DETERMINANTS OF UPTAKE OF FREE MATERNAL HEALTH SERVICES AMONG WOMEN IN TURKANA CENTRAL SUB-COUNTY, TURKANA COUNTY, KENYA

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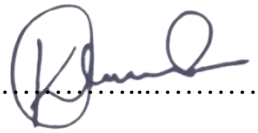
DECLARATION AND APPROVAL

Declaration by the Student

This thesis is my original work and has not been presented for any award or degree in any other university or institution.

Signature……  ……. Date: ……10/07/2025……

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DEDICATION

This thesis is dedicated to my beloved family, whose unwavering support, love, and encouragement have been my greatest strength throughout this journey.

ABSTRACT

Turkana Central Sub-County, situated in arid and semi-arid Turkana County in Kenya faces unique challenges that make access to maternal healthcare particularly difficult. Addressing these diverse barriers requires a comprehensive understanding of the factors influencing maternal healthcare uptake. This study aimed to determine the determinants of uptake of free maternal health services among pregnant women in Turkana's central sub-county. Specifically, it sought to establish knowledge of pregnant women on the use of free maternal health services, maternal health-seeking behaviour of pregnant women, and establish health facility characteristics affecting free maternal health services in Turkana's central sub-county. The cross-sectional study targeted 210 pregnant women and those who had been pregnant within the last six weeks before the commencement of the study. Turkana Central Sub-County, specifically Lodwar Township, was purposively sampled for this study because of its centrality and accessibility. The respondents were identified through snowballing. In cases where there was more than one qualified respondent, a coin was tossed as a way of picking one respondent and at the same time controlling bias in sample selection. A structured questionnaire was the main tool used to collect quantitative data. A chi-square test was used to examine associations between predictors and the utilization of maternal health services, while binary regression was employed to compare knowledge levels among different demographic groups. The significance level was set at $p < 0.05$ to determine statistical significance. Socio-demographic factors associated with the utilization of maternal health services were women aged 25-29 (OR = .141, p = .007), households with a monthly income of 5,001-10,000 (OR = .141, p = 0.18) and Kshs. 10,001 - 15,000 (OR = .114, p = .011). Women who were aware of what free maternal health services entail specifically skilled delivery were also a predictor of maternal health services uptake (OR = .163, p =.039). Those who sought treatment in case of complications (OR = .208, p =.001), who made self-health decisions in the household (p = .041) or through the help of a guardian (OR = 6.121, p = .012), perceived health workers as friendly (p = .004), or harsh (OR = 4.655, $p < .001$), and women located < Km 30 (p = < .001) or > Km 60 (OR = 3.227, p = .006) also influenced uptake. Structural barriers like distance and transportation challenges remain critical obstacles, particularly for low-income households. Specific knowledge about services like skilled delivery significantly influences uptake, underscoring the importance of targeted awareness campaigns. Women who previously faced barriers or negative experiences with professional care were less likely to return, emphasizing the need for quality improvements and positive patient experiences. Knowledge, distance, and provider attitude critically affect maternal health service uptake in Turkana Central. Improving awareness, access, and healthcare worker training to boost maternal service utilization.

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ABBREVIATIONS AND ACRONYMS

ANC	-	Antenatal Care
ASAL	-	Arid and Semi-Arid Land
KDHS	-	Kenya Demographic and Health Survey
KPHS	-	Kenya Population and Housing Census
MDGs	-	Millennium Development Goals
MMR	-	maternal Mortality Ratio
MVs	-	Moderating Variables
MOH	-	Ministry of Health
SBA	-	Skilled Birth Attendance
SDGs	-	Sustainable Developmental Goals
TBA	-	Traditional Birth Attendance
WHO	-	World Health Organization

OPERATIONAL DEFINITIONS

Antenatal care - is the attention given to a pregnant mother before delivery such as folic supplementation, tetanus toxoid, ultrasound, and health education.

Antenatal visit - is the frequency at which an expectant mother visits a qualified medical attendant for check-ups and pregnancy-associated advice through the pregnancy period and before childbirth.

Free Maternal- is the medical service provided by a skilled medical person during antenatal, delivery and postnatal without paying any fee

Infant mortality- is the death of a child after attaining one year of age after birth.

Maternal mortality – is the death of a woman during pregnancy or within 42 days after giving birth irrespective of the duration or its management but not from an intentional cause.

Neonatal mortality – is the death of a baby before attaining 28 days of age after birth.

Post-neonatal- is defined as the death of a baby before attaining 365 days of age after birth.

Skilled delivery- an official health professional, for instance, a midwife, nurse, or doctor who has undergone training to conduct anti-natal care, childbirth, and postnatal care.

Utilization- is the frequency of accessing and utilizing antenatal care services throughout the gestation.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Maternal health remains a pressing public health issue worldwide, particularly in low- and middle-income countries where maternal mortality rates are disproportionately high. Globally, reducing maternal mortality is one of the core objectives of the United Nations Sustainable Development Goals (SDGs), which aim to lower the maternal mortality ratio to fewer than 70 deaths per 100,000 live births by 2030. However, progress in Kenya has been slow, with maternal mortality still standing at an estimated 342 deaths per 100,000 live births, far exceeding the SDG target (UNICEF, 2020; WHO, 2019). To address this issue, the Kenyan government has implemented policies providing free maternal health services designed to increase healthcare access for all pregnant women. Yet, this initiative has seen limited success in some regions, particularly in Turkana Central Sub-County, where maternal mortality rates remain critically high due to a combination of socio-cultural, economic, and infrastructural barriers (Ministry of Health, Kenya, 2021; Ndung'u et al., 2022).

Turkana Central Sub-County, situated in Kenya's arid and semi-arid Turkana County, faces unique challenges that make access to maternal healthcare particularly difficult. This region is marked by vast, remote landscapes with low population density, where many communities are located far from healthcare facilities. As a result, accessibility is a significant issue, with nearly 40% of Turkana residents living more than 5 kilometers away from the nearest healthcare center (Gitonga & Muthoni, 2020). In addition to distance, the harsh terrain and limited transportation options further complicate travel, making it difficult for women to reach health facilities, especially in emergencies. Even for those who can access healthcare

facilities, many centers are understaffed and lack essential resources, which are necessary for safe deliveries. Turkana County has only one doctor per 26,000 residents, compared to the World Health Organization's recommended minimum of one doctor per 1,000 people, reflecting a shortage of qualified healthcare providers in the region (WHO, 2019; Ministry of Health, Kenya, 2021). This scarcity of resources and personnel severely limits the quality of maternal care available and reduces trust in healthcare services, leading many women to forego institutionalized maternal healthcare altogether.

In addition to infrastructural challenges, socio-cultural factors significantly influence maternal health-seeking behaviors in Turkana Central. Traditional beliefs and practices often discourage women from seeking formal healthcare, with many families favoring home births attended by untrained traditional birth attendants (TBAs) over facility-based care. Cultural norms in Turkana emphasize the role of TBAs in supporting childbirth, which, while culturally significant, exposes mothers and newborns to higher risks of complications (UNFPA, 2018; Mulaa & Were, 2020). This preference for home births is influenced not only by cultural beliefs but also by limited awareness of the benefits associated with skilled maternal care. Studies show that less than 30% of women in Turkana are aware of the free maternal health services provided by the government, indicating significant gaps in health literacy (Ogolla & Muruka, 2020; Waweru et al., 2021). Consequently, these low levels of maternal health knowledge contribute to a lack of demand for institutionalized healthcare, resulting in reduced utilization of potentially life-saving services.

Economic constraints also affect women's ability to access maternal healthcare services in Turkana. Although the services themselves are free, indirect costs—such as transportation,

accommodation near facilities for those traveling long distances, and childcare for other children while seeking care—pose significant financial burdens on families. With Turkana County being one of the poorest regions in Kenya, many families cannot afford these additional expenses, reinforcing the preference for home-based care (World Bank, 2019; Muthoni & Karanja, 2020). This financial hardship, combined with socio-cultural norms and infrastructural barriers, creates a complex environment that limits the effectiveness of the government's free maternal health services in this region.

Addressing these diverse barriers requires a comprehensive understanding of the factors that influence the uptake of maternal healthcare services in Turkana Central. The socio-cultural norms surrounding childbirth, the low levels of health literacy, and the geographic and economic challenges collectively contribute to the low utilization of maternal health services, ultimately resulting in preventable maternal and child deaths. This study seeks to investigate the specific factors that impede the uptake of free maternal health services in Turkana Central, focusing on socio-cultural, behavioral, and health facility-related issues. By identifying these barriers, the study aims to provide evidence-based recommendations for stakeholders, including policymakers, healthcare providers, and community leaders, to implement targeted interventions that address the unique needs of this population.

In doing so, this study intended to contribute to Kenya's broader goals of improving maternal health and achieving the SDG targets. Findings from this research would help develop culturally sensitive, economically feasible, and infrastructural practical solutions that could enhance maternal health outcomes in Turkana Central Sub-County. Ultimately, these insights could inform more effective policies and programs, fostering a healthcare environment where

maternal health services are accessible, acceptable, and widely utilized by all pregnant women, regardless of their socioeconomic status or geographic location.

1.2 Statement of the Problem

Despite the effort of the Government of Kenya to provide free maternal health services, maternal mortality rates remain alarmingly high, especially in marginalized regions such as Turkana Central Sub-County. The maternal mortality ratio in Kenya stands at approximately 342 deaths per 100,000 live births, which is significantly higher than the global target of 70 per 100,000 as set by the United Nations Sustainable Development Goals (UNICEF, 2020; WHO, 2019). In Turkana County specifically, maternal mortality rates are among the highest nationally, with limited healthcare access and usage compounding the problem (Ministry of Health, Kenya, 2021).

Several socio-cultural and structural barriers hinder the uptake of maternal health services in Turkana. Traditional beliefs and practices often discourage women from seeking formal healthcare, with approximately 60% of Turkana women opting for home births attended by untrained traditional birth attendants (TBAs) (UNFPA, 2018). Additionally, the region has one of the lowest levels of maternal health knowledge, with less than 30% of women aware of available free services (Ogolla & Muruka, 2020). This knowledge gap reduces the likelihood of pregnant women utilizing healthcare facilities, even when services are provided at no cost.

Health-seeking behaviors are also shaped by economic and infrastructural challenges. Turkana's remote and rural landscape means that healthcare facilities are widely dispersed,

making access difficult. Nearly 40% of Turkana's population lives more than 5 kilometers from the nearest healthcare facility, and poor infrastructure further complicates travel to these centers (Gitonga & Muthoni, 2020). Furthermore, existing health facilities often lack adequate resources and staff, resulting in low-quality services that deter women from using them (Mutua et al., 2019). This issue is compounded by a scarcity of healthcare providers, with only one doctor for every 26,000 residents in Turkana County, compared to the World Health Organization's recommended minimum of one doctor per 1,000 people (WHO, 2019; Ministry of Health, Kenya, 2021).

These socio-cultural, knowledge-based, and infrastructural challenges contribute to the low uptake of free maternal health services in Turkana Central Sub-County, posing a significant public health challenge. Addressing these barriers is essential to improving maternal and child health outcomes in the region and achieving maternal health targets in the country. This study sought to examine these factors comprehensively to inform evidence-based policies and targeted interventions aimed at reducing maternal mortality in Turkana Central. It is envisaged that the findings of this research will be applied in other parts of the country, the East Africa region and elsewhere in the world having similar challenges.

1.3 Justification

In 2013, the Government of Kenya presented free maternal amenities in all public health facilities by the President (Reardon, 2014). In January 2014, Beyond Zero Campaign was then launched by the First Women of the Republic of Kenya Mrs. Margarette Kenyatta, to promote maternal wellbeing (Wamalwa, 2015). Despite all these efforts the MMR in Turkana County is still high and listed as one of the Counties contributing to 98.7% of poor maternal

health outcomes. Therefore, the findings and results of this study will be beneficial to Turkana County and other counties in the realization of the Sustainable Development Goals (SDG Number 3) to reduce the worldwide maternal mortality ratio to a smaller number than 70 for every 100,000 live births by the year 2030 and in which Kenya is a signatory (Wamalwa, 2015).

1.4 Study Objectives

1.4.1 Broad Objective

To determine the determinants of uptake of free maternal health services among pregnant women in Turkana central sub-county.

1.4.2 Specific Objectives

1. To examine socio-demographic factors influencing the uptake of free maternal health services among pregnant women of Turkana central sub-county, Kenya.
2. To establish knowledge of pregnant women on the uptake of free maternal health services in Turkana central sub-county, Kenya.
3. To establish maternal health-seeking behaviour of pregnant women in Turkana central sub-county, Kenya.
4. To establish health facility characteristics affecting free Maternal health services in Turkana central sub-county, Kenya.

1.5 Research Questions

1. What socio-demographics characteristics affect the uptake of free maternal health services in Turkana central sub-county, Kenya?

2. What is the knowledge status held by women over the use of free maternal health services in Turkana central sub-county, Kenya?
3. What is the health-seeking behaviour of pregnant women in Turkana's central sub-county, Kenya?
4. What health-facility attributes influence free maternal health services in Turkana's central sub-county, Kenya?

1.6 Significance of The Study

This study would increase the range of information on the usage of maternal administrations among pregnant women. It also identifies potential reasons behind the low uptake of maternal well-being services from the end-client perspective. The information obtained would enhance free maternal services in the study area and other counties in Kenya. Lastly, it would be beneficial for the researcher in fulfilling the requirement for the award of a degree in Master of Public Health at Mount Kenya University

1.7 Study limitations

The reliance on self-reported information from women who were either pregnant or had recently delivered might have led to recall errors or responses influenced by what participants felt was expected.

1.8 Study Delimitations

The study population included only women who were currently pregnant or had delivered within the past six weeks, ensuring relevance to recent maternal health service use. It specifically examined knowledge, health-seeking behaviors, and facility-related characteristics, leaving out other factors such as cultural influences or male involvement.

1.9 Assumptions of the study

It was assumed that respondents would provide honest and accurate information regarding their knowledge, attitudes, and practices related to maternal health service utilization. The study further assumed that the structured questionnaire was a valid and reliable tool for capturing the required data and that participants understood the questions as intended.

1.7 Conceptual Framework

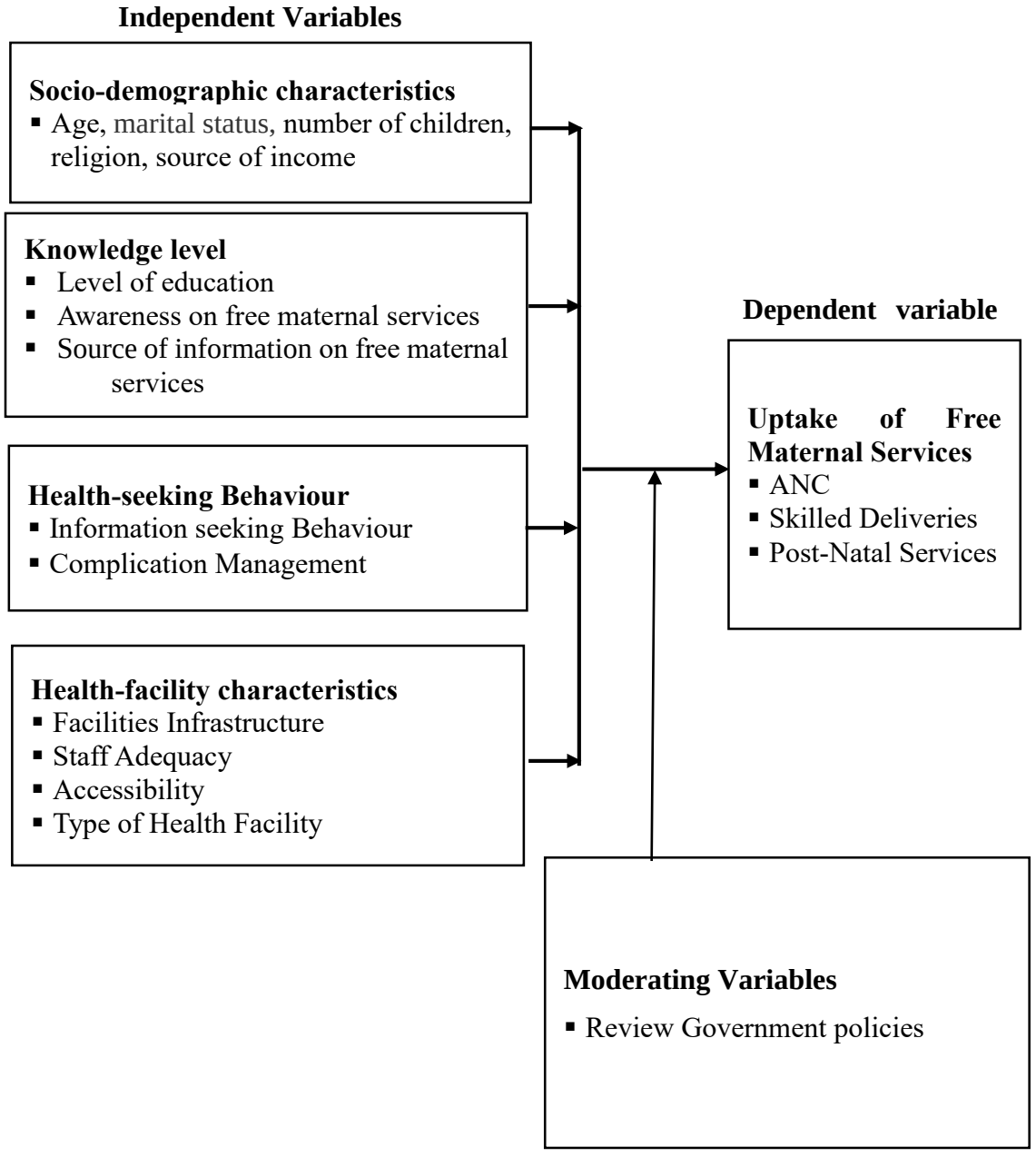

Figure 1: Conceptual Framework

This conceptual framework is used to summarize the variables as will be applied in the literature review. As shown in the diagram above, it has three variables (measurable characteristics that vary and relate to each other), the dependent, independent and moderating/intervening variables. In this study the independent variables are summarized as social-economic, social demographic, behavioral aspects and health facility characteristics. The study looks at how these affect its main objective of focus (dependent variables), that is uptake of free maternal services. The independent variables are the factors affecting the dependent variables if changed. They can be controlled by the person taking the study depending on the desired result. As explained above, the uptake and utilization of maternal services are affected by several factors including gender, age, income level, poverty, knowledge, health seeking behavior, health facility attributes among other factors.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

In a family setting, pregnancy and childbirth generally are often joyful occasions and with that regards, pregnancy and childbirth in an appropriate environment translate to desirable maternal and childbirth outcomes. Provision of essential measures such as use of Antenatal attention, qualified birth attendance, emergency obstetric attention, post-natal care, and appropriate nutrition are lifesaving interventions that guarantee healthy lives of the mother and child (UNICE, 2015). It is however distressing to report that the aforementioned strategies are still insufficient to address maternal and neonatal mortalities especially those living in remote areas where skilled-birth attendants (SBA) and emergency obstetric care are often unavailable (Moucheraud, Corrina. 2015). Globally, utilization ofMaternal health services is significantly skewed. Statistics estimates illustrate that at least three hundred thousand women die of pregnancy complications and childbirth. Majority of mothers residing in low as well as middle-income countries prefer to deliver at home despite the risk involved; due to in-complete ANC visits, use of unskilled birth attendance, and utilization of post-natal services, highMaternal and neonatal mortality rates are still being reported and perhaps and wide gap between developed and developing in health inequities (WHO "A systematic review of inequalities in the use ofMaternal health care in developing countries," 2017).

