controlling for other factors, education was not significantly associated with the outcome. Our results are contrary to the findings of a study conducted by Sakeah, *et al.,* (2014) and Makapi, *et al.,* (2011). Indeed, the socio-economic standing of mothers improves with literacy levels of mothers. The extent to which a mother is educated determines autonomy in decision-making regarding the use of maternal and child health care services.

Bivariate analysis results show that a higher proportion of women in Mt. Elgon (60%) who are working were more likely to utilize the services unlike those in Cheptais with a marginal statistically significant results (p=0.06). These results concur with the study done in Eastern Nepal, where women who were not formally working were less likely to use maternal health care services (Lama & Krishna, 2014). After controlling for other confounders, employment was statistically significantly associated with the utilization of maternal and child health care services (p=0.03). Women who were employed in Mt. Elgon were almost three times more likely to use these services. This then implies that employment after controlling for education and other factors is one of the determinants of service utilization. Employment gives one socioeconomic power and autonomy to access health care services amongst other services.

There was a statistically significant relationship between mothers who had stayed in Mt. Elgon for less than 6 months compared to those who had been residents for a longer period. This study showed that respondents who had stayed in Mt. Elgon Sub- County for more than 6 months were 40% less likely to have used maternal and child health care services (p= 0.02) compared to respondents who had stayed in the same area for less than 6 months who were four times more likely to utilize same services (p= 0.06). Mothers who are new in the study area are not familiar with culture/traditional groups offering care and use of local herbs and therefore are more likely to seek health services in the nearby health facilities while mothers who have been residents for a longer time and who are familiar with the indigenous groups rely on the use of local herbs for management of maternal illnesses before seeking hospital care. A participant who had stayed in Mt. Elgon for more than 6 months expressed in FGD 3.

5.3 Health facility factors

The study shows a statistically significant association on working days not being suitable for the respondent and the community on the utilization of MCH services (p = 0.04). This makes half (50%) of respondents from Mt. Elgon who complained about the unsuitable working days less likely to use the services.

Where mothers claimed the non-availability of mobile/outreach clinics, a significantly smaller proportion of mothers utilized the services in Mt. Elgon (p = 0.06). This could have been contributed by the rough terrain and distance to health facilities. The results are corroborated by similar findings in our study where a smaller proportion (63%) of respondents from Mt. Elgon compared with 78.7% from Cheptais were able to use the services where the time taken to reach the facility by foot is more 1 hour (p = 0.007). This was true even in cases where FP services were free or where they were to pay for ANC services. Whereas 36% of the mothers from this area were less likely to use the FP services, almost 50% did not utilize the ANC services. This result is in line with a study by Kassile, Lokina, Mujinja & Mmbando, (2014) in Tanzania where distance influenced the mother's access to the services. The result is supported by the study by (Zelalem, Belayihun, Teji, & Admassu, 2014) which found out that the cost of a single trip per person from home to hospital influences the utilization. The study by (UNFPA, WHO, & UNICEF, 2010) had shown that 90% of mothers complain that their children often die at home without the utilization of services due to long distance.

The study showed that the use of interpreters during respondent's or relative's visits to the health facility was statistically significantly associated with the use of MCH services (p= 0.02). Where such interpreters were used in Mt. Elgon, 80% of the respondents were less likely to have utilized MCH services. Cultural beliefs in Mt. Elgon negatively influenced the use of an interpreter, unlike a study which shows that in America use of

an interpreter positively influences the utilization of MCH services (Kaufert & Putsch, 2006). The reason for this study's results could be due to a feeling of lack of confidentiality as the interpreters are literate patient relatives. This, therefore, means that the patient/client's private matters will have been publicized which is culturally wrong.

There was a marginally statistically significant relationship between ownership of facility and utilization of maternal health services p-value 0.07 whereby respondents from Mt. Elgon were less likely to use MCH services in GOK owned facilities. This could be supported by the complaints on waiting time for MCH services which unacceptable by respondents from Mt. Elgon. From the results, 30% of respondents from the same study area were less likely to use MCH services. This is explained in one of the studies where 84.2% felt it waiting for time unacceptable resulting in under-utilization of the services (Mahapatro, 2012).

The study found out that a statistically significantly smaller proportion of respondents from Mt. Elgon was less likely to utilize maternal health services because of being too busy (p= 0.02). The reason could be the cultural gender role of a woman. In this area women are responsible for the children, farm, milking of cows, selling of farm products, and household chores. Culturally for them, a man takes care of animals and the security of the family and community. Therefore, it is realized that culturally a woman has a lot to do in the home of which delegation to a man would mean a lack of respect to the head of the home.

The study shows a statistically significant association among respondents consulting health professionals for advice when respondents or family experience small health problems with a comparatively smaller proportion of respondents from Mt. Elgon utilizing maternal services (p=0.03) which were in line with a study by (Kumar & Narayan, 2014). Surprisingly, unlike the study by (Schyve, 2007) this study showed that

even where respondents from Mt. Elgon were sometimes treated with appropriate cultural respect by facility staff (p= 0.03) or where health professionals sometimes take respondent's culture and religion into account when interacting with them (p= 0.03), still a statistically significantly smaller proportion was able to utilize MCH services. Respondents from Mt. Elgon who did not consult elders for advice when respondents or family experienced small health problems were also less likely to utilize MCH services though the association was marginally statistically significant (p= 0.08). This is in line with the study conducted among the Ogiek community which found out that Ogiek believes in the use of herbs (Ngari, 2010).

5.4 Cultural competence of health care workers

The study showed that over three-quarters of male and female staffs in the two sub-counties in Mt. Elgon Constituency are nursing officers. The result showed that more staff from Mt. Elgon as compared with Cheptais were not culturally aware of the community's demographics especially knowledge on birth/ death rates (61.5%), crime rates (61.5), and homicides (76.9). This was in line with the study done by (Guirardello, 2017). Cultural awareness is not the main cause (Coast, Eleri, & Lattof, 2016) as other reasons could be that the majority of the staff who took part in the study in Mt.Elgon were non-Saboat. It was shown that more staff in Mt. Elgon than Cheptais had a knowledge gap on community gatekeepers in their services area especially on social historian (46.2%) informal supports/natural helpers (69.2%) and social service agency (46.2). The reason could be because most staff working in Mt. Elgon stay in Kimilili which is a different sub-county unlike those in Cheptais who most of them stay in the same sub-county. During their free time, they are normally outside the Mt. Elgon sub-county. Although over three-quarter of staff in the study area knew very well community cultural issues like the tribe's area needs, area languages and tribes non-utilization of

maternal health care views, it was noted that 53.8 % of staff in Mt. Elgon had knowledge gap on the social protocol compared to 46.2% from Cheptais. The results showed low (30 %) personal involvement of staff from Mt. Elgon compared to (42.9%) staff from Cheptais especially in the attendance of cultural functions which therefore gave the reason for a very small number that was found to know the resources and linkage in housing and substance abuse.

The results show that despite there being good personal involvement of the staff through interaction in the local area, 38.5% of staff in Mt. Elgon seldom get involved in businesses owned by community members compared to only 28.6% staff from Cheptais. It was shown that policy communication was 71.4% in Cheptais but much less in Mt Elgon at 53.8%. Surprisingly none of the respondents in Mt. Elgon was aware of the health programs and services offered. Overall, all the respondents scored less than 75% of the questions suggesting that they are culturally incompetent.

The results of this study are in line with a study by Guirardello (2017) in Ethiopia which found 84.3% of health care workers to have been culturally incompetent in service to the community in which 12% were aware and 15% were competent and proficient.

