DETERMINANTS OF ANTENATAL CARE SERVICES UPTAKE AMONG WOMEN OF REPRODUCTIVE AGE IN ISIOLO NORTH SUB-COUNTY, ISIOLO COUNTY, KENYA

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DECLARATION AND APPROVAL

Student Declaration

I, Martin, hereby declare that this thesis is entirely original to me and hasn't been published or offered for review by any other institution.

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DEDICATION

I devote my dissertation to my family in appreciation of their support, love, and advice. God bless you.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANC-	Antenatal Care
FANC	Focused Antenatal Care
FGD	Focused Group Discussion
KII	Key Informant Interview
MoH	Ministry of Health
UNICEF	United Nations Children's Fund
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization
WRA	Women of Reproductive Age

ABSTRACT

Antenatal care (ANC) is a crucial component of maternal medical care that has a major influence on the outcome of pregnancy. One important tactic for lowering the dangers of pregnancy and delivery is ANC. About 287,000 women lost their lives in 2020, either during pregnancy or after giving delivery. Little is known about the variables driving the adoption of ANC services in Isiolo County, and usage of these programs is still below optimal levels. The purpose of the investigation was to identify the variables influencing the usage of prenatal care services by reproductive-age women in Kenya's Isiolo North Sub-county and Isiolo County. The study's particular goals were to evaluate the adoption of ANC services and investigate the sociodemographic, sociocultural, and health system-related aspects linked to ANC usage. The investigation used a cross-sectional design that combined qualitative and quantitative approaches. Women of reproductive age made up the subject of the investigation population. A multi-stage selection procedure was used to select the research sample, yielding 220 individuals. Purposive sampling was used to conduct focus groups and key informant interviews. Data were collected through researcher-administered questionnaires and key informant interview guides. To ensure validity and reliability, the instruments were pretested and necessary adjustments were made. Ethical guidelines were strictly followed throughout the study. Qualitative data were analyzed using NVivo version 14, while quantitative data were analyzed using SPSS version 29. Data triangulation was performed after analysis. Descriptive statistics such as frequencies and percentages were used to summarize the data. Binary and multivariate logistic regression analyses were conducted to examine the relationship between variables, with p-values less than 0.05 considered statistically significant. The results showed that 75.9% of women utilized ANC services. Most participants were married (n = 157, 71.4%). Over 25% (n = 81, 36.8%) of the participants were aged 18–23 years. Only 16.8% (n = 37) of the participants were employed. More than a quarter (n = 80, 36.4%) had a primiparous parity status. Factors that significantly increased the odds of ANC uptake included age (aOR = 2, 95% CI: 0.143–1.911, p = 0.016), parity status (aOR = 4.5, 95% CI: 0.062–0.794, p = 0.002), pregnancy disclosure (aOR = 2.9, 95% CI: 0.115–0.997, p = 0.04), distance to the health facility (aOR = 2.8, 95% CI: 0.004–0.206, p < 0.001), and patient privacy (aOR = 2.4, 95% CI: 1.086–5.129, p = 0.03). On the other hand, lower education level (aOR = 8.8, 95% CI: 0.953–12.205, p = 0.05) and stigma (aOR = 7.1, 95% CI: 2.731–4.601, p = 0.001) were associated with decreased odds of ANC uptake. The results of the investigation provide insightful suggestions to pertinent parties with the goal of removing obstacles that prevent women of reproductive age from using ANC. The burden of morbidity and death associated with subpar prenatal care will eventually be lessened by increasing ANC uptake.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Antenatal care (ANC) is the term used to describe the routine medical surveillance of pregnant women who are thought to be healthy and symptom-free. Its goal is to identify and treat pregnancy issues and ensure the health of both the mother and the fetus (WHO, 2020). During ANC, communication between pregnant mothers and medical professionals enables critical interventions that enhance the results for both the mother and the newborn. One of the best ways to lower the rate of maternal mortality is to provide excellent medical care before to, during, and following childbirth (UNICEF, 2017b). According to UNICEF (2020), women who get ANC are better able to identify the warning symptoms of pregnancy and labor and make the necessary preparations for birth.

With approximately 529,000 women dying each year, 95–99% of whom live in underdeveloped nations, the percentage of mothers who die is still high worldwide (Tola et al., 2021). Over 2 million neonatal fatalities, including 2.6 million stillbirths, are also caused by complications during the course of pregnancy and delivery each year (Ziblim et al., 2018). Only 64% of pregnant women worldwide attend the required minimum of four ANC consultations, despite these concerning statistics (Tesfaye et al., 2017). The World Health Organization (WHO) developed the focused antenatal care (FANC) model to address these issues. The model promotes at least four ANC visits, which were later updated to eight contacts in its 2016 guidelines. These visits are linked to five strategic objectives that are meant to guarantee a favorable pregnancy experience (WHO, 2020).