2.2Maternal Health Utilization in Kenya

In Kenya, a recent estimate on demographic survey shows that the use of maternal death has significantly reduced to 362 deaths per 100,000 populations from 488 per 100,000. These statistics derived from a household survey conducted every ten years contradict figures

quoted by the World Bank whose estimate is 510 deaths per 100,000. The sharp contrast in such vital statistics underscores the importance of the need to have up-to-date surveillance systems.

2.2.1 Antenatal Care Utilization

World Health Organization states that at least four Antenatal care (ANC) visits or more especially in the low-income nations like Kenya is recommended to all expectant mothers. In many Sub-Saharan African countries, the leading causes of maternal deaths are preterm births, birth difficulties, infections for instance tetanus, sepsis as well as pneumonia (Liu et al, 2012). Women health as well as those of children is still a global challenge and investments are required to maintain the improvement if nations are to stop or reduce maternal and child mortality and attain the agenda three among the four agendas of the president (universal health coverage), full implementation of free maternal health services and beyond zero campaign spearheaded by the First Women of the republic of Kenya.

A study done in Ethiopia that included 7,167 women only 36.6% of them used a minimum of four Antenatal care services, which reveals that aspects for instance region, residential place, education level of the mother, household wealth index, yearn for pregnancy, frequency to read a newspaper, frequency to listen to a radio and frequency to watch television were linked with the usage of a minimum of four ANC services at 5% (Basha, 2019). Nevertheless, while the reduction in infant mortality rate has improved reasonably fast in some low-income nations, in others the progress has been sluggish for example Rwanda. In Kenya an approximated 22,000 births happen on daily basis while neonatal mortality rate declined from twenty-nine to twenty-two (Arunda et al, 2017).

2.2.2 Skilled and Unskilled Deliveries

In Kenya, skilled attendance at delivery is below the international target of 90% and maternal mortality ratio is high (362 per 100,000 live births) despite various interventions. According to the study done by Caroline N. et al, 2018, 94.8% of women were prone to look for talented participation at conveyance and significant determinant on whether to look for included expense of administration, schooling level, number of antenatal visits made, and the sex of the service provider were strongly associated with client's intention to deliver with skilled birth attendant at the hospital facility during delivery (Nyongesa C. et al, 2018).

2.2.3 Post-natal Care Utilization

Post-natal care is very important to the healthiness of the mother and infant but regrettably, its importance is often overlooked. As such, most maternal and infant demise happen in this period. Normally, post-natal care would include iron and folate supplementation, screening and treatment of possible infection, hemorrhage including but not limited to post-natal stress. Mothers are advised to take at least four post-natal visits within the first 6 weeks. Additionally, the full clinical examination should be conducted within one hour after childbirth (WHO, 2013).

Levels of post-natal care utilization has increased in the past 5 years and in relation to this, recent Kenya Demographic Health Survey of 2014 data reports that more than 53% of all women surveyed received post-natal services within the recommended forty-eight hours of delivery. Among this group 49% of them received post-natal care either from a doctor, nurse, or a midwife; a slight increase by 12% (KDHS, 2014). A lower proportion was however

recorded on the timing of post-natal care where only 38% of females obtained post-natal care within 4 hours of delivery, and a further 9% and 6 % received care between 4-23 hours and 1-2 days respectively. The survey report highlights a ten percent decline in the role of traditional birth attendants (TBAs) providing post-natal care.

Around 10% of the referrals are done by a prepared specialist while the others are self-referrals or helped by customary birth orderlies. Prophylactic acknowledgment level is 9.0% in the province contrasted with the preventative pervasiveness pace of 45.5% broadly (KDHS, 2008-2009). The County has a young population with 60% being younger than nineteen years. The County's population is expected to increase to 1,427,797 constantly by 2017. This speaks to an expansion of 67% between the years 2009-2017. This requires the dire administration of the population and acquaintance of explicit projects to control this pattern. Breaking down an objective group of spectators conduct and utilization of the enticing intensity of broad communications is basic in upgrading the achievement of financial improvement. The concentrated procedure ought to include sharpening the network on issues of population and family spacing and contraceptive use and building their abilities on the empowering of households and families (County Statistics Office, Turkana 2014).

2.3Maternal Health as a Human Right

The Kenya constitution of 2010 acknowledge generative health as a human right through the provision of Article 43(1) (a) that categorically states “Every person has the right to the highest attainable standard of health, which includes the right to health care services” maternal health as a component of reproductive health in encompassed. Other rights acknowledged by the policy is maternal health as a right. For instance, the Kenya National

Patients Right charter of 2013 strives to educate clients of rights and responsibilities with a view to empower them to demand quality services. The charter highlights 14 patient/client rights including the right to emergency obstetric care in any facility (MOH, 2015).

Kenya has ratified to international statutes that protect sexual and reproductive health. The Abuja declaration of 2001 spells out that member states allocate at minimum 15% of the National budget to medical care. Adequate budgetary allocation facilities provision of equitable and affordable maternal health. It is, however, unfortunate to report that most countries have failed to live up to expectations on health-care financing. Following the Abuja declaration, Maputo Protocol of 2003 campaigned for member states to strengthen health systems to deliver quality, affordable and equitable ante-natal, capable delivery and post-natal medical care services.

In addition, most recently, in the year 2010, Kenya signed up and launched the Campaign on Accelerated Reduction of maternal Mortality in Africa whose theme is "*No woman should die while giving life! In response*". The Kenya government has implemented the free maternal services in all communal health amenities and in addition to campaigns such as beyond zero whose aim is to improve access to HIV/AIDS services as well as maternal health to those living in the periphery.

2.4 Socio-Cultural Characteristics and Use of Maternal Health Services

The quality maternal medical services that women get during pregnancy and delivery is significant for the health of both the mother and the child. In rural territories the lives of individuals including their wellbeing looking for conduct are extraordinarily affected by

social and customary convictions. In a research done by Jesse M. Gomez, the respondents reported restricted decision in looking for care and this was one explanation behind their heavy dependence on Traditional Birth Attendants (TBAs,) who are viewed as more secretive and more friendly than proficient medical care labourers (Jesse M. Gomez, 2015).

Different discoveries likewise propose that women' choice to look for skilled maternal care administrations depends not just on whether these administrations are promptly accessible and in nearness and at a moderate cost, yet critically on the social recognition and worthiness of the administration and a women's self-viability to arrange cultural standards and rambling practices that manage conduct during pregnancy and labour.

2.5 Perceptions and Maternal Health Utilization

Definition provided in the dictionary on perceptions pertains to the ability to see, hear, or become aware of something with sense (Oxford dictionary, n.d.). The ability to be aware of the use of sense influences our behavior and as such, expectations are developed.

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

Improving maternal and children wellbeing are basic needs in upgrading the plan of nature of care to probably to the weakest groups (Baker U, et al. 2017). Notwithstanding generous advancement and utilization of various procedures that have been executed in various nations, decrease in maternal mortality ratio is still deficient. Maternal and child mortality is generally preventable with current innovation and it is unreasonably and unjustly accepted by low and middle-income nations with inadequately resourced health frameworks (KNBS,

2015). Mannava and colleagues in 2015 asserts that a client will assess the quality of care based on clinical efficiency, effectiveness, and safety. As such, the care provider's attitudes and behavior influence perceptions. Rude behavior such lack of respect from doctors and midwives leads to undesirable service dissatisfaction in health-facilities. Consequently, incomplete ANC and post-natal visits become alarming due to high increase in the use of traditional birth attendants (Mannava *et al.*, 2015).

A survey conducted by Mannav et al., 2015, on negative frames of mind and conduct built up that poor relational collaborations between human services, suppliers and customers happened significantly among social insurance laborers in Public wellbeing offices in different nations. In the review, rude behavior (physical and verbal abuse) was exhibited to expectant women in all stages (ANC, delivery and post-natal care) and few handful cases were reported from private health facilities.

According to Emelumadu *et al.*, (2014), understanding clients perceptions on health-care gives provision to measure the quality of health-care. In addition, deficiencies within the health system can be identified promptly. This can be achieved through objective or subjective assessment within a cultural perspective. A cross-sectional research by Emelumadu *et al.*, (2014) in Nigeria established that women utilizing maternal services expressed high levels of satisfaction on the quality of services they received. Most of them (85%) were pleased with the attitude which health-care workers expressed during provision of healthcare. The study further revealed that young women compared to older women had higher expectations on the delivery of healthcare. By educational standards, women with lower educational status expressed poor attitudes on the accessibility of health service

whereas those with higher educational levels were dissatisfied with cost levied on Ante-natal and post-natal care.

2.5.2 Perceived Male Involvement and Use of Maternal Health Services

A qualitative study in rural Ethiopia established that male involvement significantly influenced use of antenatal, skill birth delivery and post-natal care services. Thematic analysis reveals that the usage of maternal medical services was anchored on husband's decision making; this influenced a considerable proportion of women in place of childbirth. Part of efforts to decrease maternal morbidity and mortality have been attributed to male participation in generative health issues. It is evident in African societies that reproductive health issues about childbirth wholesomely remain women's affair. There is a paradigm shift to change male perceptions of reproductive health matters. Recent amendments to acts of law on reproductive health and child maintenance in a host of African countries (Kenya included) could be one of the plausible reasons. Onchonga, Were & Osero (2016) claim that male engrossment in the use of maternal health facilities promotes partner's safety during and after pregnancy. A cross-sectional investigation by Onchonga *et al*., (2016) in a coastal town in Kenya established that only 40.6% of women involved their partners in place of delivery. The study further determined that men in the study exhibited negative perception towards Antenatal visits and post-natal check-ups. Similarly, a study in Ethiopia by World Health Organization in 2016, among women surveyed showed that close to 90% of male partners were actively involved in ANC utilization, delivery place and use of post-natal services.

A qualitative study by Caulfield and colleagues in Kenya among Maasai women exposed to negative perception towards men involvement during pregnancy, findings from the study

revealed that due to cultural influence; expectant mothers were less likely to be attended by male health-care workers in health-facility. Cultural influence has created the notion that childbirth is a women-only affair. As such, male partners would stay away until the birth process ends. It is, therefore, imperative to change perceptions of expectant women by empowering them through tailored educational access. Hence, this facilitates complete utilization of antenatal services and consequently usage of capable birth attendance and post-natal amenities (Caulfield *et al.,* 2016).

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

2.6.1 Availability & Access to Health Facilities

Existing research has shown that access to health facilities influences. Access attributes such as distance to health centers, Cost, and Availability of transport determines consumptions level. Contextually, application of maternal health facility becomes skewed in urban and rural places. For example, separation to a wellbeing office and accessibility of vehicle was built up to be a boundary to the utilization of talented birth participation in Laikipia County, Kenya (Caulfield et al., 2016). Due to long distances to health facilities, emergency obstetric care is impaired resulting in undesired maternal outcomes. In addition, expectant women are inherent in rural areas are more probable to pay more for transport than those residing in an urban setting (WHO, 2018).

In Kenya, Service Availability and Readiness Assessment Mapping (SARAM, 2017) report revealed the infrastructure and staff ratio per 10,000 populations in all counties. Statistics from the national survey highlighted that the national average number facility density per 10,000 populations was 2.04 per 10,000 populations. When disaggregated by counties,

Bungoma and Mombasa counties had the least and highest facility density with <1 per 10,000 & >3.5 per 10,000 populations respectively, and Turkana having the least 5.3 per 10,000. From a hypothetical point of view, a higher facility density per population fully equipped to provide maternal health services would be expected given that County governments are now fully operational.

2.6.2 Availability of adequate staff in Health-Facilities

Maternal health service utilization is also influenced by supply-side barriers. Inadequacy or excess of supply-side factors to some extent impacts on quality of service rendered. In context, most low-income countries (Kenya included) often experience challenges in human resources for health despite the accessibility of health facilities. In some instances, literature shows that, where there is an adequate number of staffs, a handful are either skilled or not. The situation is further complicated by the absence of supplies and equipment's used in the provision of health care to clients (Ministry of Health Gok, 2015).

On matters relating to Human resources for health, Kenyan health sector report of 2016 depicts disparities in several cadres of staff. For instance, doctor population ratio was 1 per 10,000 populations, nurse 3 per 10,000 Clinical officers, 1 per 10,000 populations. By gender, females account for the majority (56%) of the workforce. Gender of health care workers at health-facilities has shown to influence complete ANC visits, use of skilled delivery and post-natal services. For instance, in the rural Islamic community in Bangladesh, expectant women preferred TBAs because they didn't want to be attended by male doctors during ANC visits, delivery and post-natal care (Sarker *et al*, 2016). Similar findings were

exhibited by rural expectant women in Lao people's democratic Republic and rural pastoral community women in Kenya (Caulfield *et al.*, 2016).

2.7Maternal Health Service Utilization as a Health-seeking Behaviour

To understand wellbeing, it requires one to look for behavior and this requires the need to characterize "wellbeing" indicated by (Poortaghi et al., 2015). He attests that all in all, heath refers to the most extreme use of body tissues and organs and in that capacity, a condition of prosperity physically, rationally and profoundly without the nearness of disease or vulnerability as given by the World Health Organization is also critical regarding wellbeing of an individual. Today, there is developing worry on the best way to improve and advance wellbeing. Heaps of endeavors are being consumed on conduct change; with much spotlight put on preventive conduct, for example, campaigns against smoking, extracting, great sustenance, safe sexual experiences among others. To clarify wellbeing in regard for the conduct, various hypotheses have been advanced to clarify wellbeing based on behavior. One of the widely applied models in view of wellbeing and conduct is the Health Belief Model, the Theory of Planned Behavior by (Azjen 1988) and Theory of Reasoned Action (Fishbein and Ajzen 1975). Anderson's conduct model portrays three determinants in looking for medicinal services: inclining factors, empowering variables, and need. In a study conducted by Qureshi and colleagues affirm that hypotheses instituted depend on the suspicion that medicinal services usage depends on individual adequacy to perceive signs that endorse ailments. He further asserts that hopeful women' utilization of maternal wellbeing administrations is reliant on the social and physical condition; viewpoints that impact women' self-governance. Qureshi et al., (2016) independent investigation in rural India revealed that a huge extent of women just visited specialists at whatever point they encountered extreme

episodes of migraines, dizziness and hypertension. The discussions additionally established that different factors, for example, cost, spouse's choice among other factors obstructed the behavior or idea of seeking maternal health services. Antenatal coverage is lower among women who need it most: those who are poor, less educated, and living in rural areas. As pregnancy is perceived as natural process of life, women, families and communities may underestimate the importance the importance of ANC. Traditional beliefs and customs of women compound this problem and affects the health-seeking behavior on maternal services offered by skilled attendants (WHO,2015).

A study by Slope et al, examined social help among pregnant HIV positive and negative young people in South Africa discovered that a huge extent of HIV negative juvenile dreaded to unveil pregnancy to close relatives. For those living positive, the dread of defamation among companions adversely adherence to antiretroviral treatment. Thusly, usage of maternal wellbeing administrations winds up slanted (Slope et al, 2015).