Due to cultural reasons, the study results were not in line with studies done in Sweden and USA which found that the use of a qualified interpreter was one of the interventions to improve cultural competence care in situations where the health care worker and patient differ in cultural understanding which in turn improve patient satisfaction (Fahati, Mattsson, & Lundgren, 2010) and (Govere & Govere, 2016).

According to Bossuyt (2009), the ethical minority (like the Ogiek of Mt. Elgon) are at disadvantage and therefore need to be brought on the same level/ page with the majority population by improving lifestyle using culturally accepted interventions.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The evidence from this study demonstrates that the client characteristics is a determinant of maternal health care services utilization specifically the age of lower than thirty years, mothers who do not work, mothers who have stayed less than six months in Mt. Elgon Sub County and mothers with a low level of education that is none or primary education.

Health facility factors that are determinants of maternal health care services utilization among mothers in Mt. Elgon Constituency in Bungoma County are the time taken to reach a facility by foot, payment of ANC services, use of an interpreter and waiting for time.

This paper offers important and quite educative and very challenging results concerning the cultural competence of health care workers. It is concluded that all the health care workers in Mt. Elgon constituency were incompetent culturally and this affects the uitilization of maternal health care services in the study area.

6.2 Recommendation

There is a great need for the establishment of women groups for empowerment by both National & County governments to mitigate unemployment being one of the key determinants of utilization in the study area.

The MOH through the respective County Government needs to construct health facilities that are accessible and within a 5 km radius as recommended by WHO to reduce the time and cost incurred by clients to seek medical care.

There is a need for the Nursing Council of Kenya to incorporate cultural competency training in the curriculum due to diversity of culture in Kenya to improve patient/ client satisfaction which in turn will increase the utilization of MCH services.

There is a need for research on the quality of care to inform the mitigation factors about having visited the nearest health facility as a patient as it is one of the key determinants of utilization in the study area.

REFERENCES

Achia, T. N. (2015). Individual and contextual determinants of adequate maternal health care services in Kenya. *Women \& health*, 203--226.

Achia, T. N., & Mageto, L. E. (2015). Individual and contextual determinants of adequate maternal health care services in Kenya. *Women \& health, 55*, 203--226.

Adamson, P. c., krupp, k., Niranjankumar, B., Alexanda, Mudassi, & purnima. (2012). Are marginalized women being left behind? A population-based study of institutional deliveries in Karnataka, India. *Are marginalized women being left behind? A population-based study of institutional deliveries in Karnataka, India, 12*, 30.

Akunga, D., Menya, D., & Kabue, M. (2014). Determinants of postnatal care use in Kenya. *Etude de la Population Africaine, 28*, 1447.

Amoran, O. E. (2012). Determinants of intermittent preventive treatment of malaria during pregnancy (IPTp) utilization in a rural town in Western Nigeria. *reproductive health, 9*, 12.

AMREF. (2011). Integrated school health. Kenya. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=AMREF+2011+health+report+&btnG=

Aragaw, A., Yigzaw, T., Tetemke, D., & Others. (2015). Cultural Competence among Maternal Healthcare Providers in Bahir Dar City Administration, Northwest Ethiopia: Cross sectional Study. *BMC pregnancy and childbirth, 15*, 227.

Arthur, E. (2012). Wealth and antenatal care use: implications for maternal health care utilisation in Ghana. *Health economics review, 2*, 14.

Awoyemi, T. T., Obayelu, O. A., & Opaluwa, H. I. (2011). Effect of distance on utilazation of health care services in rural kogi state, Nigeria. *Journal of human Ecology*, 1--9.

Babalola, S., & Fatusi, A. (2009). Determinants of use of maternal health services in Nigeria-looking beyond individual and household factors. *BMC pregnancy and childbirth, 9*, 43.

Belayneh, T., Adefris, M., & Andargie, G. (2014). Previous early antenatal service utilization improves timely booking: cross-sectional study at university of Gondar hospital, northwest Ethiopia. *Journal of pregnancy, 2014*.

Belayneh, T., Mulat, A., & Gashaw, A. (2014). Previous Early Antenatal Service Utilization. *journal of pregnancy, 2014*.

Berhane, B., Gebrehiwot, H., Weldemariam, S., Fisseha, B., Kansay, S., & Gebremariam, A. (n.d.). Delivery services.

Berman, P., Pallas, S., Smith, A. L., Curry, L., & Bradley, E. H. (2011). Improving the delivery of health services: a guide to choosing strategies.

Bharti, P. K., Shukla, M. M., Ringwald, P., Krishna, S., Singh, P. P., Yadav, A., . . . Others. (2016). Therapeutic efficacy of artemether--lumefantrine for the treatment of uncomplicated Plasmodium falciparum malaria from three highly malarious states in India},. *Malaria journal*, 498.

Bhattacherjee, S., Datta, S., Saha, J. B., & Chakraborty, M. (2013). Maternal health care services utilization in tea gardens of Darjeeling, India. *Journal of basic and clinical Reproductive Sciences, 2*, 77--84.

Binder-Finnema, P., Lien, P. T., Hoa, D. T., & Miqvist, M. (2015). Determinants of marginalization and inequitable maternal health care in North--Central Vietnam: a framework analysis. *Global health action, 8*, 27554.

Black, R. E., Levin, C., Walker, N., Chou, D., Liu, L., Temmerman, M., & Others. (2016). Reproductive, maternal, newborn, and child health: key messages from Disease Control Priorities 3rd Edition. *The Lancet, 388*, 2811--2824.

Bossuyt, J. (2009). *Mind the gap: addressing the" delivery challenge" in European Commission Development Cooperation.* CEU, Instituto Universitario de Estudios Europeos, CECOD.

Brundisini, F., Giacomini, M., DeJean, D., Vanstone, M., Winsor, S., & Smith, A. (2013). Chronic disease patients' experiences with accessing health care in rural and remote areas: a systematic review and qualitative meta-synthesis. *Ontario health technology assessment series, 13*, 1.

Chege, J. a. (2015). Utilization of maternal health care services in Kenya: An analysis of the patterns and determinants of maternal health care use. *Retrieved March, 19*, 2016.

Chelimo, S. N. (2016). Influence of Peace Building Strategies on Ethnic Cohesion among Communities in Mount Elgon Sub-County, Kenya.

Cleland, J., Bernstein, S., Ezeh, A., Faundes, A., Glasier, A., & Innis, J. (2015). Family planning: The unfinished agenda. Geneva: *World Health Organization. WHO. Web, 9*.

Coast, E., Eleri, J., & Lattof, S. R. (2016). Effectivenessof interventions to provide culturally appropriate maternity care in increasing uptake of skilled maternity care:a systematic review. *oxford*.

Dagne, E. (2010). Role of socio-demographic factors on utilization of maternal health care services in Ethiopia.

DHIS. (2015). *Angewandte Chemie International Edition.The Double-Histidine Cu2+-Binding Motif: A Highly Rigid, Site-Specific Spin Probe for Electron Spin Resonance Distance Measurements*, *54*, 6330--6334. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=DHIS+2015&btnG=

Emelumadu, O. a., Emelumadu, O., Ukegbu, A., Ezeama, N., Kanu, O., Ifeadike, C., & Onyeonoro, U. (2014). Socio-demographic determinants of maternal health-care service utilization among rural women in anambra state, South East Nigeria. *Annals of medical and health sciences research*, *4*, 374--382.

Eriksson, M. a., Eriksson, M., Dahlgren, L., Janlert, U., Weinehall, L., & Emmelin, M. (2010). Social capital, gender and educational level impact on self-rated health. *The Open Public Health Journal*, *3*.