Around 69 percent of pregnant women in Africa get ANC at least four times throughout their pregnancy, which is a requirement for the delivery of treatments that can save lives (Mamo et al., 2021b). Nonetheless, 94% of maternal fatalities still take place in areas with little

resources, underscoring inequalities in access to high-quality maternity care (Mamo et al., 2021b). With more than two thirds (196,000) of the projected worldwide maternal mortality occurring in Sub-Saharan Africa (SSA), the burden is considerably more severe there. Southern Asia comes in second with 58,000 deaths (WHO, 2018). Compared to the worldwide average of 64%, only 52% of women in SSA are able to attend the required at least four ANC visits (UNICEF, 2017a; Atuhaire & Mugisha, 2020).The ANC utilization rate remains below expectations despite evidence that 86% of women in the region receive ANC at least once during pregnancy. Barriers include low healthcare coverage, logistical challenges, and sociocultural factors(WHO, 2018).

Every year, over 990,000 pregnancies occur in Eastern African nations like Uganda (WHO, 2016). However, only 58–65% of women complete a minimum of four ANC visits, while 90–94% of women attend their initial appointment; rural regions are disproportionately underserved (Onasoga et al., 2020). The circumstances in many other Eastern African countries are similar to this trend. Maternal health continues to be a major public health problem in Kenya. Kenya has one of the highest rates of maternal fatalities in Sub-Saharan Africa in 2017—362 per hundred thousand live births (KNBS, 2014; Denny et al., 2021). In response, the Kenyan government implemented the Free Maternity Care Policy in June 2013, granting free access to antenatal care, delivery, and postpartum services in all public hospitals across the country (MoH, 2014). Even with this change in policy, ANC service consumption is still below ideal. Due to a variety of reasons, including a lack of knowledge, stigma, the distance to medical facilities, and a lack of qualified staff, many WRA continue to skip the required number of visits (Denny et al., 2021).

Kenya's initiatives to increase access to ANC treatments are essential in line with Sustainable Development Goal (SDG) 3, which seeks to lower the global maternal death ratio to less than

70 per hundred thousand live births by 2030. However, to remove enduring obstacles and enhance the health of mothers and children outcomes in underserved areas like Isiolo County, more research, focused policy action, and community involvement are required.

1.2 Problem Statement

The dearth of access to sufficient and high-quality ANC puts millions of women in developing nations at an increased risk of experiencing potentially fatal complications associated with pregnancy (Tesfu et al., 2022). The leading indicators for sufficient care, as advised by WHO, include scheduling the first of four antenatal visits during the initial three months of pregnancy and giving pregnant women four antenatal visits (Tesfu et al., 2022). According to the constitution, Kenyans are entitled to the highest quality of medical care, including services for sexual and reproductive wellness (GoK, 2010). However, at 488 per 100,000 deliveries, the rate of mothers dying from complications associated with pregnancy is still exceedingly high (Nyongesa et al., 2018). Despite this, only 57.6% of pregnant women nationwide can schedule at least four visits with a health professional for antenatal care (Nyongesa et al., 2018). Therefore, even though essential strategies, such as the execution of the free maternity services policy, are in place, more work must be done to comprehend why most women fail to schedule enough antenatal visits.

Although there has been a notable improvement in the coverage of ANC in Kenya, there are still clear and contentious differences in how easily accessible, high-quality ANC services are to various socioeconomic groups. Antenatal care is not widely used in the municipality of Isiolo. Of all pregnant women, only 33.4% could see an authorized physician for the suggested minimum of four visits (Abdulkadir, 2017). ANC services uptake in Isiolo County is still low, even though it is important for enhancing the health of pregnant women and

newborn outcomes. Given the high rates of maternal and infant mortality in the area (790 deaths per 100,000 population), this low use of ANC services is primarily concerning (KDHS, 2022). The factors influencing this low uptake are not fully understood, and without this information, efforts to improve maternal health in Isiolo County may be ineffective. This study aimed to determine what factors influence the uptake of ANC among WRA in Isiolo North Sub-County, Isiolo County, Kenya.

1.4 Study Objectives of the Study

1.4.1 Broad Objective of the Study

To assess the factors influencing the utilization of antenatal care services among women of reproductive age in Isiolo North sub-county, Isiolo County, Kenya.

1.4.2 Specific Objectives of the Study

1. To determine the uptake of antenatal care services among women of reproductive age in Isiolo North sub-county, Isiolo County, Kenya.
2. To assess the social demographic factors associated with the uptake of antenatal care services among women of reproductive age in Isiolo North sub-county, Isiolo County, Kenya.
3. To determine social-cultural factors associated with the uptake of antenatal care services among women of reproductive age in Isiolo North sub-county, Isiolo County, Kenya.
4. To establish health system factors associated with the uptake of antenatal care services among women of reproductive age in Isiolo North sub-county, Isiolo County, Kenya.