2.8 Theoretical Framework

The Three Delays Model was adopted to understand the factors influencing the uptake of free maternal health services among pregnant women in Turkana Central Sub-County. Delay 1, which involves women not recognizing the need for timely maternal healthcare, is influenced by several socio-demographic factors, including education levels, cultural beliefs, and economic status. In Turkana, where educational attainment is generally low and traditional practices dominate, many women may not prioritize seeking modern healthcare (Nguyen et al., 2015). Limited awareness of free maternal services is another crucial factor, as women in rural areas may not know about the availability of such services (Gurmu et al., 2019).

Economic barriers also contribute to this delay, as even though the services are free, women still face transportation costs and lost income, which can deter them from seeking care (Yaya et al., 2021).

Delay 2, the difficulty in reaching healthcare facilities, is particularly relevant in Turkana due to its vast geography and poor infrastructure. Women may face long travel times and a lack of reliable transportation, making it difficult to access healthcare services (Tura et al., 2019). Studies have shown that geographic barriers and the absence of affordable transportation options are key factors delaying maternal care in rural areas (Fisher et al., 2014). In addition, social and cultural factors, such as the need for permission from male family members or patriarchal decision-making structures, can limit a woman's ability to travel to a health facility even if she recognizes the need for care (Babalola & Fatusi, 2009).

Delay 3 involves challenges at the health facility level, where women may not receive timely or adequate care despite reaching a healthcare center. In Turkana, the healthcare infrastructure is often inadequate, with facilities lacking the necessary medical equipment, medications, and skilled personnel (Sines et al., 2016). Many rural health centers are understaffed, and healthcare providers may not be trained to handle all maternal health complications (Kerber et al., 2015). The shortage of skilled birth attendants and poor resource allocation can delay the provision of care, which ultimately impacts maternal health outcomes (Gertler et al., 2016). Additionally, overcrowded facilities and insufficient resources often result in longer wait times and inadequate attention for women seeking care.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter presents the methodological approach that the research adopted during the study period which includes the study area, research design, study population, sample size determination, sampling criteria, sampling technique, data collection procedure, data collection tools, data analysis and management. Lastly, ethical consideration which involves seeking for consent and consent assent for the minor

3.2 Study Area

Turkana Central Sub-County is located in the arid northeastern region of Kenya, within Turkana County, which is known for its challenging climatic conditions and significant socio-cultural diversity. The area is characterized by vast arid and semi-arid landscapes, with temperatures frequently exceeding 30 degrees Celsius and minimal annual rainfall, averaging between 200 to 500 millimeters. This harsh climate has a direct impact on the livelihoods of the local population, primarily comprised of pastoralist communities who rely heavily on livestock rearing for their subsistence and economic activities (Kenya National Bureau of Statistics, 2020).

The population in Turkana Central Sub-County is culturally rich and diverse, with the Turkana ethnic group being the predominant community. Traditionally, the Turkana people engage in pastoralism, a lifestyle that influences their healthcare-seeking behaviors. Cultural beliefs and practices play a crucial role in health decisions; many women prefer to utilize traditional birth attendants (TBAs) for childbirth rather than seek formal healthcare services.

A study by Okwany et al. (2021) highlights those cultural perceptions about the safety and reliability of TBAs often lead women to avoid institutional care, which is seen as less accommodating to their traditional practices.

Access to health facilities is a significant challenge in Turkana Central. The region has a limited number of health facilities, which are often located far from communities, exacerbating the difficulties women face in seeking maternal healthcare. Muthoni et al. (2019) found that many pregnant women in the region report traveling long distances—sometimes over 20 kilometers—to access health services. This geographical barrier, coupled with poor road infrastructure, can deter timely healthcare access, particularly during emergencies such as labor or complications.

Furthermore, the existing health facilities frequently suffer from inadequate staffing, limited medical supplies, and poor infrastructure. Research by Gachara et al. (2019) indicates that many health facilities in Turkana Central are under-resourced, leading to long waiting times and suboptimal care, which further diminishes the likelihood of women utilizing these services. The lack of skilled healthcare providers and essential medical equipment creates an environment where women may feel discouraged from seeking formal care, resulting in higher rates of home births and reliance on TBAs.

Maternal health indicators in Turkana Central Sub-County are generally lower than the national averages. According to the Kenya Demographic and Health Survey (KDHS) 2022, the maternal mortality ratio in Turkana was reported to be significantly higher than the national average, underscoring the urgent need for effective maternal health interventions in

the region. Programs initiated by local government and non-governmental organizations aim to address these challenges by improving the availability and quality of maternal health services, enhancing community awareness of available services, and integrating cultural considerations into healthcare delivery (Wangari et al., 2020).

3.3 Study Design

A cross-sectional study design was particularly suitable for examining the utilization of free maternal health services among pregnant women in Turkana Central Sub-County due to its ability to provide a snapshot of the population at a single point in time. It also enabled the researcher to assess the level of knowledge among pregnant women regarding available maternal health services and identify socio-cultural factors influencing their health-seeking behaviours. By surveying a representative sample, the study captured critical information about women's awareness, attitudes, and experiences with healthcare facilities, thus allowing for the identification of barriers and facilitators to service utilization.

Additionally, the design facilitated the evaluation of health facility characteristics, such as accessibility, quality of care, and community perception, which are vital in understanding their impact on maternal health service uptake. This design also proved to be cost-effective and efficient, making it feasible for resource-limited settings like Turkana. The findings from this study could inform future research and health interventions aimed at improving maternal health outcomes in the region, laying the groundwork for more extensive longitudinal studies in the future.

3.4 Study Population

The study targeted pregnant women and those who had delivered within the last six weeks before the commencement of the study.

3.5 Sample Size and Determination

The Fisher *et al.*, (1998) formula was used to derive the required sample size. According to KDHS, the 2022 uptake of maternal health services was estimated to be 58% (p=0.58).

$$n = \frac{Z * p * q * D}{(d^2)}$$

Where:

n = Desired sample size

Z = Standard normal deviate 95% confidence interval corresponds to (1.96)

p = the proportion of the target population estimated to have characteristics of interest (0.58)

q = 1-p

D = Design effect

d = Degree of error set at 0.05

$$n = \frac{1.96 * 0.58 * 0.42 * 1}{(0.05^2)}$$

n = 210

3.6 Inclusion and Exclusion Criteria

3.6.1 Inclusion Criteria

1. Participants who were currently pregnant or had delivered a child within the last six weeks.

2. Participants were between the ages of 15 and 49 years, which encompassed the reproductive age group.
3. All participants must have been permanent residents of Turkana Central Sub-County and had a stable understanding of the local healthcare context and socio-cultural dynamics.

3.6.2 Exclusion Criteria

1. Women who have not resided in Turkana Central Sub-County for at least two years were excluded from the study to ensure relevance to the local context.
2. Women with severe medical or psychological conditions that might have impeded their ability to provide informed consent or participate meaningfully in the study were also excluded.

3.7 Sampling Technique

Turkana central Sub-County, specifically Lodwar Township, was purposively sampled for this study because of its centrality and accessibility. The respondents were identified through snowballing; there are pros and cons to using this method. In case where there was more than one qualified respondent, a coin was tossed as a way of picking one respondent and at the same time controlling bias on sample selection.

3.8 Data Collection Procedure

Initially, the researcher conducted training sessions for data collectors, which included local health workers and community volunteers familiar with the cultural and social dynamics of Turkana Central Sub-County. This training covered the study objectives, data collection

tools, ethical considerations, and effective communication techniques to ensure that the data collectors could engage with participants sensitively and respectfully.

The data collection process began with the identification of eligible participants based on the established inclusion criteria. The researcher collaborated with local health facilities, community health workers, and women's groups to facilitate outreach and recruitment of participants. Data collectors provided information about the study's purpose, procedures, and potential risks to each participant; ensuring informed consent was obtained prior to participation.

Data collection took place in a private setting to ensure confidentiality and encourage candid responses. The research team conducted face-to-face interviews with participants, allowing data collectors to clarify questions and provide support as needed. Each interview was expected to last approximately 30 to 45 minutes. To enhance the reliability of the data, a pilot test of the questionnaire was conducted with a small group of women who met the inclusion criteria prior to the full-scale data collection. Feedback from this pilot was used to refine the questionnaire, ensuring clarity and relevance.

Once data collection was complete, all collected questionnaire was securely stored and coded to protect participants' identities. Data entry was performed using statistical software, ensuring accuracy through double entry and verification processes. The collected data was then being analyzed to address the study objectives, providing insights into the utilization of maternal health services among the target population in Turkana Central Sub-County.

Throughout the entire process, ethical considerations were prioritized, ensuring respect for participants' rights and well-being.

3.9 Data Collection Tools

The structured questionnaire was the main tool used to collect quantitative data. It consisted of several sections designed to address the specific objectives of the study. The first section gathered demographic information, including participants' age, marital status, education level, and length of residency in Turkana Central Sub-County. The second section assessed participants' knowledge regarding free maternal health services, including their awareness of available services, eligibility criteria, and sources of information about these services. This section included questions with multiple-choice options and Likert scale items to gauge the level of understanding and confidence in the information provided.

The third section of the questionnaire focused on maternal health-seeking behaviour, asking participants about their recent experiences in accessing maternal health services, including the type of facility used, reasons for choosing that facility, and any barriers encountered during their attempts to access care. This section incorporated both closed-ended and open-ended questions to allow for a more in-depth understanding of the participants' experiences.

To supplement the quantitative data, focus group discussions was organized with small groups of pregnant women and recent mothers. A discussion guide was developed to facilitate these sessions, with open-ended questions aimed at exploring socio-demographic factors influencing the use of maternal health services. This qualitative approach enabled

participants to share their perspectives, experiences, and challenges in a supportive group environment, providing richer context to the quantitative findings.

Additionally, an observation checklist was used to assess the characteristics of health facility in Turkana Central Sub-County. Data collectors visit selected health facilities to evaluate factors such as accessibility, availability of services, cleanliness, and staff attitudes. This observational data complemented the information gathered from participants, providing a comprehensive understanding of the health facility characteristics that affect service utilization.

The combination of structured questionnaire, focus group discussion guides, and observation checklists ensured a holistic approach to data collection, allowing the study to capture both quantitative and qualitative data that will contribute to a deeper understanding of maternal health service utilization in Turkana Central Sub-County. All tools were pilot tested and refined to ensure clarity, relevance, and cultural appropriateness before full-scale implementation.

3.10 Data Management and Analysis

Data management began with the careful organization and storage of all collected data. After the completion of data collection, all questionnaire and focus group discussion transcripts were securely stored in locked cabinets and encrypted digital formats to maintain participant confidentiality and data integrity. Each participant was assigned a unique identification code to anonymize their responses, ensuring that no personal identifiable information was linked

to the data. A well-defined data entry protocol was established to minimize errors, involving double data entry by trained personnel to ensure accuracy and completeness of the dataset.

For quantitative data analysis, statistical software such as SPSS (Statistical Package for the Social Sciences) version 29 or R was used. The analysis began with descriptive statistics to summarize the demographic characteristics of the participants, including frequencies and percentages for categorical variables and means and standard deviations for continuous variables. This initial analysis provided an overview of the sample and helped identify any notable patterns.

Subsequently, inferential statistical tests were employed to address the study's specific objectives. For example, chi-square tests were used to examine associations between socio-cultural factors and the utilization of maternal health services, while logistic regression was employed to compare knowledge levels among different demographic groups. The significance level was set at $p < 0.05$ to determine statistical significance.

For the qualitative data collected through focus group discussions, a thematic analysis approach was utilized. The audio recordings of the discussions were transcribed verbatim, and transcripts were coded to identify key themes and patterns related to the socio-cultural factors influencing maternal health service utilization. This process involved familiarization with the data, generating initial codes, searching for themes, and reviewing themes to ensure that they accurately represented the participants' perspectives.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Introduction

In this chapter are presented findings and discussion of the study. It begins with presenting information on the response rate and socio-demographic information of the respondents. The findings on factors affecting the uptake of maternal health services are presented which include socio-cultural factors, level of knowledge among women, health-seeking behaviour and lastly, health facility characteristics influencing the uptake of the service

4.2 Sociodemographic Characteristics of the Study Participants

The socio-demographic characteristics of the study participants reveal several important trends. First, the age distribution of the sample shows a relatively even spread across different age groups, though there is a notable concentration of participants in their twenties and early thirties. The largest group is composed of women aged 20-24 years, which accounts for 16.2% of the total sample (43 participants), followed by those aged 25-29 years and 30-34 years, each representing 10.9% of the sample (29 participants). In contrast, the smallest groups are women aged 15-19 years (8.5%, 23 participants) and those aged 45 and above (10.2%, 27 participants). This distribution suggests that the study includes a broad representation of women at various stages of their reproductive lives, with a slight emphasis on younger to mid-aged women.

The concentration of participants aged 20-34 years corresponds to global patterns reported in reproductive health studies. Women in this age group are often the primary focus of maternal and reproductive health research due to their active engagement in health services

and family planning. For instance, studies by Cleland et al. (2006) and reports by the WHO (2010) highlight that women in their twenties and early thirties are frequently at the center of health interventions, reflecting their significant role in reproductive decision-making and maternal health.

The underrepresentation of adolescents aged 15-19 years and women aged 45 and above is a recurring observation in similar studies. Literature suggests that adolescents may face cultural, social, and logistical barriers that limit their participation in health research, as highlighted by Hindin and Fatusi (2009). On the other hand, women over 45 are often excluded from studies focusing on reproductive health unless specific issues such as menopause are being addressed, a trend also noted by Dunson et al. (2002). The broad representation of women across various age groups in this study aligns with recommendations in the literature for addressing diverse reproductive health needs. Research by Starrs et al. (2018) emphasizes the importance of considering women at all stages of their reproductive lives to better understand health trends and outcomes. This comprehensive approach ensures that both early and late reproductive experiences are considered, providing a more holistic understanding of women's health.

The slight emphasis on younger women observed in this study also reflects global health priorities. Research by Chandra-Mouli et al. (2020) underscores the increasing focus on younger age groups in health programs, aiming to address challenges such as early marriage, unplanned pregnancies, and maternal mortality risks. Additionally, demographic health surveys from 2000 to 2020 consistently report that younger women are more likely to

participate in health studies due to higher fertility rates and greater interactions with healthcare systems.

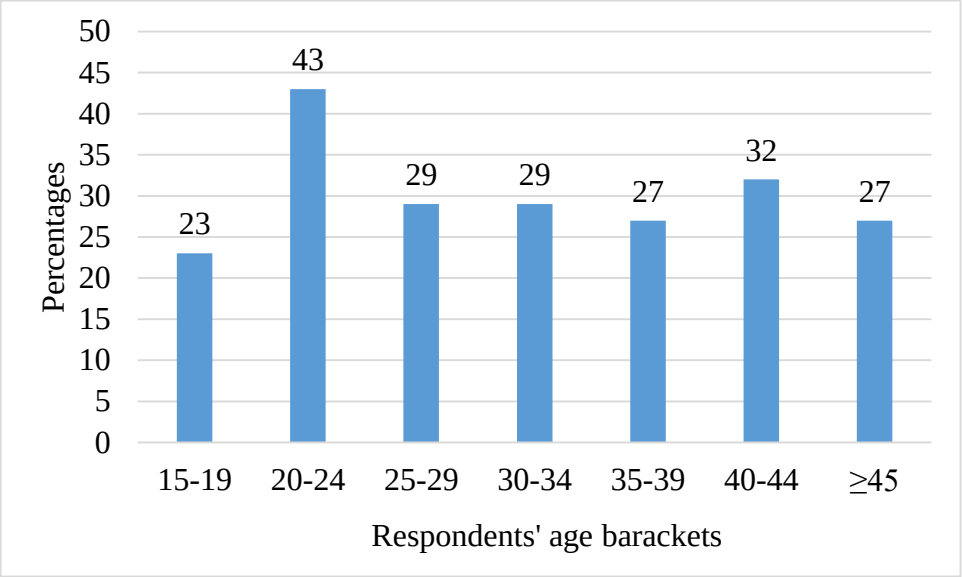

Figure 2: Percentages of the respondents' ages brackets

Regarding marital status, a clear majority of participants are married, making up 49.0% of the sample (103 participants). Single women also represent a significant portion of the sample, comprising 31.4% (66 participants). The proportions of widowed and divorced women are smaller, with 8.1% (17 participants) being widowed and 11.4% (24 participants) being divorced. These figures indicate that the study primarily captures the experiences of married women, with a substantial representation of single women as well. The lower representation of divorced and widowed women may reflect social and cultural norms within the community.

Most participants being married (49.0%) reflects the prevalence of marriage as a common social status among women, particularly in settings where traditional family structures are prominent. This aligns with studies that show married women often form a significant portion of participants in health and social research, as their marital status is frequently associated with specific health behaviors, access to resources, and social support systems.

Single women, comprising 31.4% of the sample, also represent a substantial demographic. This is consistent with shifts in societal trends observed in various regions where delayed marriage and increasing independence among women are becoming more common, as noted in studies from the early 2000s to 2024. The significant representation of single women provides valuable insights into their unique experiences and challenges, particularly regarding access to healthcare, social norms, and economic participation.