Eunice, W. N. (2010). Ethnomedicine of Ogiek of River Njoro watershed, Nakuru,Kenya. *Ethnobotany Research and Applications*, 135--152.

Fahati, N., Mattsson, B., & Lundgren, S. M. (2010). Nurse radiographers experiences of communication with patients who do not speak the native language. *Journal of Advanced Nursing*, *4*, 66.

Fanslow, J. (2017). Intimate partner violence and women's reproductive health. *Obstetrics, gynaecology and reproductive medicine*, *27*, 148--157.

Gies, S. a. (2009). Community-based promotional campaign to improve uptake of intermittent preventive antimalarial treatment in pregnancy in Burkina Faso. *The American journal of tropical medicine and hygiene*, *80*, 460--469.

Govere, L., & Govere, E. M. (2016). How Effective is Cultural Competence Training of Health Care Providers on Improving Patient Satisfaction of Minority Groups? (J. D. Kramer, & J. Chen, Eds.) *World view on Evidence based nursing*, *III*(12), 13.

Guirardello, E. d. (2017). Impact of critical care environment on burnout, perceived quality of care and safety attitude of the nursing team. *Revista latino-americana de enfermagem*, *25*.

Hopkins, M., & Ramsundar, N. (2006). Which factors predict case management services and how to these services relate to client outcomes. *Psychiatric Rehabilitation Journal*, 219.

Hossain, M. I., & others. (2010). Inequality in the utilization of maternal care and the impact of a macroeconomic policy: Evidence from Bangladesh. *HEDG worNing paper*, *10*.

Hulton, L. a. (2000). A framework for the evaluation of quality of care in maternity services.

Islam, A. Z., Mondal, M. N., Islam, Khatun, M. L., Rahman, M. M., Islam, M. R., . . . Hoque, M. N. (2015). Prevalence and determinants of contraceptive use among employed and unemployed women in Bangladesh. *International Journal of MCH and AIDS, 5*, 92.

Israel, G. D. (1992). *Determining sample size.* University of Florida Cooperative Extension Service, Institute of Food and Agriculture Sciences, EDIS Gainesville. Retrieved from https://scholar.googleusercontent.com/scholar.bib?q=info:J24bx_lQspgJ:scholar.google.com/&output=citation&scisig=AAGBfm0AAAAAWt9LdwGuvTSEUohT5Hs174K2qL8f2_ov&scisf=4&ct=citation&cd=-1&hl=en

Kant, A. M., Chung, C. E., Larsen, A. M., Exavery, A., Tani, K., & Phillips, J. F. (2015). Factors associated with compliance with the recommended frequency of postnatal care services in three rural districts of Tanzania. *BMC pregnancy and childbirth, 15*, 341.

kanya, l. a. (2015). Estimating willingness to pay for maternal health services: The Kenya reproductive health voucher programme. *kanya2015estimating*.

Kassile, T., Lokina, R., Mujinja, P., & Mmbando, B. P. (2014). Determinants of delay in care seeking among children under five with fever in Dodoma region, central Tanzania: a cross-sectional study. *Malaria journal, 13*, 348.

Kaufert, J. M., & Putsch, R. W. (2006). Communication through Interpreters in Healthcare: Ethical Dilemmas Arising from Differences in Class,Culture, Language, and Power. *clinical ethics, 8*.

KDHS. (2014). *Kenya National Bureau of Statistics*. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=KDHS+2014

Khan, K. S., Wojdyla, D., Say, L., G{\"u}lmezoglu, A. M., & Van, L. P. (2006). WHO analysis of causes of maternal death: a systematic review. *The lancet, 367*, 1066--1074.

Kibui, W. A., Nyaga, G., Ngesu, L., Mwaniki, I. B., & Mugo, R. K. (2015). Health policies in Kenya and the new constitution for vision 2030. *International Journal of Scientific Research and Innovative Technology*, 127--134.

Kibusi, S. M. (2015). Predictors for uptake of intermittent preventive treatment of malaria in pregnancy (IPTp) in Tanzania. *BMC public health, 15*, 540.

Kinney, M. V., Kerber, K. J., Black, R. E., Cohen, B., Francis, Coovadia, H., *et al.*, (2010). Sub-Saharan Africa's mothers, newborns, and children: where and why do they die? *PLosS medicine, 7*, e1000294.

Kish, L., & Frankel, M. R. (1974). Inference from complex samples. *Journal of the Royal Statistical Society. Series B (Methodological)*, 1--37.

Kitui, J., Lewis, S., & Davey, G. (2013). Factors influencing place of delivery for women in Kenya: an analysis of the Kenya demographic and health survey, 2008/2009. *BMC pregnancy and childbirth*, *13*, 40.

KNBS (2009). *Demographic Health Survey*. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=KNBS+2009+Demographic+Health+Survey&btnG=

KNBS (2016). *Bungoma County, Kenya Multiple Indicator Cluster Survey 2013/2014*. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=KNBS+2016+Demographic+health+survey&btnG=

Kosek, M., Bern, C., & Guerrent, R. L. (2003). The global burden of diarrhoeal disease, as estimated from studies published between 1992 and 2000. *Bulletin of the World Health Organization*, *81*, 197--204.

Kumar, R., Ahmed, J., Anwar, F., & Somrongthong, R. (2019). Availability of emergency obstetric and newborn care in public health facilities of Sindh Province in Pakistan. *BMC Health Services*.

Lama, S., & Krishna, A. (2014). Barriers in utilization of maternal health care services: Perceptions of rural women in Eastern Nepal. *Kathmandu Univ Med J*, *48*, 253--58.

Lamouche, J. K. (2012). Culture as a Social Determinant of Health Examples from Native Communities. *commision paper for Institute of medicine on the Promotion of Health Equity and the Elimination of Health Disperities*.

Larsen, A., Exavery, A., Phillips, J. F., Tani, K., & Kante, A. M. (2016). Predictors of health care seeking behavior during pregnancy, delivery, and the postnatal period in rural Tanzania. *Maternal and child health journal*, *20*, 1726--1734.

Leedy, P., & Ormrod, J. (2005). Practical Research--Planning and Design 8th edn Pearson. *Upper Saddle River, NJ*.

Mafabi, D. (2011). Why the Sabiny are gritty to female circumcision. *Daily Monitor. Google Scholar*.

Mahapatro, S. R. (2012). Utilization of maternal and child health care services in India: Does women s autonomy matter?

Mason, J. L. (1995). Cultural Competence Self-Assessment Questionnaire: A Manual for Users. *Mason, James L*.

Mdard, C. (2010). Indigenous' land claims in Kenya: a case study of Chebyuk, Mount Elgon District.

Mekonnen, Y., & Mekonnen, A. (2002). Utilization of maternal health care services in Ethiopia.

MOH. (2016). Kenya reproductive, maternal, newborn, child and adolescent. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=MOH+2016.Kenya+reproductive%2C+maternal%2C+newborn%2C+child+and+adolescent+&btnG=

Mujtaba, M. A., Llewellyn, C. J., Galadanci, H., Erekaha, S., Okundaye, J. N., Adeyemi, O. A., & Agudu, N. A. (2016). Evaluating Religious Influnce on the Utilization of Maternal Health Services among Muslim and Christian Women in North-Central Nigeria. (K. Mwinga, Ed.) *Hindawi*, 8.

Mungai, T. D. (2016). The Determinants of Maternal Health Care Services Kenya.