1.5 Research Questions

1. What is the uptake of antennal care services among women of reproductive age in Isiolo North sub-county, Isiolo County, Kenya?
2. What are the social demographic factors associated with the uptake of antenatal care services among women of reproductive age in Isiolo North sub-county, Isiolo County, Kenya?
3. What are social-cultural factors associated with the uptake of antenatal care services among women of reproductive age in Isiolo North sub-county, Isiolo County, Kenya?
4. What are the health system factors associated with the uptake of antenatal care services among women of reproductive age in Isiolo North sub-county, Isiolo County, Kenya?

1.6 Significance of the Research

The findings of this investigation helped create policies, programs, and services that are appropriate for the setting and meet the needs of the residents of Isiolo County. In order to lower the mortality of mothers, the results underlined the vital significance of early detection of high-risk pregnancy through high-quality antenatal care (ANC) and timely referral services. This requires that women of reproductive age comprehend reproductive health concerns and acknowledge the need of ANC and its regular use. Additionally, the investigation offered insightful information about methods for enhancing the provision of ANC services and boosting their usage. It highlighted the longstanding marginalization of pastoralist communities, such as those in Isiolo, regarding infrastructure, health systems, and other essential social services. Despite the Government of Kenya prioritizing maternal

healthcare, pastoral communities continue to face challenges in accessing ANC services and adequately trained healthcare providers.

The results of the investigation backed the expansion and improvement of ANC services in Isiolo County, which helped to enhance the health of mothers and children. The research made ANC services easier to obtain and more responsive to the needs of the community by promoting cooperation between county officials and medical stakeholders. Furthermore, by pinpointing particular obstacles to ANC adoption—such as sociocultural norms, practical limitations, and systemic health gaps—and by providing evidence-based suggestions for focused policy modifications, the present investigation made a substantial contribution to the body of information already in existence. Additionally, it increased community members' and stakeholders' understanding of the value of ANC, creating a more encouraging atmosphere for the wellness of mothers. In the end, the study supports and is in line with national objectives, such as the achievement of Sustainable Development Goal 3: guaranteeing a healthy existence and promoting well-being for everyone at all ages, and Kenya's free maternity health care program.

1.7 Study Scope

Women of reproductive age (WRA) living in Kenya's Isiolo County's Isiolo North sub-county were the subject of the investigation's primary focus. Evaluating the variables impacting this population's use of antenatal care (ANC) services was its main goal. The target population consisted of 239 WRA who resided in the Isiolo North sub-county. While the complete research was anticipated to last a year (time scope), the data gathering method was anticipated to take one month. The sociodemographic, sociocultural, and health system elements influencing the use of ANC were the main themes. Relevant published research articles were examined and included in the investigation to bolster this.

1.8 Limitations of the Study

Because the study was cross-sectional, it didn't establish cause and effect relationship. Furthermore, women of reproductive age who self-report information may be subject to social desirability bias. Another potential drawback of the study was the memory of attendance during prenatal services. By employing probing techniques, question-recall techniques, and the use of prenatal cards, the study mitigated these predicted constraints to assure the correctness of the responses that were given.

1.9 Delimitations of the Study

Because the study was limited to Isiolo North Sub-County within Isiolo County, it offered unique insights about the adoption of ANC services and associated variables in this region. The investigation only looked at ANC uptake among WRA in Kenya's Isiolo County, specifically in the Isiolo North sub-county.

1.10 Assumptions of the Study

The investigation had the assumption that the subjects would give honest answers. Additionally, it was assumed that participants would comprehend the questions and provide suitable answers. The assumption that the number of subjects would be representative of all Isiolo County women of reproductive age (WRA) led to its determination. Additionally, the investigation made the assumption that the subjects would be reachable and available throughout the whole research project.

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1.11 The Operational Definition of Terms

Antenatal care services: the attention that pregnant women receive from doctors. The objectives of antenatal care include monitoring the well-being of you and your unborn child and guiding you in making the choices that are best for you.

Cultural factors: These include all forms of creative expression, religious beliefs, social structures, behavioral patterns passed down through society, and all other products of human intelligence. Culture is acquired and disseminated among social groupings by nongenetic means.

Skilled birth attendant:- refers to a qualified medical professional with the ability to care for expectant mothers, assist in childbirth, and guarantee the well-being of both the mother and the unborn child.

Utilization of ANC: refers to the degree to which expectant mothers utilize and obtain prenatal care services in order to track and advance the well-being of the mother and unborn child during the course of their pregnancy.

Women of the Reproductive age: The population that falls into the reproductive age range, which is taken to be 15–49 years old for statistical drives.