The smaller proportions of widowed (8.1%) and divorced (11.4%) women reflect trends observed in other research, where these groups are often underrepresented. Social and cultural factors may contribute to this pattern, as widowed and divorced women may face stigma or reduced social visibility, limiting their participation in studies. This is supported by literature indicating that these women often encounter marginalization within communities, affecting their engagement in research or community activities.

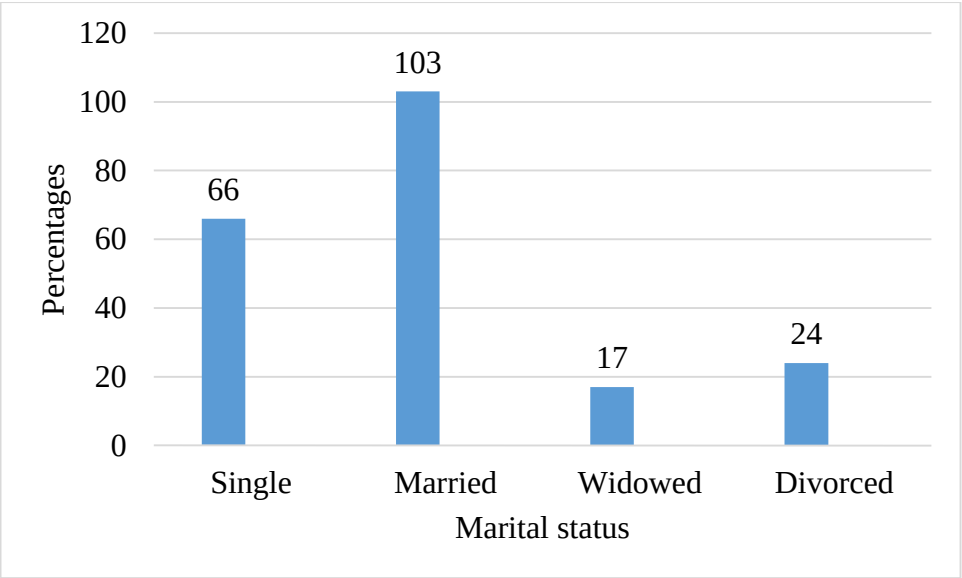

Figure 3: Percentages of respondents by marital status

Religion is another important characteristic, with a predominant Christian population in the sample. Christians make up 85.2% (179 participants) of the study population, while Muslims represent 10.5% (22 participants), and 4.3% (9 participants) belong to other religions. This imbalance indicates that the study's findings are primarily influenced by the perspectives and experiences of the Christian majority, which may limit their applicability to non-Christian groups. Research has shown that religious affiliation can significantly affect attitudes toward health interventions, family planning, and maternal health, making the overrepresentation of one religious group a potential limitation in studies aiming for broader applicability.

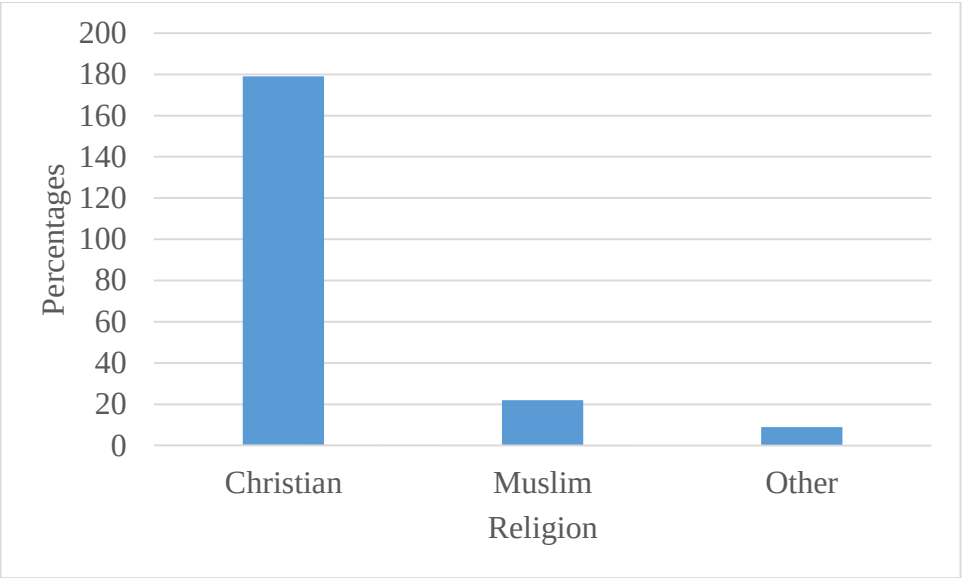

Figure 4: Percentages of respondents by religion

The distribution of the number of children among participants reflects typical family sizes in many communities. The majority of women in the sample have between one and three children, with the largest group being women with two children (33.3%). This suggests that having two children is a common family size in the studied population, which aligns with broader trends observed in many regions, where smaller family sizes are becoming more common due to factors such as access to family planning, economic considerations, and changing societal norms around childbearing.

The second-largest group consists of women with one child (20.5%), which also fits within the context of growing trends toward smaller families, especially in urbanized or economically developed areas where the costs of raising children may influence family planning decisions. The third-largest group comprises women with three children (19.5%),

suggesting that slightly larger families still exist but are less common than the one- or two-child households.

Smaller groups with four or five children (17.1% and 6.7%, respectively) point to a minority of women in the sample who have larger families, which may reflect different socio-economic or cultural preferences. Additionally, the small proportion of women with no children (2.9%) suggests that childlessness is relatively rare in this population, although it remains an important demographic to consider, particularly in studies of fertility and family health.

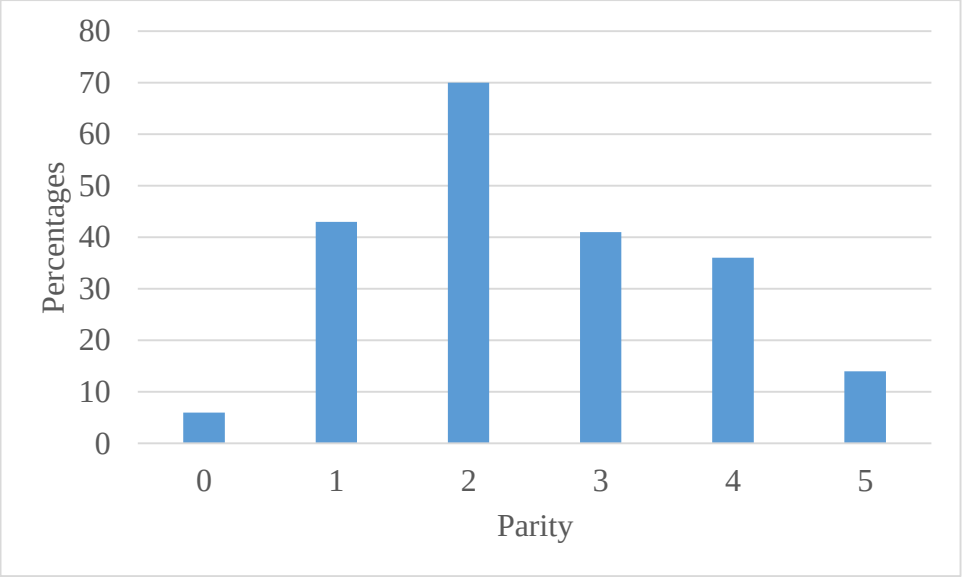

Figure 5: Percentages of respondents by parity

The income distribution among participants reveals that a significant majority, 63.3%, are self-employed, while 36.7% are employed in formal sectors. This high proportion of self-employed women suggests that informal work or entrepreneurship is a dominant source of

income for this population. This could reflect several factors, including limited access to formal employment opportunities, especially in areas where the labor market may be constrained or where there are barriers to entering the formal workforce, such as education, training, or socio-cultural factors.

The predominance of self-employment is consistent with trends observed in other studies in developing economies or regions with a high degree of informal labor. For example, research has shown that women in these contexts often turn to entrepreneurship or self-employment as a means of financial independence, especially when formal sector jobs are scarce or not accessible due to various barriers (e.g., gender inequality, lack of professional networks, or discrimination). The flexibility of self-employment may also be a factor, as it allows women to balance work with family responsibilities, which is often an important consideration in regions with high family care expectations.

Additionally, the 36.7% of women employed in formal sectors suggest that while formal employment opportunities exist, they are less prevalent compared to self-employment. This might indicate a need for policies that increase formal employment options for women, such as improving access to education, creating more job opportunities, and addressing barriers to female participation in the formal labor force.

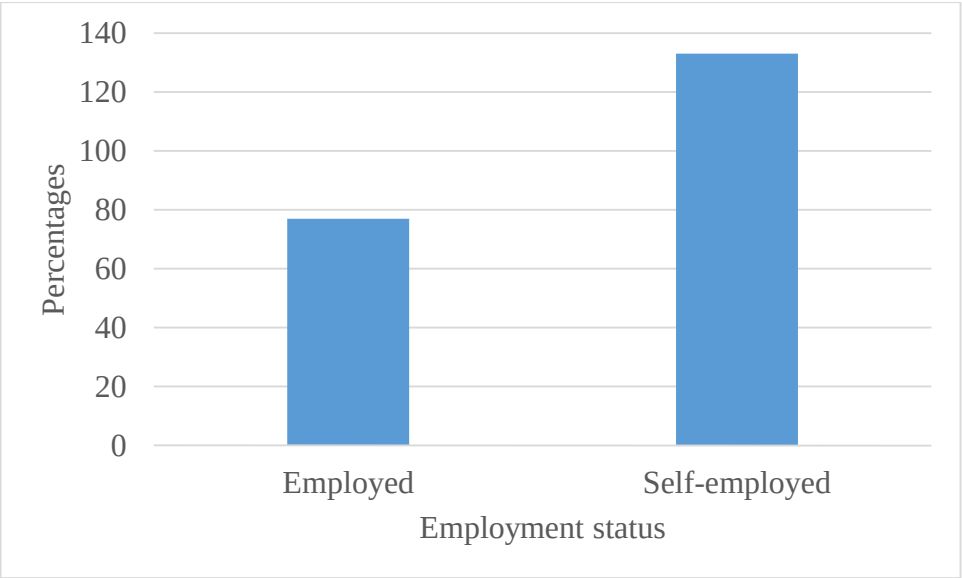

Figure 6: Percentages of respondents by employment status

Monthly household income data shows a varied income distribution among the participants. The largest group, earning between 5,001 and 10,000 (31.0%, 65 participants), is followed by those earning between 2,501 and 5,000 (24.3%, 51 participants). Smaller proportions of women earn between 10,001 and 15,000 (22.4%, 47 participants) or above 15,000 (17.1%, 36 participants), while a minority earn between 0 and 2,500 (5.2%, 11 participants). This suggests that while most participants fall into lower to middle-income brackets, there is a notable portion of the sample earning moderate incomes, which may impact their access to resources, including healthcare services.

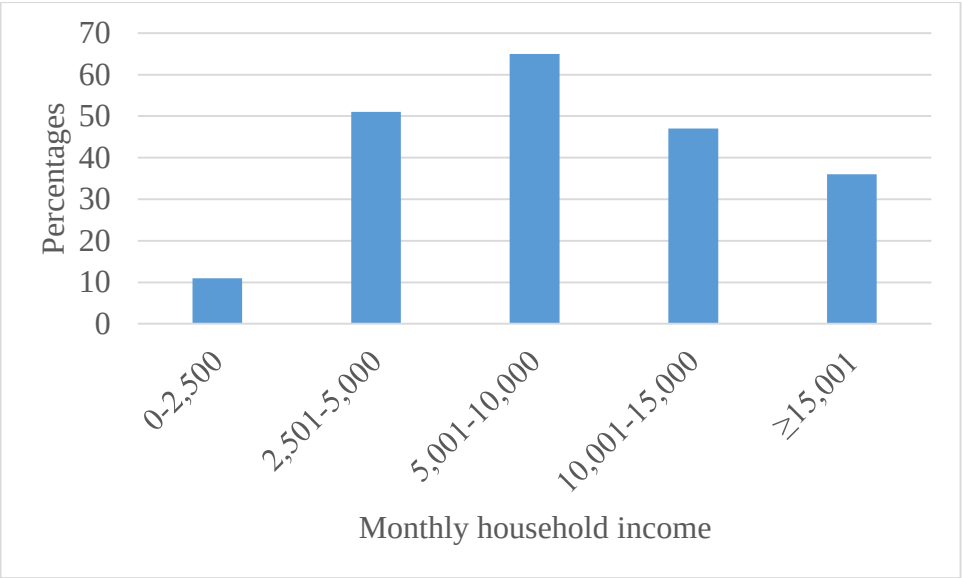

Figure 7: Percentages of respondents by monthly household income

The educational attainment in the sample reveals a significant gap in access to higher education, with a large proportion of women having limited formal education. A combined 79.5% of participants have either no education (39.5%) or only primary education (40.0%). This reflects a low level of formal education, which is a common challenge in many developing regions or communities where access to quality education may be limited due to socio-economic, cultural, or infrastructural barriers.

The relatively small proportion of women with secondary (15.7%) or tertiary education (4.8%) highlights a stark contrast between those with basic education and those who have had opportunities for further academic or vocational training. This educational distribution suggests that many women in the sample may face difficulties in accessing higher-paying, formal sector employment, or in pursuing entrepreneurial ventures that require specialized knowledge or skills.

This lack of educational attainment is likely to compound other socio-economic challenges, such as limited job opportunities, lower earning potential, and restricted social mobility. Studies have consistently shown that lower levels of education are associated with poorer health outcomes, reduced access to healthcare, and limited participation in decision-making processes within households and communities (UNESCO, 2014). Additionally, women with lower educational levels may have fewer resources and opportunities to invest in their children's education, perpetuating a cycle of poverty and limited access to opportunities across generations.

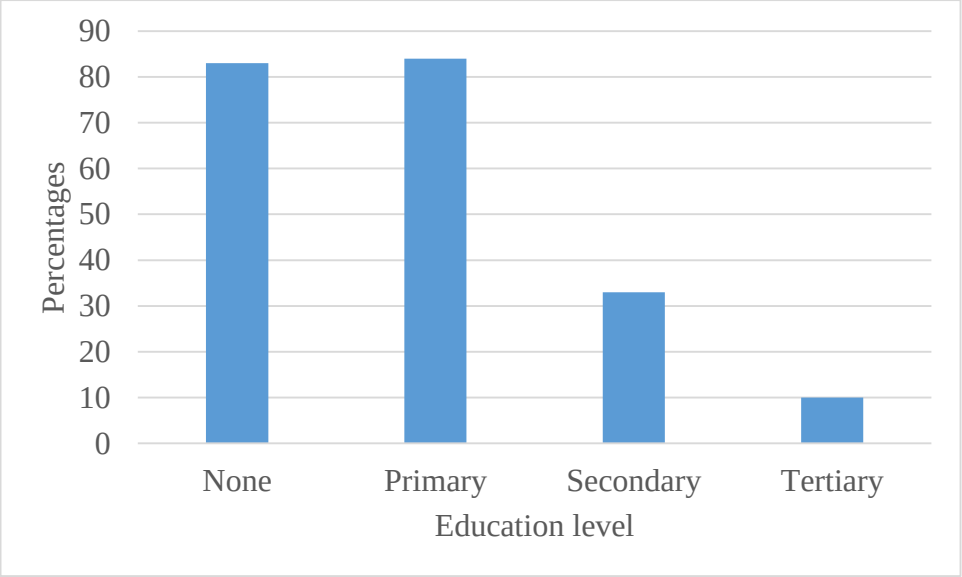

Figure 8: Percentages of respondents by education level

Table 4.1: Socio-demographic characteristics of the study participant

Socio-demographic characteristics of the study participant		N (%)
Age	15-19	23 (8.5%)
	20-24	43 (16.2%)

	25-29	29 (10.9%)
	30-34	29 (10.9%)
	35-39	27 (10.2%)
	40-44	32 (12.1%)
	≥45	27 (10.2%)
Marital status	Single	66 (31.4%)
	Married	103 (49.0%)
	Widowed	17 (8.1%)
	Divorced	24 (11.4%)
Religion	Christian	179 (85.2%)
	Muslim	22 (10.5%)
	Other	9 (4.3%)
Number of children	0	6 (2.9%)
	1	43 (20.5%)
	2	70 (33.3%)
	3	41 (19.5%)
	4	36 (17.1%)
	5	14 (6.7%)
Source of income	Employed	77 (36.7%)
	Self-employed	133 (63.3%)
Monthly household income	0-2,500	11 (5.2%)
	2,501-5,000	51 (24.3%)
	5,001-10,000	65 (31.0%)
	10,001-15,000	47 (22.4%)
	≥15,001	36 (17.1%)
Level of education	None	83 (39.5%)
	Primary	84 (40.0%)
	Secondary	33 (15.7%)
	Tertiary	10 (4.8%)

4.3 Socio-demographics Factors Influencing the Use of Free Maternal Health Services among Pregnant Women

A significant majority of participants who did not utilize the free maternal health services were between the ages of 15-19 compared to those who were above ≥ 20 years, $\chi^2(6, N = 210) = 16.260$, $p = 0.012$. Among those who utilized free services, 6.0% were aged 15-19, 17.3% were 20-24, 18.0% were 25-29, 15.8% were 30-34, 14.3% were 35-39, 15.8% were

40-44, and 12.8% were aged 45 or older. In comparison, among those who did not utilize these services, 19.5% were 15-19, 26.0% were 20-24, 6.5% were 25-29, 10.4% were 30-34, 10.4% were 35-39, 14.3% were 40-44, and 13.0% were 45 or older. The findings indicate that younger age groups, especially those aged 15-19, showed a higher tendency of not utilizing free services. The significant association between age and service use is consistent with other recent studies, which have also highlighted those younger women, particularly those aged 15-19, tend to have lower utilization rates of maternal healthcare services. This can be attributed to various factors, including limited access to information, social stigma, or barriers related to fear of judgment, which are particularly relevant to younger populations in many low-resource settings (Jiang et al., 2020; Ochoa et al., 2021). A similar trend has been observed in studies focusing on adolescent pregnancy, where younger women are more likely to avoid seeking formal healthcare due to socio-cultural and logistical challenges (Mbuyita et al., 2023).