Muriuki, A., Obare, F., Ayieko, B., Matanda, D., Sisimwo, K., & Mdawida, B. (2017). Health care providers' perspectives regarding the use of chlorhexidine gel for cord care in neonates in rural Kenya: implications for scale-up. *BMC health services research*, *17*, 305.

Ngari, w. E. (2010). Ethnomedicne of Ogiek of River Njoro watershed, Nakuru, Kenya. *Ethnobotany Research and Applications*, 135--152.

Oladipo, J. A. (2014). Utilization of health care services in rural and urban areas: a determinant factor in planning and managing health care delivery systems. *African health sciences*, 322--333.

Pandey, V. C., Pandey, D. N., & Singh, N. (2015). Sustainable phytoremediation based on naturally colonizing and economically valuable plants. *Journal of cleaner Production*, *86*, 37--39.

Ronsmans, C., Graham, W. J., Lancet, M., group, M. S., & others. (2006). Maternal mortality: who, when, where, and why. *The lancet*, *368*, 1189--1200.

Rutaremwa, G. a., Rutaremwa, G., Wandera, S. O., Jhamba, T., Akiror, E., & Kiconco, A. (2015). Determinants of maternal health services utilization in Uganda. *BMC health services research*, *15*, 271.

Sakeah, E. a.-A., Sakeah, E., Doctor, H. v., McCloskey, L., Bernstein, J., Yeboah-Antwi, K., & Mills, S. (2014). Using the community-based health planning and services program to promote skilled delivery in rural Ghana: socio-demographic factors that influence women utilization of skilled attendants at birth in Northern Ghana. *BMC Public Health*, *14*, 344.

Scharlach, A. E., Kellam, R., Ong, N., Baskin, A., Goldstein, C., & Fox, P. J. (2006). Cultural Attitudes and caregiver service use:lesson from focus groups with racially and ethinically diverse family caregivers. *Journal of Gerontological Social Work, 47*.

Schyve, P. M. (2007). Language differences as a barrier to quality and safety in health care: the Joint Commission perspective. *Journal of general internal medicine*, 360-361.

Silverman, D. (2013). Doing qualitative research: A practical handbook. *4*, 488. Retrieved April 22, 2018, from https://books.google.com

Simiyu, ,. R. (2008). Militianisation of resource conflicts: the case of land-based conflict in the Mount Elgon region of western Kenya. *Institute for Security Studies Monographs, 2008*, 80.

Singh, A. S., & Masuku, M. B. (2014). Sampling techniques \& determination of sample size in applied statistics research: An overview. *International Journal of Economics, Commerce and Management, 2*, 1--22.

Tadesse, B., Mulat, A., & Gashaw, A. (2014). Previous early antenatal service utilization improves timely booking: cross-sectional study at university of Gondar hospital, northwest Ethiopia. *Journal of pregnancy*, *2014*.

Takarinda, C. K., Madyira, L. K., Mhangara, M., Makaza, V., Maphosa-Mutsaka, . . . Harries, A. D. (2016). Factors associated with ever being HIV- tested in Zimbabwe: an extended analysis of the Zimbabwe Demographic and Health survey. *Plos one*, e0147828.

Tey, N.-P. a.-l. (2013). Correlates of and barriers to the utilization of health services for delivery in South Asia and Sub-Saharan Africa. *The Scientific World Journal, 2013*.

Umar, A. S. (2017). The use of Maternal Health Services in Nigeria: Does Ethinicity and Religious Beliefs Matter? *MED CRAVE, 6*(6), 7.

UNFPA, & UNICEF. (2011). The end is in sight: annual report 2009 for the UNFPA/UNICEF Joint Programme on Female Genital Mutilation/cutting. 2010.

UNFPA, WHO. UNICEF. (2010). The World Bank: Trends in maternal mortality: 1990 to 2010. *Geneva: World Health Organization*, 13. UNICEF. (1999). *The progress of nations.* UNICEF.

UNICEF. (2008). *The state of the world's children 2009: maternal and newborn health* (Vol. 9). Unicef. Retrieved April 24, 2018,

Vanclay, F., Bianes, J. T., & Taylor, C. N. (2013). Principles for ethical research involving humans: ethical professional practice in impact assessment Part I. *Impact Assessment and Project Appraisal*, *31*, 243--253.

Vilder, M., Ramadurg, U., Katageri, U., Charantimath, U., Karadiguddi, & Sawchuck. (2016). Utlizatio of maternal health care services and their determinants in Karnataka State, India.

Vogel, J. P. (2013). Maternal and perinatal outcomes of twin pregnancy in 23 low-and middle-income countries. *PloS one*, *8*, e70549.

Wachira, B., & Martin, I. B. (2011). The state of emergency care in the Republic of Kenya. *African Journal of Emergency Medicine, 1*, 160--165.

Warren, C., Daly, P., Toure, L., & Mongi, P. (2006). Postnatal Care- World Health Organisation. *BMC Public Health*.

WHO. (2009). *Diarrhoea: why children are still dying and what can be done*.

WHO. (2010). World Health Organization.

W H O. (2011a). valuating the quality of care for severe pregnancy complications: the WHO near-miss approach for maternal health},.

WHO. (2011b). *Progress in scale-up of male circumcision for HIV prevention in Eastern and Southern Africa: focus on service delivery-2011 revised*.

WHO. (2012). *Fecha de consulta(World malaria report 2012. Geneva: WHO; 2012), 23*, 247.

WHO. (2013). *WHO recommendations on postnatal care of the mother and newborn.*

WHO. (2015a). *Evaluating the quality of care for severe pregnancy complications: the WHO near-miss approach for maternal*.

WHO. (2015b). Trends in maternal mortality: 1990-2015: estimates from WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division.

WHO. (2017). *The Partnership for Maternal, Newborn \& Child Health 2016 annual report: coming of age in a time of transition*.

Worku, E. B., & Woldesenbet, S. A. (2015). Poverty and inequality--but of what-as social determinants of health in Africa. *African health sciences, 15*, 1330-1338.

Yerramilli, S., & Fonseca, D. G. (2014). Assessing geographical inaccessibility to health care: Using GIS network based methods. *Public Health Research, 4*, 145--159.

Zelalem, A. D., Belayihun, B., Teji, K., & Admassu, A. D. (2014). Factors affecting utilization of maternal health Care Services in Kombolcha District, eastern Hararghe zone, Oromia regional state, eastern Ethiopia. *International scholarly research notices, 2014*.

APPENDICES

APPENDIX I: INFORMED CONSENT FORM

Title of the study: Determinants of maternal health care services utilization among nurses of Mt. Elgon constituency in Bungoma County.

Name of Principal Investigator: Pascalia Okoiti Kisiangani email address pascalia.okoiti@gmail.com Phone number 0703798868

Purpose of study: I am a Master of Science student at Masinde Muliro University of Science and Technology, School of nursing, and midwifery. I am conducting a study to investigate the determinants of maternal health care service utilization among mothers of Mt. Elgon constituency in Bungoma, in partial fulfillment of the requirement of a master of science in nursing (Community Health Nursing).

Procedure: You will be asked questions as the interviewer records the information in the questionnaire to aid in remembering the information you give. Just relax and feel free.

Risk: There is no direct risk of participating in this study.

Benefits: There are no direct benefits from this study. However, the results will be shared with the constituency Administrators, Masinde Muliro University of Science and Technology, and other stakeholders. The results will be used to inform policy on universal health care for marginalized communities.

Confidentiality: Information on personal identifiers will be avoided and the information will be limited to the investigators only.
Voluntary Participation: You have been chosen to participate in this survey. Your participation and honest information in this study will be most appreciated. Your participation will be purely voluntary and that you have the right to withdraw consent at any time in the course of the interview without any penalty. Equal opportunity will be accorded to participants who consent to participate in the study.