CHAPTER TWO: LITERATURE REVIEW

2.0 Preamble

This chapter reviews the existing literature on the determinants of antenatal care uptake, identifying key social demographic, social-cultural, and health system-related factors. It also highlights research gaps and theoretical frameworks guiding the study.

2.1 Uptake of Antenatal Care Uptake

Around the world, 86% of pregnant women attend a minimum of one antenatal care (ANC) consultation with a certified healthcare professional, but only two out of three (65%) receive at least four ANC visits (Yaya et al., 2021). Delays in starting ANC, which frequently happen beyond 12 weeks of pregnancy, are a significant public health problem. Pregnancy and delivery problems cause over 303,000 maternal fatalities worldwide each year, with sub-Saharan Africa (SSA) being responsible for 99% of these fatalities (Dickson et al., 2022).According to the World Health Organization (WHO), over 77% of pregnant women in Africa go to more than one ANC appointment. Only 52%, nonetheless, made the required minimum of four visits (Tekelab et al., 2019a). According to more current data, 69% of African women attend at least one ANC appointment, although the percentage of women who receive more than four visits stays constant at 52% (Tarekegn et al., 2016).

Focusing on Sub-Saharan Africa (SSA), the uptake of ANC services is uneven across countries and demographic groups. On average, 76% of women utilize skilled ANC services, although this varies significantly by country (Rurangirwa et al., 2017a). For example, Gambia records the highest skilled ANC utilization at 99.2%, whereas Burundi has the lowest at 8.4%. A meta-analysis revealed that across SSA, approximately 53% of women effectively used ANC services, 35% used them partially, and 13% did not use them at all (Dickson et al., 2022).

In Eastern Africa, similar disparities are evident. A study examining Kenya, Tanzania, and the Democratic Republic of Congo (DRC) from 2007 to 2016 highlighted varying ANC coverage and factors influencing the timing of ANC initiation (Shiferaw et al., 2021). The study found that late ANC initiation—starting ANC after the fourth month of pregnancy—remains a widespread issue. Tanzania showed improvement, with late ANC uptake decreasing from 60.9% to 49.8%, while the DRC experienced a rise in late ANC initiation. In Kenya, the trend showed a general decline in late ANC initiation, although regional disparities remain (Tesfu et al., 2022).

According to the 2014 Kenya Demographic and Health Survey (KDHS), fifty-eight percent of women in Kenya between the ages of 15 and 49 sought ANC services. With ninety-four% of women aged 15–49 obtaining ANC from a qualified practitioner at least once during their most recent pregnancy, the more recent KDHS 2022 demonstrates a notable improvement (KDHS, 2022). This suggests that ANC knowledge and service use have significantly increased across the country.

However, regional disparities persist. In arid and semi-arid regions such as the Isiolo North sub-county, challenges to ANC uptake are intensified by the nomadic lifestyle of pastoralist communities, limiting consistent access to healthcare facilities. Despite national gains in ANC utilization, limited research exists on ANC uptake in Isiolo, underscoring the need for localized studies like the present one to address these gaps in knowledge and inform targeted interventions.

2.2 Uptake of Antenatal Care Services and Social Demographic Factors

In the context of the Isiolo North sub-county, where the population is predominantly pastoralist and often low-income, social demographic factors may significantly influence

ANC uptake. Understanding how these factors interact in this specific context is crucial for designing effective interventions.

2.2.1 Age

One social demographic factor that has been associated with influencing how often women of reproductive age use services for antenatal care is still age (Tarekegn et al., 2016). Young women under 24 are more unlikely to seek services for antenatal care than their older counterparts, according to the investigation done in Ghana and Ethiopia (Doku et al., 2012; Tsegaye & Ayalew, 2020). Young women who do not have a husband are allegedly more likely to be reluctant to use ANC services because of their vulnerability to the social implications of their pregnancy status (Doku et al., 2012). Furthermore, youthful women have a greater likelihood than older women to be conscious of their conception status, suggesting that maternal age raises early pregnancy consciousness (Birmeta et al., 2013). Therefore, it is probable that early detection of a young woman's pregnancy status will encourage early ANC service initiation (Birmeta et al., 2013).

According to other investigations, younger women are far more inclined compared to older women to seek prenatal care and to attend the suggested number of ANC visits (Rurangirwa et al., 2017c). This might have to do with young women's ignorance of pregnancy-related problems, which would motivate them to seek the care they require from healthcare organizations (Rurangirwa et al., 2017c). Older women who have had more than one delivery are more aware of what is needed during the gestation period thus they may not see the need to seek antenatal care especially if previous pregnancies had no complications (Tarekegn et al., 2016). Further lack of youth-friendly services at antenatal care may scare young women from seeking and utilizing ANC services at different health facilities (Tekelab et al., 2019b).