Marital status did not display a significant association with service utilization, $\chi^2(3, N = 210) = 0.183$, $p = 0.980$. Of those utilizing free services, 31.6% were single, 49.6% were married, 7.5% were widowed, and 11.3% were divorced. This was comparable to those not using free services, where 31.2% were single, 48.1% were married, 9.1% were widowed, and 11.7% were divorced. Marital status appears not to have influenced the use of free maternal services within the study population. Interestingly, marital status did not significantly influence service use in this study, which contrasts with findings from some other studies that suggest marital status can be an indicator of healthcare utilization, particularly in societies where married women may have better access to resources and decision-making autonomy (Cheng et al., 2020). However, in this context, the lack of a significant relationship may reflect

broader social dynamics or cultural factors that minimize the influence of marital status on healthcare access.

Religion also did not show a significant relationship with service use, $\chi^2(2, N = 210) = 0.469$, $p = 0.791$. Among those who used the services, 86.5% were Christian, 9.8% were Muslim, and 3.8% followed other religions, while among those who did not use the services, 83.1% were Christian, 11.7% were Muslim, and 5.2% identified with other religions. This indicates that religious affiliation did not affect the likelihood of using free maternal services. While religious beliefs can sometimes influence health-seeking behavior, particularly in areas where specific religious groups have different health practices, recent studies indicate that the availability and accessibility of services often outweigh religious factors when it comes to maternal health utilization (García-Pérez et al., 2021; Ayele et al., 2023).

The number of children was significantly associated with service utilization, $\chi^2(5, N = 210) = 14.839$, $p = 0.011$. Among service users, 0.8% had no children, 15.0% had one child, 38.3% had two children, 19.5% had three, another 19.5% had four, and 6.8% had five. For non-users, 6.5% had no children, 29.9% had one child, 24.7% had two, 19.5% had three, 13.0% had four, and 6.5% had five. This indicates that women with more children tended to rely more on free maternal services, potentially reflecting increased healthcare needs as family size grows. Studies suggest that women with more children tend to experience greater maternal health risks, thus increasing their likelihood of using free services, as they may require more frequent medical attention during pregnancies or childbirth (Kumar et al., 2022; Tadesse & Demissie, 2021).

For source of income, no significant association was found with service use, $\chi^2(1, N = 210) = 0.134$, $p = 0.714$. Among those who used the services, 37.6% were employed and 62.4% were self-employed. Similarly, for those who did not use the services, 35.1% were employed, and 64.9% were self-employed. This suggests that employment status did not affect the decision to use free maternal services. The lack of a significant relationship between income source and service utilization aligns with other research that finds income source—whether employed or self-employed—does not necessarily predict healthcare access (Sullivan & Huy, 2021). However, monthly household income was significantly associated with service use, which is consistent with the literature highlighting that lower-income households are more likely to rely on free maternal health services due to financial constraints (Ngeno et al., 2020; Ogunmola et al., 2022).

Monthly household income was significantly associated with service use, $\chi^2(4, N = 210) = 12.665$, $p = 0.013$. Among service users, 2.3% had an income of 0-2,500, 20.3% earned 2,501-5,000, 34.6% earned 5,001-10,000, 26.3% earned 10,001-15,000, and 16.5% earned over 15,001. Among non-users, 10.4% had an income of 0-2,500, 31.2% earned 2,501-5,000, 24.7% earned 5,001-10,000, 15.6% earned 10,001-15,000, and 18.2% earned over 15,001. This indicates that women from lower-income households were more likely to rely on free services, likely due to financial constraints.

Level of education did not show a significant relationship with service utilization. Of those using the services, 38.3% had no formal education, 40.6% had primary education, 17.3% had secondary education, and 3.8% had tertiary education. For non-users, 41.6% had no formal education, 39.0% had primary education, 13.0% had secondary education, and 6.5% had

tertiary education. This suggests that education level did not play a major role in deciding to use free maternal healthcare services. Thus, the lack of a significant relationship between education level and service use in this study is contrary to some research that has found maternal education to be a key determinant of healthcare utilization (Balogun et al., 2022). However, in contexts where free services are available, financial barriers may be more influential than education in deciding whether to seek care (Okenwa et al., 2023). This suggests that despite educational attainment, access to services may be the more critical determinant in this population.

Table 4.2: Socio-demographic predictors of free Maternal services

Socio-demographic characteristics of the study participant	Utilized freeMaternal services	Did not utilized freeMaternal services	*p*-value (95% CI)
Age			
15-19	8 (6.0)	15 (19.5)	.012
20-24	23 (17.3)	20 (26.0)	
25-29	24 (18.0)	5 (6.5)	
30-34	21 (15.8)	8 (10.4)	
35-39	19 (14.3)	8 (10.4)	
40-44	21 (15.8)	11 (14.3)	
≥45	17 (12.8)	10 (13.0)	
Marital status			
Single	42 (31.6)	24 (31.2)	.980
Married	66 (49.6)	37 (48.1)	
Widowed	10 (7.5)	7 (9.1)	
Divorced	15 (11.3)	9 (11.7)	
Religion			
Christian	115 (86.5)	64 (83.1)	.791
Muslim	13 (9.8)	9 (11.7)	
Other	5 (3.8)	4 (5.2)	
Number of children			
0	1 (0.8)	5 (6.5)	.011
1	20 (15.0)	23 (29.9)	
2	51 (38.3)	19 (24.7)	
3	26 (19.5)	15 (19.5)	
4	26 (19.5)	10 (13.0)	

5	9 (6.8)	5 (6.5)	
Source of income			
Employed	50 (37.6)	27 (35.1)	.714
Self-employed	83 (62.4)	50 (64.9)	
Monthly household income			
0-2,500	3 (2.3)	8 (10.4)	.013
2,501- 5,000	27 (20.3)	24 (31.2)	
5,001-10,000	46 (34.6)	19 (24.7)	
10,001-15,000	35 (26.3)	12 (15.6)	
≥15,001	22 (16.5)	14 (18.2)	
Level of Education			
None	51 (38.3)	32 (41.6)	.682
Primary	54 (40.6)	30 (39.0)	
Secondary	23 (17.3)	10 (13.0)	
Tertiary	5 (3.8)	5 (6.5)	

Findings from focus group discussions further illuminated the experiences of pregnant women and recent mothers regarding the use of free maternal health services. Participants shared concerns about the accessibility of healthcare facilities, highlighting long distances to reach services, especially in rural areas. One participant noted,

> "*It is hard to travel for hours just to get to a clinic; sometimes, I don't have the energy to go*."

This echoed the quantitative finding that lower-income households, who often relied on free services, also faced significant barriers to access. Cultural beliefs and practices emerged as another theme in the discussions. Many women expressed that traditional practices surrounding childbirth often conflicted with the modern healthcare services available to them. A participant mentioned,

> "*In our culture, we believe in giving birth at home with the help of a traditional birth attendant; going to the hospital is not something many consider*."

This aligns with the survey results showing that women with more children were more likely to use free services, potentially indicating that those who had prior experiences with healthcare facilities were more inclined to seek modern services despite cultural barriers.

Additionally, the discussions revealed that young women, particularly those in the 15-19 age groups, faced unique challenges. Many cited feeling unsupported by both their families and health workers, which contributed to their reluctance to utilize available services. As one participant stated,

> "*When I told my mother I wanted to go to the hospital, she said it was unnecessary. She believes it's better to stay home*."

This qualitative insight reinforces the quantitative data indicating a higher tendency among younger women not to utilize free maternal health services, pointing to the need for targeted interventions that address the specific challenges faced by this demographic.

The study observed that age significantly influenced the uptake of free maternal health services. Women aged 25-29 were less likely to utilize free maternal health services than those aged 15-19 (OR = 0.141, 95% CI) [0.034, 0.584], $p = .007$. Additionally, women aged 30-34 exhibited a trend toward lower uptake, though this did not reach statistical significance, with an OR of 0.303, 95% CI [0.081, 1.137], $p = .077$.

Marital status did not show a significant impact on service uptake. While widowed women had a positive but non-significant association, OR = 1.399, 95% CI [0.370, 5.293], p = .621, divorced individuals also showed no significant difference in uptake, with an OR of 1.525, 95% CI [0.518, 4.491], *p* = .444.

Monthly household income revealed a noteworthy trend. Those in the lowest income bracket (Ksh. 0-2,500) were significantly more likely to use the services, with an OR of 2.584, 95% CI [1.064, 6.305], *p* = .036. In contrast, higher income levels were associated with lower uptake, particularly in the Ksh. 5,001-10,000 range (OR = 0.141, 95% CI [0.028, 0.712], p = .018) and the Ksh. 10,001-15,000 range (OR = 0.114, 95% CI [0.022, 0.603], *p* = .011).

The number of children also played a role in uptake. Women with two children approached significance, showing an OR of 0.099, 95% CI [0.009, 1.056], *p* = .055. Trends indicated lower uptake for women with three, four, and five children, with ORs of 0.132, 95% CI [0.011, 1.549], p = .107, and 0.106, 95% CI [0.009, 1.271], p = .077, respectively. The model explained approximately 17.8-24.4% of the uptake of maternal health services (-2 Log likelihood = 234.719, Cox & Snell R^2 = 0.178, Nagelkerke R^2 = 0.244).

Table 4.3: Binary regression model for socio-demographic characteristics of the study participants

	B	S.E.	Wald	Df	Sig.	OR	95% C.I.for OR	
							Lower	Upper
Age								
15-19			9.427	6	.151	Ref		
20-24	-.566	.630	.805	1	.370	.568	.165	1.954
25-29	**-1.958**	**.724**	**7.305**	**1**	**.007**	**.141**	**.034**	**.584**
30-34	-1.195	.675	3.133	1	.077	.303	.081	1.137
35-39	-1.162	.677	2.946	1	.086	.313	.083	1.179

40-44	-1.031	.658	2.455	1	.117	.357	.098	1.295
≥45	-.695	.673	1.067	1	.302	.499	.134	1.865
Marital status								
Single			.965	3	.810	Ref		
Married	-.018	.386	.002	1	.964	.983	.461	2.093
Widowed	.336	.679	.245	1	.621	1.399	.370	5.293
Divorced	.422	.551	.585	1	.444	1.525	.518	4.491
Religion								
Christian			.149	2	.928	Ref		
Muslim	-.065	.544	.014	1	.905	.937	.323	2.723
Other	.297	.852	.122	1	.727	1.346	.253	7.150
Number of Children								
0			10.455	5	.063	Ref		
1	-1.171	1.225	.913	1	.339	.310	.028	3.423
2	-2.310	1.206	3.667	1	.055	.099	.009	1.056
3	-2.022	1.255	2.596	1	.107	.132	.011	1.549
4	-2.240	1.265	3.134	1	.077	.106	.009	1.271
5	-1.518	1.352	1.260	1	.262	.219	.015	3.104
Source of Income								
Self-Employment	-.004	.345	.000	1	.991	.996	.506	1.960
Monthly Household Income (Ksh.)								
0-2,500			10.288	4	.036	Ref		
2,501- 5,000	-1.088	.816	1.777	1	.182	.337	.068	1.668
5,001-10,000	**-1.957**	**.825**	**5.620**	**1**	**.018**	**.141**	**.028**	**.712**
10,001-15,000	**-2.170**	**.849**	**6.532**	**1**	**.011**	**.114**	**.022**	**.603**
≥15,001	-1.506	.843	3.188	1	.074	.222	.042	1.158
Level of Education								
None			2.584	3	.460	Ref		
Primary	-.137	.391	.122	1	.726	.872	.406	1.876
Secondary	-.476	.529	.810	1	.368	.621	.220	1.752
Tertiary	.851	.792	1.155	1	.282	2.342	.496	11.061
Constant	3.836	1.507	6.482	1	.011	46.360		

4.4 Level of Knowledge among Pregnant Women Regarding the Use of Free Maternal Health Services in Turkana Central Sub-County

There was no significant relationship between awareness of free maternal health services in government facilities and the utilization of these services, $\chi^2(1, N = 210) = 2.605$, $p = 0.107$. Among those who utilized the services, 54.9% were aware of them, while 45.1% were not.

In contrast, 66.2% of non-users were aware, and 33.8% were not. This suggests that awareness alone did not play a substantial role in whether the services were used.

Similarly, there was no significant relationship between individuals' reported utilization of free maternal health services and actual service uptake, $\chi^2(1, N = 210) = 1.886$, $p = 0.170$. Among users, 38.3% had self-reported "Yes" to using these services, while 61.7% had reported "No." For non-users, 48.1% had reported "Yes," and 51.9% reported "No," indicating that reported usage did not strongly correlate with actual service use.

Knowledge of the types of services covered under the free program also showed no significant association with utilization, $\chi^2(1, N = 210) = 2.852$, $p = 0.091$. Of those who used the services, 30.1% were aware of which services were included, while 69.9% were not. Among non-users, 41.6% were aware of the services provided, and 58.4% were not. This suggests that simply knowing the types of covered services was not a deciding factor in service utilization.

When examining understanding of the various types of maternal health services offered (such as antenatal care, skilled delivery, and family planning), there was no significant relationship with service utilization, $\chi^2(5, N = 210) = 5.173$, $p = 0.273$. For users, awareness was highest for skilled delivery (33.3%), followed by antenatal care (26.2%). Non-users similarly varied, with the highest awareness for antenatal care (40.0%). This indicates that familiarity with individual maternal services did not directly influence whether these services were used. In the case of awareness of the services and the types of services covered, similar studies have shown that even when individuals are aware of available health services, other barriers, such

as physical access, financial constraints, or cultural factors, can prevent service use (Chilunga et al., 2022; Ezeh et al., 2023). For example, although many respondents were aware of the services, the decision to use them may have been influenced by factors such as social stigma, fear, or misinformation, which are not addressed by awareness alone (Mabunda et al., 2021).

The number of antenatal visits also did not show a significant relationship with service utilization, $\chi^2(3, N = 210) = 0.623$, $p = 0.901$. Among users, 39.1% attended two visits, 24.8% attended three, 21.8% attended four, and 14.3% attended only one visit. Non-users showed similar attendance patterns, with 28.6% attending two or three visits, 27.3% attending four, and 15.6% attending only one visit. This suggests that frequency of antenatal visits alone did not appear to influence service utilization. The lack of a significant relationship between antenatal visit frequency and service utilization echoes findings in other research that suggests attending antenatal care visits does not automatically translate into utilizing additional maternal health services, as healthcare decisions often involve a range of factors beyond visit frequency, including perceived quality of care and personal circumstances (Kedir et al., 2022).

Awareness of danger signs in pregnancy also showed no significant relationship with service utilization, $\chi^2(1, N = 210) = 0.363$, $p = 0.548$. Among service users, 36.1% were aware of these danger signs, while 63.9% were not. Among non-users, 40.3% were aware, and 59.7% were not. This result suggests that awareness of pregnancy danger signs did not appear to affect the likelihood of using the services. While awareness of pregnancy danger signs was found to have no significant impact, other studies have emphasized that knowledge of danger

signs, although important, may not influence behavior if women face barriers to accessing healthcare services when such signs occur (Awung et al., 2021).

Regarding awareness of specific pregnancy danger signs (such as bleeding, abdominal pain, dizziness, and convulsion), there was no significant relationship with service utilization, $\chi^2(3, N = 210) = 1.404$, $p = 0.704$. Among users, 34.8% recognized abdominal pain as a danger sign, and a similar percentage of non-users (39.4%) did as well. This suggests that being aware of specific danger signs did not lead to increased utilization of the free maternal services.

Finally, there was no significant association between the belief that free maternal health services improve child and maternal outcomes and the utilization of these services, $\chi^2(1, N = 210) = 1.165$, $p = 0.281$. Among users, 51.9% believed these services improved outcomes, while 48.1% did not. For non-users, 44.2% held this belief, and 55.8% did not. This finding implies that belief in better outcomes was not a strong motivator for service use. The lack of association between belief in service benefits and actual utilization is particularly noteworthy. This suggests that while positive beliefs about service outcomes may play a role in healthcare utilization, they may be overshadowed by other factors, such as financial costs, service availability, or societal norms, which often prevent individuals from acting on these beliefs (Akinwunmi et al., 2023). This finding aligns with research showing that even when individuals recognize the potential benefits of healthcare services, practical barriers frequently prevent them from using them (Miller et al., 2020).