Participant's acknowledgment: I hereby consent to be a participant in the aforementioned research survey. All the details of which have been explained to me (or I have read and understood).

Participant's signature ……Date……

Investigator's signature……..Date……

Thank you for agreeing to be a participant in this study.

APPENDIX II: INTERVIEW ASSISTED QUESTIONNAIRE

CONFIDENTIAL **Serial/Entry Number……..**

The information refers to pregnancy or delivery within the last year preceding the study.

Sub County Name:_____ Code: □□□
Division Name: _____ Code: □□□
Location Name: _____ Code: □□□
Type of area:
1 = Urban
2 = Peri-urban
3 = Rural
Estimated Total Population the area: □□□□□□
Date of Interview: □□/□□/□□□□
Interviewer Name: _____
Date Checked: □□/□□/□□□□
Team Leader Name: _____

Determinants of Maternal Health Care Service Utilization among mothers of Mt.

Elgon Sub County Bungoma

Section 1: Demographic and Socioeconomic Data

No.	Questions and filters	Coding Variables	Office use
1.	Gender (to be entered by the enumerator)	1 = Male 2 = Female	
2.	How old are you? (Age of the last birthday)	_____	
3.	Which is your tribe?	----------	
4.	What is your Marital Status (Circle one category)	1 = Single 2 = Married 3 = Divorced 4 = Widowed 5 = Separated	
5	What is the highest level of school you attended? (Circle one category)	1 = None 2 = Primary 3 = Secondary 4 = College/University	
6	What is your current Religious affiliation? (Circle one category)	1 = Muslim 2 = Christian 3 = Traditionalist 4 = Other (specify):_____	

7	Are you currently working at a job for pay, either full-time or part-time? (Circle one category)	1 = Yes, Full-time 2 = Yes, Part-time 3 = No (Go to Question 9)	
8.	What type of job is it? (Circle one category)	1 = Farm worker 2 = Pastoralist 3 = Domestic worker 4 = Teacher 5 = Other (specify):_____	
9.	How long have you been in the above job? (Circle one category)	1 = 6 months or less 2 = 7 to 12 months 3 = More than 12 months	
10.	In the past six months, How many people have been living in your household? (Excluding yourself) (Circle one category)	1 = None 2 = One 3 = Two to 5 4 = More than 5	
11.	How many of the above are under the age of 5 years? (Circle one category)	1 = None 2 = One 3 = Two 4 = More than two	
12	In the past six months, How many people have been bringing income to the household? (Circle one category)	1 = None 2 = One 3 = Two 4 = More than 2	

Section 2: Health Needs					
No.	Questions and filters	Coding Variables			Office use
13.	Do you have a history of any chronic disease in your family? (Circle one category)	1 = Yes 2 = No (Go to Question 14) 3 = I am not sure (Go to Question 14)			
14.	What is the diagnosis? (Circle all categories that are applicable)	1 = Malaria in pregnancy 2 = Asthma 3 = Blood Pressure (High or Low) 4 = Chronic Pain 5 = Diabetes 6 = Fistula 7 = Cancer 8 = Epileptic fits 9 = Psychosis 10 = Other (specify):_____			
15	tick in the box of your choice	Yes	No	I am not sure	

A.	Do you have a history of any complications during pregnancy in your family?				
B.	Do you have a history of any complications during labor in your family?				
C.	Do you have a history of any complications during delivery or weeks following delivery in your family?				
D.	Have you had a history of death due to complications of pregnancy/labor/delivery in the family?				
E.	Have you or your relatives ever lost a child under the age of five years?				
16.	Have you ever had cases of the following diseases amongst your children or relative's children? (Circle all categories that are applicable)	1 = Measles 2 = Polio 3 = Diphtheria 4 = Whooping cough 5 = Tetanus 6 = Tuberculosis 7 = Never			
17.	How would you rate your health during the past six months? (Circle one category)	1 = Excellent 2 = Good 3 = Poor			
Section 3: AvailabilityAccessibility and Cognition					
18.	How long have you lived in the current area? (Circle one category)	1 = Less than one month 2 = 1 to Less than 7 months 3 = 7 to Less than 12 months 4 = Since I was born 5 = Other (specify):_____			
19.	What is the nearest health facility to the above area? (Circle one category)	1 = Dispensary 2 = Health Center 3 = Referral Hospital 4 = Tertiary Hospital 4 = Other (specify):_____			
20.	Have you ever been to the above facility as a patient, a visitor, or escorting someone for treatment? (Circle one category)	1 = Never 2 = Sometime as a patient 3 = Sometime as a visitor 4 = Sometime, escorting someone for treatment			
21.	Have you or any of your	1 = Yes			

	relatives been spoken to through an interpreter during your visits to health facilities?	2 = No	
22.	What language do nurses/clinicians often use when communicating with their patients in your area?	1 = dorobo most of the time 2 = Swahili most of the time 3 = English most of the time 4 = Other (specify):_____	
23.	During your visits to health facilities, Are you given clear and enough explanation about your condition or treatment by health professionals? (Circle all applicable categories; Read the responses the o interviewee)	1 = Information given is enough and clear for one to understand his/her condition and treatment 2 = Information given is not enough and clear for one to understand his/her condition and treatment 3 = Information given is enough for one to make an informed decision about his/her health 4 = Information given is not enough for one to make an informed decision about his/her health 5 = I am not sure	
24.	How far is the above health facility from your area? (Circle one category)	1 = Don't know 2 = Walking distance 3 = Need transport to get there	
25.	What services are provided at your nearest health facility? (Circle all categories that are applicable) Requires more probing from the Enumerator	1 = Treatment of minor ailments 2 = Family Planning 3 = Antenatal Clinic 4 = Delivery Services 5 = Post-natal 6 = Immunization services 7 = TB Clinic 8 = Paediatric services 9 = Medical Services 10 = Minor Surgery 11 = Major Surgery 12 = Psychiatric Services 13 = Nutritional Services 14 = Anti-Retroviral Therapy 15 = Dental care 16 = Specialized services (Dermatology, Ophthalmology, ENT, etc) 17 = HIV and AIDS Counselling 18 = Laboratory services 19 = Radiology 20 = Trauma and Emergency Services 21 = Intensive Care Services 22 = All of the above 23 = Other (specify):_____	

26.	Are there any Mobile/ Outreach Clinic in your area? (Circle one category)	1 = Yes 2 = No (Go to Question 29) 3 = I am not sure	
27.	If Yes, What services are provided at the Mobile/Outreach clinic? (Circle all categories that are applicable)	1 = Routine Check-ups 2 = Family Planning 3 = Ante Natal services 4 = Post-natal services 5 = Immunizations 6 = Other (specify):_____	
28.	If Yes, How many times per month? (Circle one category)	1 = Once per month 2 = Twice per month 3 = Every week 4 = Other (specify):_____	
29.	Does your nearest health facility open Every day? (Circle one category)	1 = Yes 2 = No	
30.	If No, How many days per week? (Circle one category)	1 = I don't know 2 = One to two days per week 3 = Three to four days per week 4 = Five days per week 5 = Six days per week 6 = Other (specify):_____	
31.	Are the working days suitable for you and the people of your community? (circle more than one)	1 = Difficult for me to attend 2 = Difficult for most of the people to attend 3 = Easy for me to attend 4 = Easy for most people to attend	
32.	Does your nearest health facility open 24 hours per day? (Circle one category)	1 = Yes (Go to Question 38) 2 = No	
33.	If No, How many hours per day?	Opening hour:_____ Closing hour:_____	