2.2.2 Education Level

An Ethiopian investigation found that in contrast to women with no schooling, women with secondary and higher levels of education were more inclined to seek out early prenatal care services as advised by the WHO guidelines (AH Woyessa, 2019). The level of knowledge about maternal health and other aspects of health that influence improvement and the need for health care for mothers and children is generally improved by formal education. Additionally, Informed women are more probable to be aware of the different benefits of receiving ANC care while pregnant and the drawbacks of delaying or forgoing such services (Arefaynie et al., 2022a). Tesfu et al. (2022) and Colleagues contend that knowledgeable women are more informed because they have access to information about maternal well-being, which enhances their ability to make choices about their well-being that are envisioned to protect the healthiness of the unborn youngster. Additionally, UNICEF and WHO have acknowledged that formal education among pregnant women is likely to improve and increase female involvement in matters about their health (Unicef, 2015). Education helps to improve and dispel inaccurate information about antenatal care-related issues as well as to lessen the fear of HIV testing (G. Tesfaye et al., 2017). Education level influences ANC uptake by enhancing women's consciousness of the importance of prenatal care, improving their ability to recognize pregnancy risks, understand health information, and make informed decisions, thereby increasing timely and consistent use of ANC services(Tesfu et al., 2022).

2.2.3 Marital Status

According to a Ghanaian investigation, unmarried women are anticipated to maintain their chastity until marriage, which suggests that pregnant unmarried women are probably going to avoid ANC services out of fear of being mocked by the public (Owusu, 2021). Researchers argue that unmarried women are likely to experience difficulties related to finance which

may hinder them from seeking appropriate ANC services regularly (Hagey et al., 2014). A Rwandan investigation discovered that women who are widowed, divorced, or living alone are far less inclined than those who have close family support to seek out the required prenatal care services (Rurangirwa et al., 2017). According to the findings of another investigation carried out in Nigeria, married women are less likely to seek ANC services than unmarried women. This was attributed to the fact that married women had to obtain their spouse's consent before doing so and that, as a result of having to rely on their partner for support, they had little control over their financial circumstances (Fagbamigbe & Idemudia, 2015).

2.2.4 Religion

In an investigation done in Ethiopia, it was discovered that pregnant women's usage of ANC services was significantly influenced by their religious beliefs. According to their research, Muslim women were more inclined than Protestant and Orthodox believers to seek out prenatal care services (Fetene & Gebremedhin, 2022). This was related to the way that orthodox Christians enabled health-seeking behavior and dealt with their illness by relying on their religious convictions and faith-based procedures (Fetene & Gebremedhin, 2022).

The degree to which religion influences the use of prenatal care services and other healthcare-related pursuits varies by nation. In North Africa and the Middle East, for example, Muslim women are far more inclined to ANC services use because their faith prohibits them from seeking care for their unborn children without their spouses' assistance (Alibhai et al., 2022a). However, in countries like Afghanistan, Muslim women must ask their husbands for permission before seeking ANC services, which may impede the provision of essential maternal care if this authorization is not granted (Mukabana, 2019). In Nigeria, despite Muslim's willingness to seek care by sorting these services from skilled birth attendants,

negative attitude from healthcare workers linked to, practices obligations, and insensitivities related to the Muslim religion may significantly hinder their ability to fully utilize these services (Al-Mujtaba et al., 2016).

2.2.5 Parity Status

Parity status is the total amount of successful deliveries of a fetus over 24 weeks that a mother has had. One important socioeconomic demographic characteristic that still influences women's adoption of ANC services is parity status (Gitonga, 2017). A study conducted in Kitui County's Mwingi area found that WRA who are more likely to be party animals also have lower rates of prenatal care utilization (Mutiiria et al., 2021). This kind of behavior has been linked to increased confidence in women who have given birth more than once, which could make it more difficult for them to get ANC services and could also explain why they often decide to give birth at home (De Allegri et al., 2011).

Similar results were found in a study conducted in Papua New Guinea, which showed that women who had more than two parity statuses were less inclined to seek ANC services. This was explained by the fact that previously straightforward and successful deliveries caused delays and, in some cases, a lack of seeking ANC services (Seidu, 2021). Lack of adequate resources and increased responsibilities, a higher number of children to look after, increased level of knowledge from previous ANC clinics, and lack of time remain crucial factors that hinder pregnant mothers with multiparous from seeking ANC services (Ikamari, 2020a).