Table 4.4: Knowledge as a predictor of free Maternal health uptake

Health facility predictors	Utilized freeMaternal services	Did not utilized freeMaternal services	*p*-value (95% CI)
Awareness of freeMaternal health services in government facilities?			
Yes	73 (54.9)	51 (66.2)	.107
No	60 (45.1)	26 (33.8)	
Utilization of freeMaternal health services			
Yes	51 (38.3)	37 (48.1)	.170
No	82 (61.7)	40 (51.9)	
Types ofMaternal health services covered under the free program			
Yes	40 (30.1)	32 (41.6)	.091
No	93 (69.9)	45 (58.4)	
WhatMaternal health services entails			
Antenatal care	11 (26.2)	12 (40.0)	.273
Skilled Delivery	14 (33.3)	5 (16.7)	
Family planning	7 (16.7)	2 (6.7)	
Post-natal care	6 (14.3)	5 (16.7)	
Immunization	3 (7.1)	3 (10.0)	
All of the above	1 (2.4)	3 (10.0)	
Minimum number of antenatal visits			
1	19 (14.3)	12 (15.6)	.901
2	52 (39.1)	22 (28.6)	
3	33 (24.8)	22 (28.6)	
4	29 (21.8)	21 (27.3)	
Awareness of danger signs in pregnancy.			
Yes	48 (36.1)	31 (40.3)	.548
No	85 (63.9)	46 (59.7)	
Signs of danger signs of pregnancy			
Bleeding	5 (10.9)	6 (18.2)	.704
Abdominal pain	16 (34.8)	13 (39.4)	
Dizziness	14 (30.4)	8 (24.2)	
Convulsion	11 (23.9)	6 (18.2)	
FreeMaternal health services improve child andMaternal outcomes			
Yes	69 (51.9)	34 (44.2)	.281
No	64 (48.1)	43 (55.8)	

Awareness of free maternal health services in government facilities did not significantly affect service utilization. Participants who were unaware of these services had an OR of 0.799, 95% CI [0.230, 2.771], p = 0.724, indicating that lack of awareness did not significantly impact the likelihood of using these services. Self-reported utilization of free maternal health services also showed no significant association with actual service use. Participants who reported no utilization had OR = 0.853, 95% CI [0.261, 2.785], p = 0.794, suggesting that self-reported non-use was not a reliable predictor of actual service uptake.

Knowledge of programs covered under free maternal health services did not show a significant relationship with utilization. Those unaware of covered programs had OR = 0.393, 95% CI [0.109, 1.417], p = 0.155, indicating that limited knowledge of program coverage did not significantly affect service use likelihood.

Regarding specific maternal health services, skilled delivery awareness was significantly associated with service utilization. Participants unaware of skilled delivery as a service had OR = 0.163, 95% CI [0.029, 0.915], p = 0.039, suggesting that awareness of this service increased the likelihood of utilization. In contrast, awareness of other services showed no significant associations: family planning had OR = 0.173, 95% CI [0.020, 1.516], p = 0.102; post-natal care had OR = 0.453, 95% CI [0.085, 2.420], p = 0.361; and immunization awareness had OR = 0.600, 95% CI [0.070, 5.145], p = 0.643. Additionally, awareness of all services combined did not significantly influence usage, with OR = 2.536, 95% CI [0.161, 39.959], p = 0.526.

The minimum number of antenatal visits showed no significant association with service utilization. Participants attending all four visits had OR = 7.494, 95% CI [0.791, 71.003], p = 0.085, suggesting a non-significant trend toward increased service use with higher visit frequency. Awareness of general pregnancy danger signs also showed no significant association with utilization. Those unaware of danger signs had OR = 2.310, 95% CI [0.550, 9.700], p = 0.249, indicating that general awareness of pregnancy risks did not notably influence service uptake. Similarly, awareness of specific danger signs did not significantly impact utilization: abdominal pain had OR = 0.257, 95% CI [0.026, 2.528], p = 0.240; dizziness had OR = 0.159, 95% CI [0.018, 1.437], p = 0.107; and convulsion awareness had OR = 0.163, 95% CI [0.017, 1.590], p = 0.130.

Belief that free maternal health services improve maternal and child health outcomes were also not a significant factor in utilization. Those who did not believe in these benefits had OR = 1.225, 95% CI [0.339, 4.423], p = 0.760, indicating that perceived improvements in health outcomes were not a strong driver of service usage. The -2 Log Likelihood value of 78.788 indicates the goodness of fit for the model, with a lower value suggesting a better fit, though this measure is most useful when comparing different models. The Cox & Snell R Square value of 0.232 suggests that approximately 23.2% of the variance in the dependent variable is explained by the model. However, because Cox & Snell's R^2 is limited to values less than 1, Nagelkerke's R Square shows a value of 0.312, indicating that about 31.2% of the variance in the dependent variable was explained by the model.

Table 4.5: Binary regression for knowledge as predictor of free Maternal uptake

Knowledge	B	S.E.	Wald	df	Sig.	OR
Awareness of free Maternal health services in government health facilities						
No	-.225	.635	.125	1	.724	.799
Utilization of free maternal health services						
No	-.159	.609	.068	1	.794	.853
Programs covered under free maternal health services						
No	-.933	.656	2.021	1	.155	.393
What free maternal health services entails						
Antenatal care			7.033	5	.218	
Skilled Delivery	**-1.816**	**.881**	**4.247**	**1**	**.039**	**.163**
Family planning	-1.753	1.073	2.672	1	.102	.173
Post-natal care	-.793	.868	.833	1	.361	.453
Immunization	-.511	1.101	.215	1	.643	.600
All of the above	.931	1.468	.402	1	.526	2.536
Minimum antenatal visits						
1			4.165	3	.244	
2	.688	1.137	.367	1	.545	1.991
3	1.318	1.317	1.000	1	.317	3.735
4	2.014	1.169	2.970	1	.085	7.494
Danger signs related to pregnancy						
No	.837	.727	1.327	1	.249	2.310
Some of the signs						
Bleeding			3.085	3	.379	
Abdominal pain	-1.359	1.157	1.380	1	.240	.257
Dizziness	-1.840	1.140	2.604	1	.107	.159
Convulsion	-1.811	1.196	2.292	1	.130	.163
Free maternal health services improve maternal and child health outcomes						
No	.203	.665	.093	1	.760	1.225
Constant	.822	1.689	.237	1	.627	2.275

4.5Maternal Health-Seeking Behaviour of Pregnant Women in the Turkana Central Sub-County

There was no significant relationship between experienced complications during the last pregnancy and the utilization of free maternal services, $\chi^2(1, N = 210) = 0.187$, $p = 0.667$. Among those who experienced complications, 51.1% used the services, while 48.1% did not. In contrast, among those without complications, 48.9% utilized the services compared to 51.9% who did not. This suggests that experiencing complications did not significantly

influence the likelihood of using free maternal services. Additionally, the discussions revealed that young women, particularly those in the 15-19 age groups, faced unique challenges.

Many cited feeling unsupported by both their families and health workers, which contributed to their reluctance to utilize available services. As one participant stated,

> "*When I told my mother I wanted to go to the hospital, she said it was unnecessary. She believes it's better to stay home*."

This qualitative insight reinforces the quantitative data indicating a higher tendency among younger women not to utilize free maternal health services, pointing to the need for targeted interventions that address the specific challenges faced by this demographic. Recent literature emphasizes that even when women face complications, utilization of maternal services may be influenced by systemic, cultural, or personal barriers rather than clinical necessity (Ezeh et al., 2023). The finding that 51.1% of those with complications used the services suggests that a substantial proportion of women with potentially greater need for care still did not seek out these services. This aligns with studies that report financial constraints, lack of transport, or mistrust in healthcare systems as major deterrents to seeking maternal care even in high-risk pregnancies (Chilunga et al., 2022).

Young women, particularly those aged 15–19, are known to encounter unique challenges in accessing maternal healthcare. These challenges often include stigma, discrimination, and limited decision-making autonomy, which may prevent them from seeking care even when

services are free (Mabunda et al., 2021). Furthermore, younger women may lack sufficient knowledge about the importance of maternal services or may rely on informal advice rather than professional healthcare (Akinwunmi et al., 2023). The findings call for targeted interventions to address these barriers, particularly for younger women and high-risk populations. Community outreach programs and adolescent-friendly maternal healthcare services may help bridge these gaps by addressing stigma and increasing awareness among younger women about the importance of utilizing maternal health services (Awung et al., 2021).

A significant relationship was found regarding how complications were managed, $\chi^2(1, N = 210) = 23.592$, $p < 0.001$. Among those who utilized services, 82.4% sought medication, while 17.6% self-medicated. In comparison, among those who did not use the services, 51.4% sought medication, and 48.6% resorted to self-medication. This indicates that those who accessed services were much more likely to seek professional medical help rather than self-treat. The focus group discussions echoed these findings, with many women expressing that those who accessed services often did so after receiving advice from peers or health workers about the importance of seeking medical care during complications. One participant noted,

> "*When my friend had complications, she told me to go to the clinic instead of trying to handle it at home.*"

This highlights the role of peer influence in health-seeking behaviors.

There was no significant relationship concerning who makes maternal health decisions and the utilization of services, $\chi^2(2, N = 210) = 3.284$, $p = 0.187$. Among those who used the services, 28.8% made decisions themselves, 59.1% were influenced by their husbands, and 12.1% relied on a guardian. Among those who did not utilize services, 20.5% made decisions independently, 54.5% were influenced by their husbands, and 25.0% were guided by a guardian. This indicates that decision-making dynamics did not significantly affect the likelihood of using free maternal services.

However, the focus group participants noted that while husbands played a significant role in decision-making, many women expressed a desire for more autonomy. One participant shared,

"Sometimes, I want to go to the hospital, but my husband decides otherwise."

This qualitative insight suggests that although decision-making dynamics did not statistically impact service utilization, the desire for more control over health choices remains a concern among women in the community, indicating the need for interventions that empower women to make informed health decisions.

Table 4.6:Maternal health seeking behavior as predictors of the uptake of free Maternal services in Turkana Central Sub-County

Maternal health seeking behaviour among the study participant	Utilized free maternal services	Did not utilized free maternal services	*p*-value (95% CI)
Experienced complications during the last the pregnancy			
Yes	68 (51.1)	37 (48.1)	.667

No	65 (48.9)	40 (51.9)	
Management of the complication(s)			
Self-medication	12 (17.6)	19 (51.4)	<.001
Sought medication	56 (82.4)	18 (48.)	
Who makes maternal health decisions in the household			
Self	19 (28.8)	9 (20.5)	.187
Husband	39 (59.1)	24 (54.5)	
Guardian	8 (12.1)	11 (25.0)	

Experienced complications in the last pregnancy showed no significant association with service utilization. Participants who experienced complications had an odds ratio (OR) of 1.621, 95% CI [0.503, 5.354], p = .311, indicating that complications did not significantly affect the likelihood of using free maternal services. Management of complications was a significant factor in service use. Participants who sought treatment had an OR of 0.208, 95% CI [0.084, 0.517], p = .001, suggesting that seeking professional treatment significantly decreased the likelihood of utilizing services compared to those who self-medicated.

Decision-making in maternal health also revealed significant relationships. When a guardian was the decision-maker, the OR was 6.121, 95% CI [1.485, 25.417], p = .012, indicating that having a guardian involved in decision-making significantly increased the likelihood of service utilization. In contrast, when the husband made decisions, the OR was 1.990, 95% CI [0.624, 6.355], p = .209, suggesting no significant effect on service utilization.

Table 4.7: Regression analysis of Maternal health seeking behavior as predictors of the uptake of free Maternal services in Turkana Central Sub-County

	B	S.E.	Wald	df	Sig.	OR
Experienced complications in the last the pregnancy						

No	.483	.477	1.027	1	.311	1.621
Management of complications						
Sought treatment	**-1.572**	**.492**	**10.209**	**1**	**.001**	**.208**
Who makes maternal health decisions in the household						
Self			**6.373**	**2**	**.041**	
Husband	.688	.548	1.580	1	.209	1.990
Guardian	**1.812**	**.721**	**6.312**	**1**	**.012**	**6.121**
Constant	-.364	.575	.401	1	.526	.695

4.6 Characteristics of Health Facilities That Affects the Use of Free Maternal Health Services in Turkana Central Sub-County

Regarding comfort with male health workers, data indicates that 60 individuals (45.1%) who utilized free maternal services felt comfortable, while 73 (54.9%) did not. In comparison, among those who did not utilize these services, 37 individuals (48.1%) reported feeling comfortable with male health workers, while 40 (51.9%) expressed discomfort. The statistical analysis yielded no significant findings, with a chi-squared value of $\chi^2(1, N = 210) = 0.16$, $p = 0.681$. This suggests that comfort with male health workers does not significantly affect the likelihood of utilizing maternal services. The finding that comfort with male health workers does not significantly influence service utilization aligns with studies suggesting that cultural and individual factors often outweigh this variable. For instance, Adinew et al. (2020) note that while gender preference for healthcare providers exists in many settings, its impact on service uptake is generally minor compared to broader structural barriers such as accessibility and cost. Addressing other factors like privacy concerns and cultural sensitivities may better enhance service uptake.

A more pronounced difference emerged when examining staff attitudes during the last health facility visit. Among users, 103 individuals (77.4%) described the staff as friendly, while

only 20 (15.0%) characterized them as ignorant, and 10 (7.5%) as harsh. Conversely, among non-users, 49 individuals (63.6%) reported a friendly attitude, 9 (11.7%) perceived staff as ignorant, and 19 (24.7%) viewed them as harsh. The analysis revealed a significant correlation with $\chi^2(2, N = 210) = 11.133$, $p = 0.002$. This finding underscores that positive perceptions of staff attitudes are closely linked to the likelihood of utilizing maternal services, suggesting that enhancing staff demeanor could foster greater engagement with maternal healthcare. Positive perceptions of staff were strongly associated with higher utilization rates, echoing findings from Ngwenya et al. (2022), which emphasized that respectful and friendly interactions with healthcare workers significantly influence women's willingness to engage with maternal health services. Training programs that focus on improving healthcare workers' interpersonal skills and fostering patient-centered care could help address this barrier.

The distance to the nearest government health facility also plays a crucial role in service utilization. Among those who utilized services, 32 individuals (24.1%) reported a travel time of less than 30 minutes, 71 (53.4%) traveled between 30 and 60 minutes, and 30 (22.6%) traveled over 60 minutes. In contrast, among non-users, 15 (19.5%) traveled less than 30 minutes, 25 (32.5%) traveled between 30 and 60 minutes, and 37 (48.1%) traveled over 60 minutes. The analysis revealed a significant relationship, with $\chi^2(2, N = 210) = 20.125$, $p < 0.001$. This indicates that longer travel times significantly hinder access to maternal services, highlighting distance as a substantial barrier. This aligns with findings from Tran et al. (2021), who observed that women residing farther from healthcare facilities were less likely to access antenatal and delivery services, especially in rural areas. Investing in decentralized

healthcare facilities or transportation support could reduce this barrier and improve service uptake.

When assessing the perceived accessibility of the nearest health facility, responses varied but indicated no significant differences. Among users, 9 individuals (6.8%) rated accessibility as excellent, 49 (36.8%) as very good, 44 (33.1%) as good, 27 (20.3%) as poor, and 4 (3.0%) as very poor. Non-users provided similar ratings: 7 (9.1%) deemed accessibility excellent, 30 (39.0%) rated it very good, 21 (27.3%) rated it good, 16 (20.8%) rated it poor, and 3 (3.9%) rated it very poor. The statistical analysis yielded $\chi^2(4, N = 210) = 0.373$, $p = 0.901$, indicating no significant differences in perceived accessibility between users and non-users. This discrepancy suggests that perceptions of ease of access may not accurately reflect actual geographical or logistical challenges. Effective communication about available services and reducing physical barriers might address this mismatch.

Lastly, waiting times to see a clinician showed no significant differences between the two groups. Among users, 27 (20.3%) reported waiting less than 30 minutes, 75 (56.4%) waited between 30 and 60 minutes, and 31 (23.3%) waited over 60 minutes. Non-users reported comparable waiting times, with 15 (19.5%) waiting less than 30 minutes, 36 (46.8%) waiting between 30 and 60 minutes, and 26 (33.8%) waiting over 60 minutes. The analysis revealed no significant difference, with $\chi^2(2, N = 210) = 2.618$, $p = 0.242$. This indicates that waiting times do not significantly impact the decision to utilize services. The lack of a significant relationship between waiting times and service utilization corroborates findings by Nair et al. (2020), who argue that while long waiting times can cause dissatisfaction, they are less

likely to deter service utilization if women perceive the quality of care as high. Efforts to optimize scheduling and reduce bottlenecks in service delivery can enhance user experiences without necessarily affecting uptake rates.