SECTION 4 AFFORDABILITY/ COST

34. Tick the correct box as per the choices above		Don't know	less than 30 minutes	30minutes to less than one hour	One to Less than Six hours	Six to Twelve hours	More than Twelve hours	
A.	How long does it take to reach the above health facility on by foot?							
B.	How long does it take to reach the above health facility by motorcycle?							
C.	How long does it take to							

	reach the above health facility by Donkey?							
D.	How long does it take to reach your nearest health facility by Private Vehicle?							
	In question 35 Indicate the estimated amount of ksh in the box	Motorcycle	Donkey	Private car	Lorry	Tractor	Others specify	
35.	How much does it cost to reach your nearest health facility by…? (means used)							
36.	Who owns the above facility? (Circle one category)	1 = Government 2 = Private Individual 3 = Missionaries 4 = Community-Based Organization 5 = Local Non-Governmental Organization 6 = International Non-Governmental Organization 7 = Other (specify): _____						

37 tick in one box		1. Yes	2 No	
A.	In the past six months, Have you or any member of your household been for treatment to your nearest health facility?			
B.	In the past six months, Have you or any member of your household been for treatment to any other health facility in your area?			
38.	In general, how long do you wait at your nearest health facility before a Nurse/Clinician consults you? (Circle one category)	1 = You are generally seen on arrival 2 = You have to wait for about 30 minutes 3 = Between One to Two hour 4 = About Three hours 5 = Other (specify):_____		
39.	In general, how long do you wait at another health facility before a Nurse/Clinician consults you? (Circle one category)	1 = You are generally seen on arrival 2 = You have to wait for about 30 minutes 3 = Between One to Two hours 4 = About Three hours 5 = Other (specify):_____		

40.	What do you think about the waiting time at the health facilities in your area? (Circle one category)	1 = Unacceptable 2 = Acceptable 3 = Undecided	

41. Tick the box of your choice		Don't know	Less than 30 minutes	30 minutes to Less than One Hour	One to Less than Six hours	Six to Twelve hours	No antenatal care	Other(specify):_____	
A.	What is the average number of hours a woman spends at the regular Antenatal visit at your nearest health facility? (Circle one category)								
B.	What is the average number of hours a woman spends at the regular Post-Natal visit at your nearest health facility? (Circle one category)								
C.	What is the average number of hours a woman spends at the regular Immunization visit at your nearest health facility? (Circle one category)								
42.	What do you think about the time spent at the Antenatal, Post-natal and Immunization visits at the health facilities in your area? (Circle one category)	1 = Unacceptable 2 = Acceptable 3 = Undecided 4 = Not available							
43.	Do you pay for the services provided at Government health facilities in your area? (Circle one category)	1 = Yes, you pay for all services 2 = Yes, you pay for some services 3 = No, you don't pay at all							
44.	If you pay for some services, Do you pay for the following? (Circle all categories that are applicable)	1 = Family planning 2 = Antenatal visits 3 = Normal delivery 4 = Assisted delivery (Caesarean, etc) 5 = Post-Natal visits							

		6 = Immunization 7 = Other (specify):_____	
45.	In the past 6 months, Did you or any of your relatives miss a clinical appointment?	1 = Yes 2 = No	
46.	If Yes, What were the reasons for missing the appointment? (Circle all categories that are applicable)	1 = The long distance to get there 2 = Had no money to pay for transport 3 = Difficulty to get public transport 4 = No money or not enough money to pay for the treatment 5 = Was too busy to go 6 = Had no one to take him/her 7 = Had no one to leave the children with 8 = Other (specify):_____	
47.	Do you have any medical cover or insurance to pay for your health bills?	1 = Yes 2 = No	
48.	If No, How do you pay for your medical expenses? (Circle one category)	1 = Don't pay 2 = Pay cash out of my own pocket 3 = Wait for well-wishers 4 = Partners/Relatives pay for me 5 = Other (specify):_____	

Section 5: Cultural competence			
49.	Who do you consult for advice when you or your family experience small health problems? (Circle all categories that are applicable)	1 = Nobody 2 = Religious Leaders 3 = Fortune Teller 4 = Traditional Healer 5 = TBA 6 = Pharmacist 7 = Health Professionals 8 = Elders in the community 9 = Other (specify):_____ _____	

50.	Are you always treated with appropriate cultural respect by Other health professionals at public/private/missionary health facilities in your area?	1 = Sometimes 2 = Not at all 3 = I have not attended	
51.	Do you think that health professionals take your culture and religion into account when interacting with you?	1 = Always 2 = Sometimes 3 = Not at all 4 = I don't know	

APPENDIX III: SELF STRUCTURED QUESTIONNAIRE

Serial No. ……..

Instructions: Please circle or otherwise mark the response that most accurately reflects your perceptions. If you have trouble understanding a question, answer to the best of your ability. Feel free to expand your responses or note concerns on the backs of the pages. Inapplicable questions will be statistically eliminated from the analysis. Please keep in mind that there is no way to perform poorly.

BACKGROUND INFORMATION			
Sub County		Ward	
Institution Name		Date of Survey	

Section 1: Demographic and Socioeconomic Data

No.	Questions and filters	Coding Variables	Office use
1.	Gender (to be entered by the enumerator)	1 = Male 2 = Female	
2.	How old are you? (Age of the last birthday)	_____	
3.	Which is your tribe?	----------	
4.	What is your Marital Status (Circle one category)	1 = Single 2 = Married 3 = Divorced 4 = Widowed 5 = Separated	
5	What is the highest level of school you attended? (Circle one category)	1 = None 2 = Primary 3 = Secondary 4 = College/University	
6	What is your current Religious affiliation? (Circle one category)	1 = Muslim 2 = Christian 3 = Traditionalist 4 = Other (specify):_____	
7	Are you currently working at a job for pay, either full-time or part-time? (Circle one category)	1 = Yes, Full-time 2 = Yes, Part-time 3 = No (Go to Question 9)	
8.	What type of job is it? (Circle one category)	1 = Medical officer 2 = Clinical officer 3 = Nursing officer 4 = Public health officer 5=Pharmacist/ Pharm tech others specify…	
9.	How long have you been in the above job? (Circle one category)	1 = 6 months or less 2 = 7 to 12 months 3 = More than 12 months	

SECTION 2. KNOWLEDGE OF COMMUNITIES

1. How well are you able to describe the communities by tribes in your service area?
   A. Not at all B. Barely C. Fairly well D. Very well
2. (A) Please list the cultural group(s) of tribes who reside in your service area and how much of the overall population this represents:

Groups/Tribes	Percentage of the f populatio in the Service Area	Percentage of population in t county

2 (B) How well are you able to describe within tribes' differences?
A. Not at all B. Barely C. Fairly well D. Very well

3. How well are you able to describe the strengths of the tribes in your service area?
   A. Not at all B. Barely C. Fairly well D. Very well

3 How well are you able to describe the social problems of the tribes in your service area?
A. Not at all B. Barely C. Fairly well D. Very well

4 To what extent do you know the following demographics within communities of tribes in your service area? (circle the number of your responses for each area).