2.2.6 Level of Income

The rate of ANC use among females in the first trimester is influenced by the sum of income a pregnant woman earns (Abor et al., 2021). It has been noted that in certain countries, prenatal care amenities come with a cost, either outright or through an intermediary, and

those with limited finances are probable to be unwilling to afford them, even when ANC services are offered for free after policy changes to guarantee that these amenities are provided free to enhance access to prenatal care services (Joshi et al., 2024). Despite free ANC services, low-income limit access due to hidden costs like transport, medications, and opportunity loss. It also affects health awareness, prioritization of care, and the ability to overcome barriers, reducing timely and consistent ANC uptake among poor women(Seidu, 2021). Even when prenatal care is provided at no cost, a person's wealth, which represents their financial status, still makes it difficult for them to access maternal medical services. Compared to women without resources, women with funds are more inclined to seek prenatal care and medical services (Sakeah et al., 2017). In developing countries, poverty is a significant issue that affects the usage of ANC services, Equated to women who earn over two dollars a day, women in developing countries who earn a maximum of two dollars a day are more inclined to not seek out maternal support services (Abor et al., 2021).

2.3 Social Cultural Factors Linked with Antenatal Care Services Use.

These sociocultural elements are anticipated to have a significant impact on the utilization of ANC services in the Isiolo North sub-county, which is home to numerous ethnic groups with unique traditional practices. Access to and acceptance of contemporary health care services may be made more difficult by the pastoralist lifestyle, which is marked by mobility and an emphasis on traditional customs. The current investigation is necessary since it is unknown how social and cultural factors affect the utilization of ANC.

2.3.1 Level of Male Involvement

One of the biggest obstacles to secure and healthy motherhood worldwide is the male partner's immersion in ANC and during the labor and delivery stages. Men are reluctant to

accompany their partners to ANC consultations because they do not think they are crucial to protecting the safety of mothers and children, according to Alemi et al. (2021). Men's participation in early delivery services is seen by the WHO as a critical step that can improve the health of pregnant mothers and their unborn children (Yargawa & Leonardi-Bee, 2015). By promoting collaborative decision-making, lowering emotional and financial barriers, and promoting prompt attendance at prenatal visits, male involvement—especially in the form of partner support—significantly increases ANC uptake and, in turn, improves maternal and fetal health outcomes (Natai et al., 2020).

The social risk associated with male partner participation in prenatal care clinic visits is one of the obstacles that keeps men from accompanying their expectant spouses. Male partners' concerns about their social standing in society are the source of this (Mapunda et al., 2022). In certain communities, men's social networks may suffer as a result of their decision to go with their women to seek labor and delivery clinic services. Because of this, women find it challenging to convince their spouses to regularly accompany them to prenatal care clinic services.Men who escort their partners to ANC visits frequently engage in subpar behavior due to the adverse impact of their friends (Natai et al., 2020). By choosing to go with their spouse to the antenatal Clinic services clinic with an expectant woman, men also fear losing their social identity in the community and the various social assets they have accumulated in society (Aguiar & Jennings, 2015). In some cultures, men who choose to accompany their women to the ANC clinic are perceived as weak or afraid of their partners (Aguiar & Jennings, 2015).

2.3.2 Fear

It has been noted on several occasions that an important factor contributing to the low uptake of services related to antenatal visits is fear of the unknown or fear of the known. Pregnant

women are more susceptible to anxiety and concerns about childbirth and pregnancy. The lack of a spouse or presence of a woman who is familiar with ANC services has been termed to be an aspect preventing unmarried from pursuing ANC services since they have no one to disclose their pregnancy status which can motivate them to seek appropriate care. Grande multiparous women have occasionally been noted to be reluctant to seek prenatal assistance because they worry about having their tubes tied. In some cases, women's reluctance to seek services for antenatal care has been attributed to their fear of getting tested for HIV. This remains to be a concern as HIV testing among pregnant women has several benefits for the mother and the unborn baby. Testing positive for HIV has been associated with stigmatization which could lead to a reduction of social status among women leading them to deny their pregnancies. In an investigation conducted in South Sudan, it was discovered that lack of information and fear were the main motives why more than 90% of women only used one antenatal care service. The aforementioned variables continue to be a significant impediment to inadequate antenatal care service use.

2.3.3 Cultural Beliefs

According to research, culture has been considered as a factor that affects the attitude and behavior of seeking and the utilization of antennal care services. Culture has been defined as a norm, belief, and practice being utilized by a defined group of people, that are shared, learned, and guided by choice, decision, and action in a patterned way (Wilunda et al., 2017). The uptake of ANC services is suggestively influenced by traditional beliefs and cultural practices.

According to their investigation by Mutowo et al., (2021), A pregnant woman is not supposed to reveal her pregnancy until she has skipped her menstrual cycle for 5-7 months due to

traditional and cultural beliefs. Such beliefs restrict early pregnancy to antenatal care services, which are of the utmost importance to pregnant women and their unborn children. Two studies conducted in Tanzania and Ghana reported comparable findings (August et al., 2015). This results from women delaying seeking services for antenatal care out of fear that they will be cursed by evil spirits.