Table 4.8: Health facility predictors of free Maternal services

Health facility variable	Utilized free maternal services	Did not utilized free maternal services	*p*-value (95% CI)
Are you comfortable being attended to by a male health worker?			
Yes	60 (45.1)	37 (48.1)	.681
No	73 (54.9)	40 (51.9)	
Attitude of staff during the last health facility visit			
Friendly	103 (77.4)	49 (63.6)	.002
Ignorant	20 (15.0)	9 (11.7)	
Harsh	10 (7.5)	19 (24.7)	
Distance to the nearest government health facility (mins)			
< 30	32 (24.1)	15 (19.5)	<.001
30-60	71 (53.4)	25 (32.5)	
>60	30 (22.6)	37 (48.1)	
Level of accessibility to the nearest government health facility			
Excellent	9 (6.8)	7 (9.1)	.901
Very good	49 (36.8)	30 (39.0)	
Good	44 (33.1)	21 (27.3)	
Poor	27 (20.3)	16 (20.8)	
Very poor	4 (3.0)	3 (3.9)	
Waiting time to see a clinician (mins)			.242
< 30	27 (20.3)	15 (19.5)	
30-60	75 (56.4)	36 (46.8)	
>60	31 (23.3)	26 (33.8)	

Comfort with male health workers did not significantly affect service utilization. Participants who were uncomfortable with male health workers had slightly lower odds of using services, OR = 0.948, 95% CI [0.510, 1.764], p = .866, suggesting that comfort with male staff has little influence on decisions to access health services.

Staff attitude during the last visit was a significant predictor. Participants who described the staff as harsh were significantly less likely to use services, OR = 4.655, 95% CI [1.865, 11.621], p < .001, indicating a more than fourfold increase in the likelihood of avoiding health services. In contrast, describing staff as ignorant did not significantly impact utilization, OR = 1.029, 95% CI [0.411, 2.574], p = .951. This suggests that a hostile staff attitude strongly deters service use, whereas an indifferent attitude has little effect.

Distance to the nearest government health facility was another significant factor. Participants living more than 60 minutes away were more likely to avoid using services, OR = 3.227, 95% CI [1.396, 7.458], p = .006. However, for those living within 30-60 minutes, distance did not significantly affect utilization, OR = 0.807, 95% CI [0.355, 1.838], p = .610. These findings suggest that individuals living more than an hour away are three times more likely to avoid using health services, emphasizing the role of proximity.

Level of accessibility to the nearest health facility showed no significant association with service utilization. Participants who rated accessibility as very good had OR = 0.982, 95% CI [0.295, 3.268], p = .976, while those who rated it as good had OR = 0.745, 95% CI [0.216,

2.574], p = .642. Ratings of poor accessibility yielded OR = 0.856, 95% CI [0.234, 3.130], p = .814, and very poor accessibility resulted in OR = 1.479, 95% CI [0.215, 10.180], p = .691. Across all levels, accessibility did not significantly affect service utilization, suggesting that perceived accessibility alone does not drive health-seeking behavior.

Waiting time to see a clinician was not a significant factor in service use. Participants who waited between 30-60 minutes had OR = 0.726, 95% CI [0.321, 1.641], p = .442, while those waiting over 60 minutes showed OR = 0.968, 95% CI [0.390, 2.399], p = .943. These results indicate that the waiting time, regardless of duration, does not significantly influence the likelihood of using health services.

The -2 Log Likelihood value of 245.532 indicated the model's deviance, with lower values typically representing better model fit. The Cox & Snell R Square value of 0.135 and the Nagelkerke R Square value of 0.185 indicated the model's explanatory power, explaining approximately 13.5% to 18.5% of the variance in the dependent variable.

Table 4.9: Binary regression model for characteristics of the study participants

							95% C.I.for OR	
	B	S.E.	Wald	Df	Sig.	OR	Lower	Upper
Are you comfortable being attended to by a male health worker?								
No	-.053	.317	.028	1	.866	.948	.510	1.764
Attitude of staff during the last health facility visit								
Friendly			**11.159**	**2**	**.004**			
Ignorant	.028	.468	.004	1	.951	1.029	.411	2.574
Harsh	**1.538**	**.467**	**10.857**	**1**	**<.001**	**4.655**	**1.865**	**11.621**
Distance to the nearest government health facility (mins)								
< 30			**15.955**	**2**	**<.001**			

30-60	-.214	.420	.260	1	.610	.807	.355	1.838
>60	**1.172**	**.427**	**7.513**	**1**	**.006**	**3.227**	**1.396**	**7.458**
Level of accessibility to the nearest government health facility								
Excellent			.943	4	.918			
Very good	-.019	.614	.001	1	.976	.982	.295	3.268
Good	-.294	.632	.216	1	.642	.745	.216	2.574
Poor	-.156	.662	.055	1	.814	.856	.234	3.130
Very poor	.391	.984	.158	1	.691	1.479	.215	10.180
Waiting time to see a clinician (mins)								
< 30			.911	2	.634			
30-60	-.320	.416	.592	1	.442	.726	.321	1.641
>60	-.033	.463	.005	1	.943	.968	.390	2.399
Constant	-.780	.722	1.168	1	.280	.458		

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Socio-demographic Factors Influencing the Use of Free Maternal Health Services among Pregnant Women

The qualitative data highlighting challenges in accessibility to healthcare facilities, particularly in rural areas, align with global findings. Studies, such as those conducted in Sub-Saharan Africa, demonstrate that long distances and inadequate transportation significantly hinder the utilization of maternal healthcare services, especially for lower-income households (Ogundele et al., 2020). The participant's account of travelling long distances reflects similar sentiments noted in these studies, emphasizing the persistent infrastructural gaps despite free service provision. Addressing these barriers remains critical for enhancing equitable access to maternal health services.

The conflict between traditional childbirth practices and modern healthcare services is well-documented in recent literature. For instance, a systematic review by Adongo et al. (2022) reported that deeply ingrained cultural norms often deter women from seeking facility-based care, particularly in rural and marginalized communities. The findings from the focus group discussions corroborate this, with women expressing a preference for home births and reliance on traditional birth attendants. Notably, prior studies emphasize the importance of culturally sensitive interventions to bridge the gap between traditional and modern practices, such as integrating trained traditional birth attendants into the formal healthcare system.

The observation that younger women (15-19 years) face unique challenges, including familial opposition and lack of support, resonates with findings from Mwangi et al. (2021).

Their research highlighted that adolescent mothers often experience stigma and limited autonomy in healthcare decision-making. The significant finding that women aged 25-29 were less likely to utilize free services compared to adolescent's contrasts with some studies that suggest higher utilization rates among older women due to greater awareness and autonomy. This discrepancy might be contextual, reflecting specific regional or policy-related factors.

The association between lower household income and higher utilization of free maternal health services aligns with findings by Wanjohi et al. (2020), who reported that financial constraints drive reliance on subsidized or free healthcare. The significant likelihood of service uptake among women in the lowest income bracket underscores the importance of these services for marginalized populations. Conversely, the reduced uptake among higher-income groups suggests potential quality concerns, with wealthier women possibly opting for private facilities that offer perceived superior care.

The finding that women with more children were less likely to utilize free services, despite cultural barriers, aligns with results from Tsawe and Susuman (2018). They highlighted that multiparous women often perceive themselves as experienced and less in need of facility-based care. However, women with prior positive experiences in healthcare facilities, as suggested by the focus group discussions, may advocate for institutional delivery, highlighting the role of experience in shaping health-seeking behaviour.

The non-significant association between marital status and service uptake mirrors results from recent studies, such as those by Gebrehiwot et al. (2020), which found that factors such

as education and community support had a more pronounced impact on maternal healthcare utilization than marital status alone. However, the positive association for widowed women, though non-significant, suggests a potential avenue for further research into how social networks influence healthcare-seeking behavior.

5.2 Level of Knowledge among Pregnant Women Regarding the Use of Free Maternal Health Services in Turkana Central Sub-County

The lack of significant association between awareness of free maternal health services and their utilization contrasts with some studies emphasizing the role of awareness in driving healthcare behaviors (Onasoga et al., 2021). However, this finding is supported by other research suggesting that awareness alone may not translate into use due to structural and cultural barriers (Gomez et al., 2020). For example, even when women know about available services, challenges such as accessibility, sociocultural norms, or perceived quality of care may prevent uptake.

Interestingly, awareness of skilled delivery as a specific service showed a significant association with utilization. This aligns with findings by Bwalya et al. (2021), who reported that specific knowledge of services, particularly those directly linked to positive health outcomes, is more likely to influence behavior. This suggests that targeted awareness campaigns focusing on critical services, such as skilled delivery, might be more effective than general information dissemination.

The non-significant relationship between self-reported utilization and actual service uptake suggests potential biases in self-reporting, such as social desirability bias or

misremembering. This phenomenon has been noted in studies by Njuki et al. (2020), which caution against over-reliance on self-reported data for healthcare service evaluations. The limited impact of knowledge of program coverage and danger signs on service use highlights the need for comprehensive strategies beyond awareness campaigns. Recent studies, such as those by Odhiambo et al. (2022), emphasize that while knowledge is a prerequisite, it must be complemented by supportive systems, such as improved healthcare quality and cultural sensitivity, to drive utilization effectively.

Notably, awareness of specific danger signs such as abdominal pain, dizziness, and convulsions showed non-significant associations with utilization. This mirrors findings by Mulenga et al. (2020), who observed that knowledge of danger signs alone is insufficient unless accompanied by practical solutions like emergency transport services. The non-significant influence of beliefs regarding the benefits of free maternal health services on utilization aligns with studies suggesting that perceptions of healthcare quality, rather than outcome beliefs, play a more critical role (Abdu et al., 2021). Women may believe in the potential benefits of services but still avoid them due to distrust, negative past experiences, or cultural factors.

The trend toward increased service use with higher antenatal visit frequency (though non-significant) reflects findings by Mwamba et al. (2020), who noted that regular interaction with healthcare providers during antenatal visits fosters trust and familiarity, which can encourage service uptake. However, the lack of statistical significance in this study suggests that other factors, such as transportation and family support, may mediate this relationship.

5.3Maternal Health-Seeking Behaviour of Pregnant Women in the Turkana Central Sub-County

The non-significant association between experiencing complications and service utilization is consistent with some studies suggesting that experiencing complications alone does not necessarily motivate healthcare-seeking behavior (Mugo et al., 2021). Barriers such as poor access, lack of trust in healthcare systems, or cultural practices may deter women from seeking services, even when complications occur. This contrasts with findings by Asefa et al. (2020), who reported that complications could serve as a wake-up call for some women, driving increased healthcare use.

The significant decrease in service utilization among those seeking professional treatment for complications is a critical finding. This might reflect dissatisfaction with the quality of care received or the financial or logistical challenges associated with seeking professional help, as noted by Adhikari et al. (2021). It could also indicate that women who had previously sought professional care but faced barriers might opt for alternative or self-medicated approaches in subsequent pregnancies.

This finding aligns with the literature suggesting that perceived or actual poor quality of care can discourage further use of healthcare services (Mbuya et al., 2022). Addressing gaps in service quality and ensuring positive healthcare experiences are essential to counteract this trend. The significant relationship between guardian decision-making and service utilization highlights the importance of social support structures. Recent studies emphasize the role of empowered family members in influencing positive health-seeking behaviors (Khan et al.,

2020). Guardians, often maternal figures such as mothers or mothers-in-law, may provide emotional and logistical support that facilitates access to services.

In contrast, the non-significant effect of husband-led decision-making mirrors findings by Akalu et al. (2021), which suggest that traditional gender norms may limit the husband's role in supporting maternal health service use. When husbands are the sole decision-makers, healthcare decisions may be deprioritized due to competing family needs or a lack of awareness about maternal health requirements.

5.4 Characteristics of Health Facilities That Affects the Use of Free Maternal Health Services in Turkana Central Sub-County

The non-significant association between comfort with male health workers and service utilization mirrors findings in studies where provider gender preference was secondary to other barriers like service quality and accessibility (Mugo et al., 2022). This suggests that while cultural norms might influence preferences, they do not overwhelmingly deter service uptake.

The significant association between harsh staff attitudes and reduced service use corroborates evidence that negative interactions with health workers deter future service use. A systematic review by Bohren et al. (2021) emphasized how mistreatment, including verbal abuse or disrespect, during maternal care can erode trust and discourage women from returning to health facilities. Conversely, the lack of association between staff indifference and service use might reflect a normalization of such behavior or a lesser perceived impact compared to overt hostility.

The finding that living more than an hour from a health facility significantly reduces service utilization is consistent with studies highlighting geographic barriers in accessing maternal health services. Research by Okedo-Alex et al. (2021) identified distance as a critical determinant, particularly in rural areas where transportation options are limited. Notably, the lack of significance for those living 30–60 minutes away suggests that moderate travel times might still be acceptable, provided other facilitators, like affordability and service quality, are present.

The absence of a significant relationship between perceived accessibility and service utilization diverges from studies that emphasize physical access as a core determinant of maternal healthcare use (Tessema et al., 2021). This discrepancy might arise from differences in how accessibility is perceived versus actual geographic or infrastructural barriers. The non-significant influence of waiting time aligns with findings suggesting that, for critical services like maternal care, women may prioritize receiving care over the time spent waiting (Asefa et al., 2020). However, prolonged waiting times might still indirectly affect satisfaction and future service use if coupled with other deterrents like poor staff attitude.

5.5 The Model

The 3D model in maternal healthcare, focusing on decision delay, access delay, and service delivery delay, has been widely used to understand the barriers women face in utilizing maternal health services, particularly in rural or underserved areas. Across various studies, it highlights how delays at different stages impact maternal health outcomes, and this can be seen in the findings of our study.

In relation to decision delay, several studies, such as those by Adongo et al. (2022), have documented that cultural practices and deeply rooted beliefs about childbirth significantly delay the decision to seek healthcare, particularly in rural areas. Our study found similar barriers, where women expressed a preference for home births and the use of traditional birth attendants, which aligns with the decision-making delay in the 3D model. The model's emphasis on cultural norms influencing decision-making is clearly reflected in the challenges faced by women in Turkana Central Sub-County, who prefer traditional methods despite the availability of free services. Furthermore, the influence of family members and community norms, as identified in our study, supports the idea that decisions are not made in isolation but are often shaped by social expectations and support systems, echoing findings from other studies that emphasize the role of family support in maternal health decisions.

For access delays, the 3D model highlights how distance and transportation barriers are critical factors in preventing women from reaching healthcare facilities. This is clearly reflected in our study, where we found that women living more than an hour away from healthcare facilities were significantly less likely to utilize maternal health services. This aligns with research by Okedo-Alex et al. (2021) that identified distance as a primary factor in the utilization of maternal health services in rural areas. Despite the availability of free services, the geographic barriers highlighted in our study mirror similar findings in other regions, such as Sub-Saharan Africa, where inadequate transportation and long travel distances significantly limit access to timely care, underscoring the crucial role of physical accessibility in maternal health.

In terms of service delivery delays, the model points to how poor-quality care, negative staff attitudes, and long waiting times can discourage women from utilizing maternal health services, even when these services are theoretically accessible. This is a central issue in our study, where women cited harsh staff attitudes as a major deterrent to utilizing services. This finding aligns with the work of Bohren et al. (2021), who found that mistreatment during maternal care could lead to distrust in the healthcare system and a reluctance to return for subsequent services. Additionally, the reduced service uptake among women with prior negative experiences, as discussed in our findings, supports the notion that negative interactions with healthcare providers can perpetuate delays in seeking care in the future. This issue of poor service delivery is compounded by the lack of trust in the quality of public healthcare services, especially among higher-income women, which corresponds with the findings of Wanjohi et al. (2020), who noted that wealthier women may opt for private care due to concerns about the perceived quality of free services.

Moreover, the 3D model's emphasis on quality of care is further corroborated by our study, where women indicated that perceived quality issues could deter them from utilizing free services, particularly in comparison to private facilities that they felt offered superior care. This issue of service quality is often a hidden barrier that is not always reflected in awareness campaigns or infrastructure improvements but plays a central role in determining whether women continue to seek care after an initial visit. When integrating these findings into the 3D model framework, it becomes clear that decision, access, and service delivery delays are interconnected. The decision to seek care is influenced by cultural norms and social support, while access is heavily dependent on geographic location and transportation, and service delivery is impacted by both the quality of care and interactions with healthcare workers. Our

study reinforces the model's applicability by demonstrating that addressing these delays requires a multi-faceted approach that incorporates cultural, infrastructural, and quality-of-care improvements. The recommendations for enhancing maternal healthcare services in our study, such as improving transportation, increasing family support, and addressing healthcare provider attitudes, align well with strategies aimed at overcoming the delays identified in the 3D model.

5.6 Conclusions

Socio-demographic factors play a crucial role in the utilization of free maternal health services. Structural barriers like distance and transportation challenges remain critical obstacles, particularly for low-income households. Cultural preferences for traditional birth practices further hinder service use, highlighting the need for culturally sensitive interventions. Younger women face unique barriers, including stigma and lack of support, while multiparous women often bypass services due to perceived experience. Income levels strongly influence service uptake, with higher-income groups potentially opting for private care due to quality concerns. While marital status shows limited impact, community and social support networks may significantly shape healthcare decisions, indicating areas for further research and targeted interventions.

Awareness of free maternal health services alone does not guarantee utilization, as structural and cultural barriers often mediate behavior. Specific knowledge about services like skilled delivery significantly influences uptake, underscoring the importance of targeted awareness campaigns. Biases in self-reported data reveal the need for more robust evaluation methods. Practical solutions such as emergency transport and improved service quality are essential to

translate knowledge into action. Frequent antenatal visits, while fostering trust and familiarity, require supportive systems to increase their impact. Overall, knowledge must be integrated with systemic improvements to drive service utilization effectively.