AREA	NOT AT ALL	BARELY	FAIRLY WELL	VERY WELL
< Unemployment rates	1	2	3	4
< Geographic locations	1	2	3	4
< Income differentials	1	2	3	4
< Educational attainment	1	2	3	4
< Birth/death rates	1	2	3	4
< Crime rates	1	2	3	4
< Homicide rates	1	2	3	4

5 To what extent do you know the following state of the people different tribes in your service area? Circle the number of your response for each area)

AREA	NOT AT ALL	BARELY	FAIRLY WELL	VERY WELL
< Social historians	1	2	3	4
< Informal supports and natural helpers	1	2	3	4
< Formal social service agencies	1	2	3	4
< Formal leaders	1	2	3	4
< Informal leaders	1	2	3	4
< Business people	1	2	3	4
Advocates	1	2	3	4
Clergy or spiritualists	1	2	3	4

6 Tick the best choice/ box

AREA	NOT AT ALL	BAREL Y	FAIRLY WELL	VERY WELL
Do you know the prevailing beliefs, customs, norms, and values of the tribes in your service area? If so which ones?	1	2	3	4
B Do you know the social service needs within local tribes that go unaddressed by the formal social service system? If so which ones?	1	2	3	4
C Do you know of social service problems that can be addressed by natural networks of support within local tribes? If so which ones?	1	2	3	4
D Do you know of any conflicts between or within local tribes in your service area? If so give examples.	1	2	3	4
E Do you know the social protocol within communities of local tribes? If so give examples.	1	2	3	4
F Do you know how the causes of non-utilization of maternal and child health care are viewed by the local tribes in your area? If so which ones?	1	2	3	4

H Do you know what languages are used by the communities of local tribes in your area?	1	2	3	4
4I Are you able to describe the common needs of people of local tribes in your community? List them.	1	2	3	4

SECTION 3. PERSONAL INVOLVEMENT

7 Tick the box of your choice	Not at all	Seldom	Some Times	Often
Do you attend cultural functions within communities of local tribes?	1	2	3	4
B Do you interact with people of local tribes within your service area?	1	2	3	4
C Do you attend school-based meetings that impact peoples of local tribes in your service area?	1	2	3	4
D Do you attend community forums or neighborhood meetings within communities of local tribes?	1	2	3	4
E Do you patronize businesses owned by peopl of local tribes in your service area?	1	2	3	4
F Do you pursue recreational or leisure activities within communities of local tribes?	1	2	3	4
G Do you feel safe within communities of local tribes?	1	2	3	4
H Do you attend interagency coordination (IAC) meetings that impact service delivery in communities of local tribes?	1	2	3	4
Do you attend community- or culturally-based advocacy group meetings within communities of local tribes?	1	2	3	4

SECTION 4. RESOURCES AND LINKAGES

9. Does your ministry work collaboratively with programs that provide the following?

AREA	NOT AT ALL	BARELY	FAIRLY WELL	VERY WELL
Housing	1	2	3	4
Alcohol/ substance abuse treatment?	1	2	3	4
Maternal/ child health services?	1	2	3	4
Public health services?	1	2	3	4
Child welfare services?	1	2	3	4
Youth development services/	1	2	3	4

10. Has your ministry conducted or participated in a needs assessment utilizing providers in communities of local tribes as respondents?
A. Never B. Once or twice C. a few times D. several times

11. Has your ministry conducted or participated in a needs assessment utilizing people's tribes as respondents?
A. Never B. Once or twice C. a few times D. several times
12. Does your ministry have linkages with advocates for communities' tribes who can give you reliable information regarding community opinions about diverse and important issues?
A. None B. a few C. Some D. Many
13. Does your ministry conduct an open house or similar event to which you invite providers, consumers, and others concerned with service delivery to communities tribes?
A. Not at all B. Seldom C. Sometimes D. Often
14. Does staff utilize cultural consultants who can help them work more effectively within a cultural context?
A. Not at all B. Seldom C. Sometimes D. Often
15. Does your ministry utilize interpreters to work with sabot speaking persons?
A. Not at all B. Seldom C. Sometimes D. Often

SECTION 5. ORGANIZATIONAL POLICY AND PROCEDURES

16. .As a matter of formal policy does your agency . . .	NO POLICY	CONSIDERING POLICY	CURRENTLY WRITING FORMAL POLICY	POLICY IN PLACE
use culture-specific assessment instruments for diagnosis?	1	2	3	4
use culture specific treatment approaches?	1	2	3	4
envision community empowerment as a treatment goal?	1	2	3	4
review case practice regularly to determine relevancy to client tribe?	1	2	3	4
provide or facilitate child care?	1	2	3	4
consider *culture* in service plans?	1	2	3	4
take referrals from non-traditional sources?	1	2	3	4
translate ministry materials into languages that reflect the linguistic diversity in your service area.	1	2	3	4
solicit input from groups of tribes concerning the physical plant location and interior design.	1	2	3	4
advocate for a better quality of life for persons tribe in addition to providing services.	1	2	3	4
conduct outreach to community-based organizations, social service agencies, natural helpers, or extended families?	1	2	3	4

23. In general, how well are policies communicated to ministry staff?

A. Not at all B. Barely C. Fairly well D. Very well

24. Is the information on the ethnicity or culture of clients specifically recorded in your organization management information system?

A. Not at all B. Minimally C. Pretty well D. Very well

25. How well do you assure that the community tribes are aware of your program and the services and resources you offer?

A. Not at all B. Minimally C. Pretty well D. Very well

APPENDIX IV: PROFILE OF RESEARCH PARTICIPANTS IN QUALITATIVE DATA

Study methods	Type of study participants	Number of participants by sub-county		Total
		Mt. Elgon	**Cheptais**	
Key informant interview	Pharmaceutical technologist	3	0	3
	Clinical officer	1	0	1
	Nursing officer	5	5	10
	Public health officers	4	2	6
Focus group discussion	Mothers 16-20 yrs	5	5	10
	21-25 yrs	5	6	11
	26-30 yrs	7	6	13
	31-35 yrs	7	3	10
	36 and above	5	6	11
Total		**44**	**31**	**75**

APPENDIX V: FOCUS GROUP DISCUSSION

Serial No……. Moderator No……... Date…….

DETERMINANTS OF MATERNAL HEALTH CARE SERVICE UTILIZATION AMONG MOTHERS OF MOUNT ELGON CONSTITUENCY BUNGOMA

Researcher: Pascalia Okoiti Kisiangani BSCN

INTRODUCTION

Age group…… Education level…….

Occupation …… Resident area……

1. Whom do the participants receive health care services from?

2. How do the participants view the role of health care providers?

3. What has been the experience of receiving health care services been like for them, and (how) is that affected by their race or ethnicity?

4. Where else do participants turn to for support and assistance on health care?

5. What would the participants ideally like to be done by the ministry of health on health care services?

APPENDIX VI: KEY INFORMANT INTERVIEW

Serial No……. Moderator No……... Date…….

DETERMINANTS OF MATERNAL HEALTH CARE SERVICE UTILIZATION AMONG OGIEK COMMUNITY OF MOUNT ELGON CONSTITUENCY BUNGOMA

Researcher: Pascalia Okoiti Kisiangani BSCN

INTRODUCTION

Age …… ……Facility-level…….Carder……..

Ward……marital status……Tribe…….

1. Who does the participant offer health care services?

2. How does the participant view the role of the clients?

3. What has been the experience of offering health care services been like for them, and (how) is that affected by their race or ethnicity?
4. Where else does the participant turn to for support?

5. What would the participants ideally like to be done by the ministry of health?

APPENDIX VII: APPROVAL FROM SGS

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870
Fax: 056-30153
E-mail: directordps@mmust.ac.ke
Website: www.mmust.ac.ke

P.O Box 190
Kakamega – 50100
Kenya

Directorate of Postgraduate Studies

Ref: MMU/COR: 509099

1st October, 2018

Pascalia Okoiti Kisiangani,
HNR/G/70/15,
P.O. Box 190-50100,
KAKAMEGA.