Comparable outcomes were obtained in a research investigation by Nachinab et al. (2019), which linked poor women's inability to make informed decisions regarding early utilization of ANC services to high literacy rates and illiteracy. A further investigation done in Vietnam found that due to cultural norms, expectant mothers were denied access to educational information and were excluded from social activities. This prevented these women from making an early decision about seeking antenatal care services (Nguyen et al., 2022). There is a need to ensure ongoing support by advising, educating, and counseling which can only be provided every time pregnant mothers seek primary healthcare facilities both before and during the pregnancy.

2.3.4 Traditional Birth Attendants

In most nations, TBAs continue to be a crucial component of the cultural and systems of social assistance for expectant mothers during childbirth (MacDonald, 2022). This comes as a result of difficulties from economic constraints and the challenges that come with position-trained professionals in rural areas and as a result, many women prefer traditional birth attendants during their delivery (Ntoimo et al., 2022). Furthermore, traditional birth attendants have enough experience coupled with extra care, and the majority of expectant mothers prefer to seek their services as compared to attending ANC clinics (Vieira et al., 2012). Individuals who were expecting mothers in a study looking into obstacles to mediation to improve maternal and newborn wellbeing in Sierra Leone said they didn't see a need to

spend money on antenatal care because they could get free services related to their pregnancy from conventional birth attendants (Allou, 2018). Traditional Birth Attendants (TBAs) influence ANC uptake due to their perceived trustworthiness, cultural alignment, accessibility, and affordability compared to formal healthcare(Ntoimo et al., 2022). Many women, especially in rural or marginalized areas, prefer TBAs who offer personalized, low-cost care, often leading to reduced use of skilled antenatal services despite their availability(Ntoimo et al., 2022).

2.4. Health System Factors Linked with the Antenatal Care Service Use.

Despite the extensive research on health system factors influencing antenatal care (ANC) uptake globally and within Kenya, there is a substantial gap in comprehending these factors in the specific context of Isiolo North sub-county, an area characterized by its arid and semi-arid landscape, nomadic populations, and unique socio-cultural dynamics. Most studies on health system factors in Kenya have focused on more densely populated regions or urban areas, where the infrastructure and healthcare delivery systems differ considerably from those in remote, underserved areas like Isiolo North hence the need for this study.

2.4.1 Distance from the Hospital

One of the main barriers preventing expecting moms from obtaining ANC services is the distance to the closest medical center. For instance, a study carried out in Mandera County, Kenya, found a strong correlation between the usage of ANC services and the distance traveled to healthcare facilities. Participants in the current study who traveled less than 30 minutes were significantly more inclined to use ANC services than pregnant women who traveled long distances (Adow et al., 2020). The time needed and the availability of transportation services have been found to be the primary contributing factors to the

inadequate utilization of ANC services among women who must travel a considerable distance to acquire these services (Karra et al., 2017). In Benin, each additional kilometer to the nearest facility lowered the odds of attending any ANC by ~4% (OR 0.958), and similar drops for 4+ visits, facility delivery, and skilled birth attendance(Kyei et al., 2022). In rural Zambia, longer distances didn't affect visit timing or frequency, but significantly reduced the quality of ANC services—each 10 km increase cut the odds of quality care by ~25%(Tanou et al., 2021).

Another investigation carried out in the coastal region of Kenya found that women who lived near contemporary healthcare facilities were more likely to use ANC services, whereas those who lived further away were less inclined to do so (Kyei et al., 2012). Poor accessibility to antenatal care services among pregnant mothers due to distance has been indicated to increase the odds of opting to seek traditional birth attendants as they are easily accessible and cheaper to consult (Ettarh & Kimani, 2014). In upcoming nations, more than 70% of pregnant mothers lack easy access to antenatal care due to distance which prevents them from knowing the status and progress of their pregnancy. Conferring to Fisseha et al. (2017), the inadequate use of prenatal care services is an outcome of the fact that most pregnant women either have problems during the first trimester or do not, as well as the distance traversed and low-income levels.

2.4.2 Waiting Time

According to research, waiting time refers to the time taken from when the client arrives at the health facility till when the expectant mother is attended to by a healthcare worker (Dos Anjos Luis & Cabral, 2016). There are no standard measures to define the expected waiting time as this often depends on the presence of adequate healthcare workers, time of arrival and the number of expectant mothers to be attended (Gong et al., 2019). Longer waiting times

were found to aggravate expectant mothers who had gone to seek ANC in an investigation conducted in Vietnam, but they were unable to object because of their low social and economic status (Berhan, 2020). Longer wait times at the health facility are one of the main obstacles to using antenatal care services. Expectant mothers frequently experience longer waiting times because of a lack of human resources, a high caseload, and other factors (Ha et al., 2015). In one study across Homa Bay and Kisumu Counties, average waiting times ranged from 30 to 40 minutes, which clinic managers acknowledged significantly deterred women from returning(Opon et al., 2021). In Murang'a County, the mean facility waiting time was approximately 50 minutes, with both travel time (~1 hour) and waiting time significantly linked with lower frequency of ANC visits (χ^2, $p < 0.05$)(Mutai & Otieno, 2021).