Healthcare-seeking behavior is influenced by a combination of personal experiences, cultural practices, and systemic barriers. Complications alone do not always prompt service use, particularly in contexts of mistrust or dissatisfaction with healthcare quality. Women who previously faced barriers or negative experiences with professional care are less likely to return, emphasizing the need for quality improvements and positive patient experiences. Social support, especially from guardians, plays a critical role, while traditional gender norms may limit husbands' influence. Addressing these dynamics requires holistic strategies that consider cultural, social, and systemic factors.

Facility-related factors significantly influence service uptake. Negative interactions with staff, particularly harsh attitudes, deter women from seeking care, highlighting the need for respectful maternal care training. Geographic barriers, such as living more than an hour from a health facility, remain significant determinants, while moderate distances may be mitigated by other facilitators. Perceptions of accessibility and waiting times appear less influential compared to other factors like service quality and staff attitudes. Addressing these facility-level challenges requires investments in infrastructure, improved staff training, and enhanced service delivery systems to build trust and encourage utilization.

5.6 Recommendations

Based on these findings, several recommendations could be made to improve maternal health service utilization in Turkana Central Sub-County:

1. Invest in infrastructure such as roads and affordable transportation systems to address geographic barriers.
2. Integrate traditional birth attendants into the formal healthcare system and provide culturally appropriate education about the benefits of facility-based care.
3. Design targeted campaigns that emphasize critical services like skilled delivery and emergency care.
4. Leverage antenatal visits to build trust, educate women on available services, and address their concerns.
5. Train healthcare providers in respectful care practices to foster trust and encourage repeat utilization.
6. Address grievances from women who had negative experiences to rebuild trust in the healthcare system.
7. Focus on respectful maternal care to eliminate mistreatment and harsh attitudes toward patients.
8. Improve service quality, streamline processes, and minimize waiting times to increase satisfaction and repeat usage.
9. Set up platforms where women can report their experiences and suggest improvements, ensuring their voices are heard in service reforms.

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APPENDICES

Appendix 1: Informed consent

STUDY TITLE: UPTAKE OF FREE MATERNAL SERVICES AMONG WOMEN IN TURKANA COUNTY, TURKANA CENTRAL SUB-COUNTY, KENYA

Good morning/ afternoon. My name is Godfrey Kipsang Ronoh. I am a post-graduate student at Mount Kenya University pursuing master's degree in public health. I am conducting a survey on uptake of free maternal services among pregnant women in Turkana Central Sub-County, Kenya.

Participation is voluntary: Your involvement in this academic research is voluntary and there are no consequences on failing to respond to any question or pulling out of the study.

Compensation: There is no compensation for taking part in this research. As well, you are not required to pay any money to participate in it.

Confidentiality: The entire information provided for this study shall be treated with the highest level of confidentiality. Your name shall not be indicated on the questionnaire. Likewise, your name will not be required during focus group discussions. Interview recordings as well as the questionnaire shall be kept in a safe place.

Participant Statement

I have read and comprehended the requirements of this academic task and opportunity has been granted to me to ask any question and I am contented with answers given and I express my intention to participate in it. My signature or thumbprint provided below confirms my consent.

Signature or thumbprint ……
Date……

Appendix 2: Questionnaire

Section One: Socio-Demographic and cultural Characteristics

1. Participant's serial number ……..…?
2. Sub- location…….…...?
3. What is your age bracket?

15-19☐ 20-24 ☐ 25-29 ☐ 30-34 ☐ 35-39 ☐ 40-44 ☐ 45+ ☐

4. Kindly tick your marital status in the space provided.

Single [ ] Married [ ] Widowed [ ] Divorced [ ]

5.At what age did you get married…….…….…….?

6. Kindly indicate your religion…….....?

Christian [ ] Muslim [ ] Other [ ]

7. How many children do you have…….……...?
8. What is your source of income? Formal employment [ ] self-employment [ ]
9. What is your Monthly Household's income level?

Kshs. 0-2,500 [ ] Kshs. 2,501- 5,000 [ ] Kshs. 5,001-10,000 [ ]

Kshs 10,001-15,000 [ ] Above Kshs. 15,001 [ ]

10. Do you discuss your pregnancy issues with your partner?

Yes [ ] No [ ]

11. If yes, how often do you discuss your pregnancy with your partner?

……
…

12. Are there any specific taboos culturally imposed on women during pregnancy?

Yes [ ] No [ ]

13. What are the cultural reasons why women do not utilize free maternal services as required?

……
…

14. How is a pregnant woman treated by her partner during pregnancy?

……
…

Section Two: Knowledge of Mothers on free Maternal services

15. Have you ever attended school? Yes [ ] No [ ]

16. Tick the highest level of education you have achieved.

Primary Incomplete [ ] Primary Complete [ ] Secondary Incomplete [ ]

Secondary Complete [ ] College/University [ ]

17. Indicate the level of education of your Husband/Partner.

Primary Incomplete [ ] Primary Complete [ ] Secondary Incomplete [ ]

Secondary Complete [ ] College/University [ ]

18. What is the name of the nearest public health facility that offers the free Maternal services

……
…...?

19. How did you get information on the free Maternal health care? Multiple responses possible.

Hospital staff [ ] Community health worker [ ] Imam/mosque/ religious leader [ ] NGO/CBO/ women group [ ] Community meeting **[ ]** Husband/ relatives **[ ]** radio

20. Indicate the free Maternal services you received from the health facility. Multiple responses possible.

Antenatal care [ ] Normal Delivery [ ] Family planning [ ] Post-natal care [ ] Immunization [ ]

21. For what reasons did you prefer to deliver in health facility? Multiple responses possible

Safer to deliver there [ ] Skilled care from health workers [ ] Health facility is near [ ] recommended by relative [ ]

Section Three: Maternal Health Utilization (ANC, SBA & PNS)

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

<16 weeks [ ] 16-24 weeks [ ] 28-32 weeks [ ] >36weeks [ ]

23. In previous pregnancy, how many antenatal care visits did you make…….……..…..….?
24. If none, what is the possible reason why…….……?
25. In a previous pregnancy, did you deliver at a government health facility? Yes [ ] No [ ]
26. If no, what informed the selection of place of delivery.....
.....?
27. If yes, what informed the selection of place of delivery.....
.....?
28. In previous pregnancy, how many post-natal care visits did you make after two weeks of delivery…….…….……..…
……?
29. Did post-natal care in question 28 above done at a government health facility? Yes [ ] No [ ]
30. If answer is NO in question 29 above, what reason(s) for not seeking post-natal care……
…….?
31. At the government health facility, were you charged for any services before, during delivery, and after delivery? Yes [ ] No [ ]

Section Four: Health Facility Attributes

32. To what extent are you comfortable being attended to by a male health care worker?

Level of Maternal Care	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
Antenatal Care				
During Child Birth				
After Child Birth				

33. How would you describe attitude of staff at health-facility during this clinic visits?

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

34. How far do you travel/walk from a government-owned health facility?

Less than 30mins [ ] 30-60 mins [ ] more than 1hour [ ]

35. What is the level of accessibility of free maternal health care by pregnant mothers in the facility? Excellent [ ] very good [ ] good [ ] Poor [ ] very poor [ ]

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

Level of Maternal Care	**<30minutes**	**30-60 minutes**	**More than 1hr**
Before birth (antenatal care)			
During birth (skilled delivery)			
After birth (postnatal care)			

Section Five: Health-Seeking Behaviour

37. Have you experienced any problems with your current pregnancy? Yes [ ] No [ ]

38. If yes above, how did you manage to sort out the complications?

Self-medication [ ] Sought medical assistance [ ]

39. Who decides to seek maternal health care in your household?

Make your own decision [ ] Husband/Partner [ ] Mother-in-law [ ]

Appendix 3: Introductory Letter

Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MPH/2017/74879

15th November, 2023

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam,

RE: GODFREY KIPSANG RONOH – REGISTRATION NO. MPH/2017/74879

The purpose of this letter is to introduce the above named student who is pursuing **Master of Public Health** in the department of **Epidemiology and Biostatistics** in the **School of Public Health.**

The title of his research is "Uptake of Free Maternity **Services among Women in Turkana Central Sub-County**, Turkana County, Kenya." He has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data for his research between **November, 2023 and January, 2024.**

Any assistance accorded to him will be highly appreciated.

Thank you.

Mount Kenya University P.O. Box 342 - 01000 THIKA Office of the Director, Graduate Studies

Dr. Samuel W. Kariuki, Ph.D
Director, Graduate Studies
Enc.

Appendix 4: Ethical Review Committee Certificate

Mount Kenya University

REF: **MKU/ISERC/3337** Date: 15 November 2023
TO: **GODFREY KIPSANG RONOH**
REG: **MPH/2017/74879**

Dear Sir/Madam,

RE: UPTAKE OF FREE MATERNITY SERVICES AMONG WOMEN IN TURKANA CENTRAL SUB-COUNTY, TURKANA COUNTY, KENYA

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **2381**. The approval period is **15/11/2023 - 14/11/2024.**

This approval is subject to compliance with the following requirements;

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

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

Yours sincerely,

The Chairman
Mount Kenya University
Ethics Review Committee
P. O. Box 342 - 01000, Thika

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

Appendix 5: Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **183632**

Date of Issue: **03/January/2024**

RESEARCH LICENSE

This is to Certify that Mr.. Godfrey Kipsang Ronoh of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Turkana on the topic: UPTAKE OF FREE MATERNITY SERVICES AMONG WOMEN IN TURKANA CENTRAL SUB-COUNTY TURKANA COUNTY KENYA for the period ending : 03/January/2025.

License No: **NACOSTI/P/24/32274**

183632

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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

See overleaf for conditions

Appendix 6: County Commissioner Letter of Authorization

OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND NATIONAL ADMINISTRATION

Telegraphic address "COMMISSIONER" LODWAR
Telephone: LODWAR
Telex:
Fax:

COUNTY COMMISSIONER
TURKANA COUNTY
P.O BOX 1-30500
LODWAR.

REF: ADM.15/29 VOL.111 (141)

26TH JUNE, 2024.

DEPUTY COUNTY COMMISSIONER
TURKANA CENTRAL SUB-COUNTY

RE: RESEARCH AUTHORIZATION: MR.GODFREY KIPSANG RONOH
LICENCE NO: NACOSTI/P/24/32274

The above mentioned person is a student from Mount Kenya University and has been authorized to carry out research on **"UPTAKE OF FREE MATERNITY SERVICES AMONG WOMEN, in Turkana Central Sub-County in Turkana, Kenya"**. The research period ends on **3rd January, 2025.**

Any assistance accorded to him will be appreciated.

PATRICK UAIKA
FOR: COUNTY COMMISSIONER
TURKANA COUNTY

Copy to:
The Director of Education
TURKANA COUNTY

MR. GODFREY KIPSANG RONOH

Appendix 7: County Government of Turkana Letter of Authorization

REPUBLIC OF KENYA
TURKANA COUNTY GOVERNMENT

MINISTRY OF HEALTH SERVICES AND SANITATION

County Health Executive,
Turkana County,
P.O Box 11 – 30500, Lodwar

Located at the Ministry of
Housing Building – Nawoitorong

When replying please quote...

1st July

2024

To whom it may concern:

REF: RESEARCH AUTHORIZATION FOR MR. GODFREY KIPSANG RONOH

(LICENSE NO. NACOSTI/P/24/32274)

This is to confirm that the above-mentioned person who is a student of Mount Kenya University has been authorized to carry out research on ***"Uptake of free maternity services among women, in Turkana Central Sub county in Turkana, Kenya"*** as per reference no. NACOSTI/P/24/32274 dated 3rd January 2024.

Any assistance accorded to him will be highly appreciated. Thanks in advance.

Thanks in advance.

Dr. Gilchrist Lokoel
COUNTY CHIEF OFFICER FOR MEDICAL SERVICES

Cc

All Directors Health
Turkana County

Sub County Medical Officer of Health
Turkana Central

Director General
NACOSTI

Appendix 8: County Director of Education Letter of Authorization

REPUBLIC OF KENYA
MINISTRY OF EDUCATION
STATE DEPARTMENT OF BASIC EDUCATION

Telegram 'ELIMU', Lodwar
Telephone
Fax/No:
Email: cdeturkana@gmail.com

TURKANA COUNTY EDUCATION OFFICE,
P.O. BOX 16- 30500,
LODWAR.

27Th June 2024.

REF:TC/CONF/ED.12/1/VOL.II/244

DEPUTY COUNTY COMMISSIONER
TURKANA CENTRAL SUB COUNTY

RE: RESEARCH AUTHORIZATION: MR. GODFREY KIPSANG RONOH

LICENCE NO: NACOSTI/P/24/32274

This is to authorize the above named researcher to carry out research on **"Uptake of Free Maternity Services among Women in Turkana Central Sub County in Turkana County, Kenya."** As for the letter Reference **No. NACOSTI/P/24/3227** dated **03/January/2024** from the National Commission for Science Technology and Innovation. The research period ends on **03Th January 2025**.

Any assistance accorded to her will be highly appreciated.

Thanks in advance.

MR. HENRY A. LUBANGA
COUNTY DIRECTOR OF EDUCATION
TURKANA COUNTY.

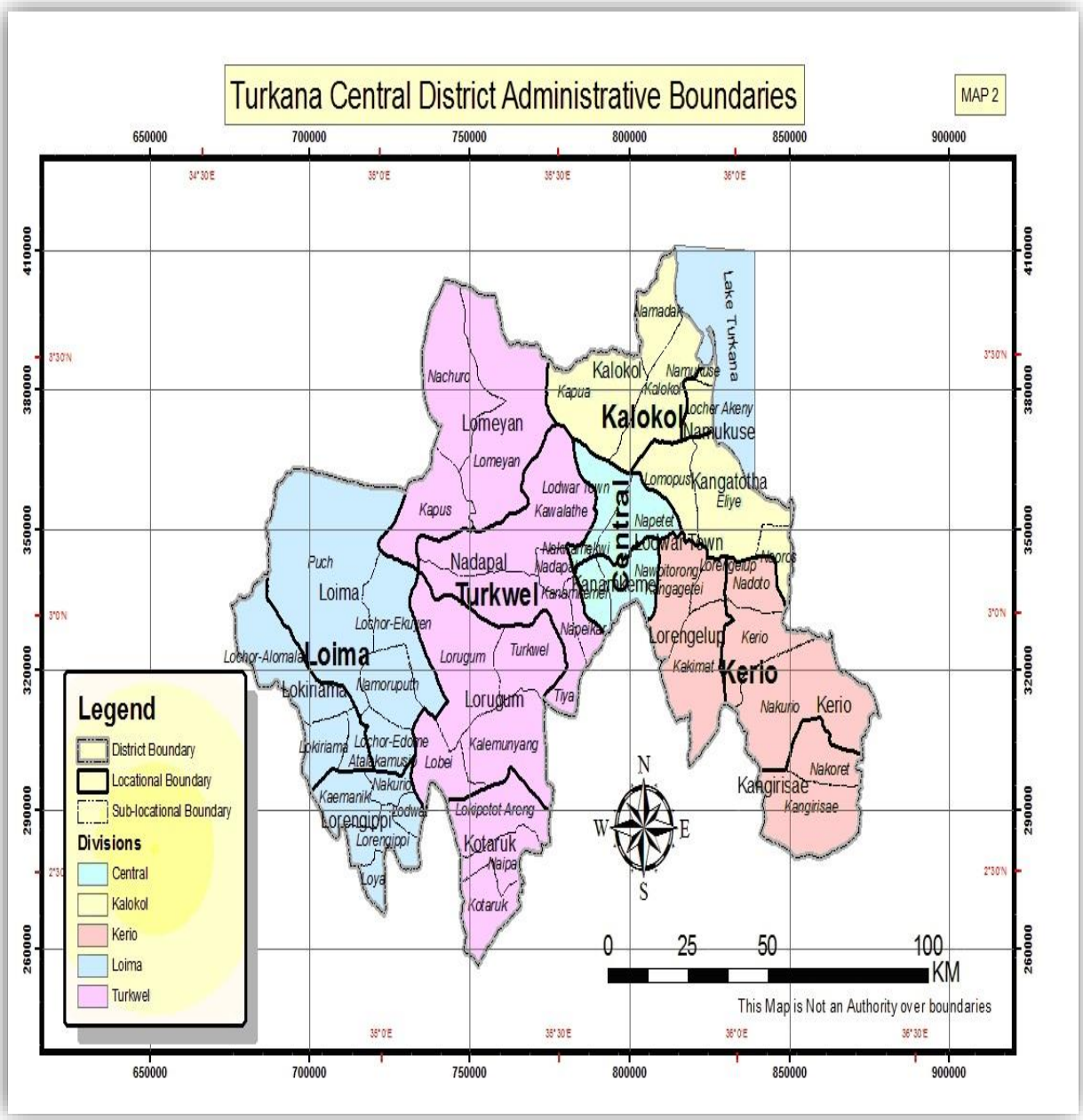
FOR: COUNTY DIRECTOR OF EDUCATION
TURKANA COUNTY
P.O BOX 16-30500
LODWAR

CC: -The County Commissioner
Turkana County

-Deputy County Commissioner
Turkana Central Sub County

-Director General
NACOSTI

Appendix 9: Map of Turkana Central



Source: KNBS (2009)

DETERMINANTS OF UPTAKE OF FREE MATERNITY SERVICES AMONG WOMEN IN TURKANA CENTRAL SUB-COUNTY, TURKANA COUNTY, KENYA

ORIGINALITY REPORT

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