Dear Mr. Kisiangani,

RE: APPROVAL OF PROPOSAL

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your Masters Proposal entitled: ***"Determinants of Maternal and Child Health Care Service Utilization among Ogiek Community of Mount Elgon Constituency, Bungoma "*** and appointed the following as supervisors:

1. Mr. Gregory Sakwa - SONMAPS, MMUST
2. Mr. John Arudo - SONMAPS, MMUST

You are required to submit through your supervisor(s) progress reports every three months to the Director of Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Nursing & Midwifery Graduate Studies Committee and Chairman, Department of Clinical Nursing and Health Informatics and Graduate Studies Committee. Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your Master's thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,

DEAN
SCHOOL OF GRADUATE STUDIES
MASINDE MULIRO UNIVERSITY
SCIENCE & TECHNOLOGY
Sign:

Dr. Catherine Aura
FOR, DIRECTOR, DIRECTORATE OF POSTGRADUATE STUDIES

APPENDIX VIII: APPROVAL LETTER FROM IERC

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
Tel: 056-31375
Fax: 056-30153
E-mail: ierc@mmust.ac.ke
Website: www.mmust.ac.ke
P. O. Box 190-50100
Kakamega, Kenya

Institutional Ethics Review Committee (IERC)

Ref: MMU/COR: 403012 vol2 (2) **Date:** 7th December, 2018

Pascalia Okoiti Kisiangani
Masinde Muliro University of Science and Technology
P.O. Box 190-50100
KAKAMEGA

Dear Mrs. Kisiangani

RE: Determinants of Maternal and Child Health care services utilization Among Ongiek Community of Mount Elgon Constituency ,Bungoma - Ref: MMUST/IERC/012/18

Thank you for submitting your proposal entitled as above for initial/continuation review. This is to inform you that during the **17th IERC** meeting held on the **7th December, 2018**, the committee conducted the initial review and approved (**with minor revisions**) the above Referenced application for one year.

This approval is valid from **7th December, 2018 through to 7th December, 2019**. Please note that authorization to conduct this study will automatically expire on 7th **December, 2019**. If you plan to continue with data collection or analysis beyond this date please submit an application for continuing approval to the MMUST IERC by **7th November, 2019.**

Approval for continuation of the study will be subject to submission and review of an annual report that must reach the MMUST IERC secretariat by **7th November, 2019**. You are required to submit any amendments to this protocol and any other information pertinent to human participation in this study to MMUST IERC prior to implementation.

Please note that any unanticipated problems or adverse effects/events resulting from the conduct of this study must be reported to MMUST IERC. Also note that you are required to seek for research permit from NACOSTI prior to the initiation of the study.

Yours faithfully,

Dr. Gordon Nguka (PhD)
Chairman, Institutional Ethics Review Committee

Copy to:
- The Secretary, National Bio-Ethics Committee
- Vice Chancellor
- DVC (PR&I)
- DVC (A & F)

APPENDIX IX: LETTER FROM NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/19/71908/27410**

Date: **17th January, 2019**

Pascalia Okoiti Kisiangani
Masinde Muliro University of Science and Technology
P. O Box 190-50100
KAKAMEGA

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Determinants of maternal and child health care service utilization among Ogiek Community of Mount Elgon Constituency Bungoma"*** I am pleased to inform you that you have been authorized to undertake research in **Bungoma County** for the period ending **17th January, 2020.**

You are advised to report to **the County Commissioner, the County Director of Education and the County Director of Health Services, Bungoma County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

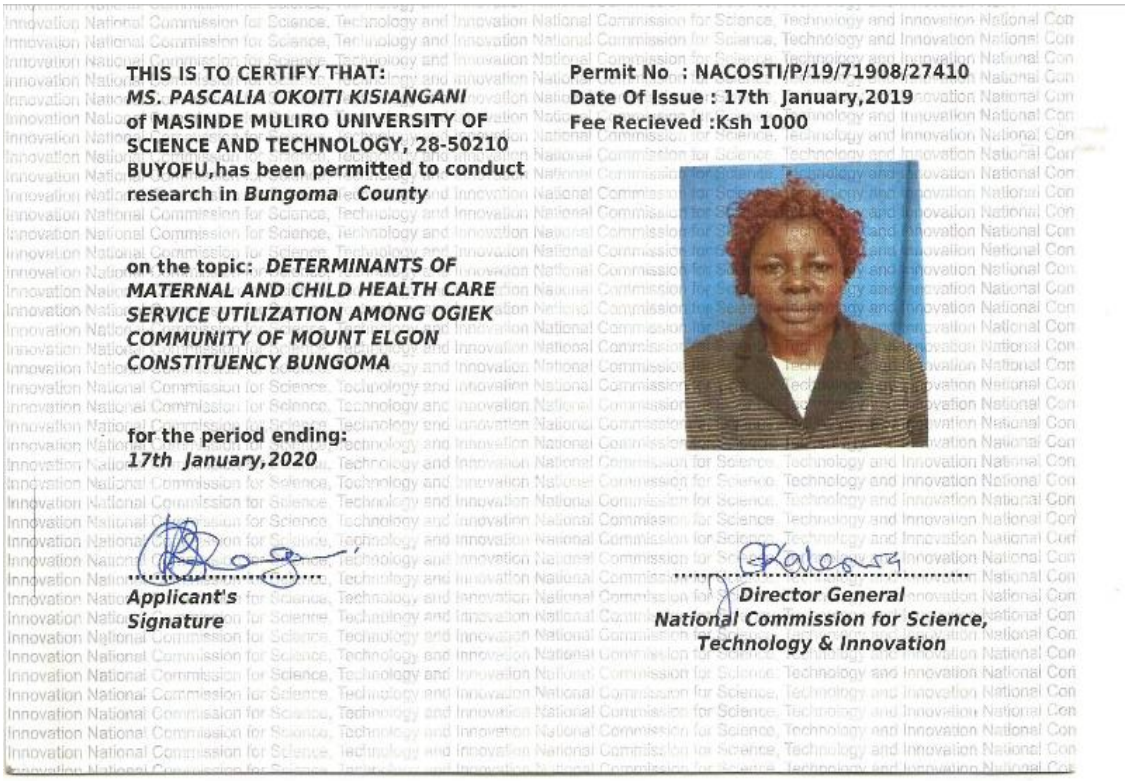
GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Bungoma County.

The County Director of Education
Bungoma County

APPENDIX X: PERMIT FROM NACOSTI



THIS IS TO CERTIFY THAT:
MS. PASCALIA OKOITI KISIANGANI
of MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY, 28-50210 BUYOFU,has been permitted to conduct research in *Bungoma County*

on the topic: *DETERMINANTS OF MATERNAL AND CHILD HEALTH CARE SERVICE UTILIZATION AMONG OGIEK COMMUNITY OF MOUNT ELGON CONSTITUENCY BUNGOMA*

for the period ending:
17th January,2020

Permit No : NACOSTI/P/19/71908/27410
Date Of Issue : 17th January,2019
Fee Recieved :Ksh 1000

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014.

CONDITIONS

1. The License is valid for the proposed research, location and specified period.
2. The License and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before commencement of the research.
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
5. The License does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.

National Commission for Science, Technology and innovation
P.O. Box 30623 - 00100, Nairobi, Kenya
TEL: 020 400 7000, 0713 788787, 0735 404245
Email: dg@nacosti.go.ke, registry@nacosti.go.ke
Website: www.nacosti.go.ke

REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

RESEARCH LICENSE

Serial No.A 22742

CONDITIONS: see back page

APPENDIX XI: MAP OF MT. ELGON SUB COUNTY