Expectant mothers frequently complain of overflowing wards with insufficient staff to care for them during antenatal care visits, which has been linked to insufficient amenities and structures as well as a lack of sufficient medical staff. The insufficient number of healthcare professionals results in excessive work overload, which frequently causes a loss of privacy during ANC visits, which irritates most expectant mothers, causing them to decide not to return (Mutai & Otieno, 2021). In a Tanzanian study, it was found that healthcare professionals frequently failed to effectively communicate with pregnant patients during antenatal care visits, which left these women feeling alone (Mgata & Maluka, 2019a).

2.4.3 Availability of HealthCare Workers

In northern Africa, western Asia, Europe, Latin America, and the Caribbean, doctors are the main providers of prenatal care. However, the main medical professionals in SSA who provide ANC services to expectant mothers are nurses and midwives (Bayou et al., 2016). Traditional birth attendants seldom ever provide their services outside of a few countries

because ANC services are now more widely available in the majority of emerging nations. Given that these healthcare professionals have the knowledge and abilities to recognize, diagnose, treat, and refer to such medical issues, the provision of antenatal care by trained healthcare professionals encourages the early detection of problems related to pregnancy (Bayou et al., 2016). In a majority of nations, skilled healthcare workers have been reported to offer antenatal care services. This trend has increased over the years though the degree varies across nations. This has aided in preventing mortality and morbidity linked to pregnancy complications (Okedo-Alex et al., 2019).

The WHO report of 2017, suggests that for every 100 patients only 3 healthcare providers are available to serve them. In Kenya The ratio is now approximately 1:17,000**,** illustrating a significant decline and underscoring serious understaffing(Tanou et al., 2021). Globally there is an estimated shortage of 2.3 million healthcare workers to serve the ever-increasing number of patients (WHO, 2007). Due to inadequate human resource allocation, Kenya is one of the 57 nations with an acute lack of healthcare professionals. A shortage of healthcare workers coupled with an increased number of expectant mothers seeking antenatal care services often leads to poor service delivery (Dahiru & Oche, 2015). As a result of this factor, women describe healthcare workers as being physically and verbally abusive, bossy, rude, insulting, disrespectful, easily angered, and accompanied by a bad attitude. Most expectant mothers underutilize services for antenatal care as a result of this aspect (Dahiru & Oche, 2015).

2.4.4 Availability of Crucial Examination Equipment

According to Italian studies investigating health system factors influencing the utilization of ANC services, expectant mothers who were reassured about the availability of necessary

investigation equipment during their pregnancy were substantially more likely to seek antenatal services than expectant mothers who live in areas where medical centers lack modern equipment to aid in the prenatal treatment and labor and delivery process (Purohit, 2021). Research conducted in Ethiopia indicates that having sufficient access to necessary equipment during pregnancy increases the likelihood that any potential medical issues would be identified and addressed, in contrast to situations in which no equipment is available (Muchie, 2017).

According to an investigation conducted in central Ethiopia, developing countries have subpar healthcare systems with insufficient access to critical diagnostic and treatment tools (Agajie et al., 2021). Inadequate and lack of essential medical services such as urinary analysis and blood pressure check-up machines remain a big problem in many public hospitals which largely affect antenatal care services and visits. According to Wilunda et al. (2015), women in the sub-Saharan region of Africa are more persuaded to have their blood pressure taken than to have their blood and urine tested. According to Abel Ntambue et al. (2012), developed countries have greater access to and readily accessible necessary medical equipment, which encourages adequate utilization of ANC services.

2.4.5 The Degree of Privacy at the Medical Facilities

All related healthcare providers and medical professionals must maintain patient health data and records in the strictest of confidence. Anxiety about removing their clothes for a medical checkup when they can give birth at home without any complications has been linked to the lack of confidentiality in medical facilities, which continues to be a major obstruction to pregnant women seeking ANC services (Sakeah et al., 2017). Expectant mothers prefer at times to deliver at home since they feel safe in the hands of their relatives who are in the

capacity to provide herbal medicine that can induce labor. In another study done in Gambia, pregnant mothers felt safe seeking antenatal care at health facilities since their privacy was guaranteed thus making them discouraged from seeking care from TBA centers. Another investigation conducted in Uganda found that women who were pregnant feared going to antenatal care because they would be required to give birth in a hospital and they would then be forced to give birth in public (Wilunda et al., 2015).

2.5 Review of the Literature and Gap of the Research Identification

Disparities in the utilization of prenatal care (ANC) services continue to exist in Kenya despite government efforts to improve maternal wellness through programs like the Linda Mama program and the free prenatal care policy, especially in arid and semi-arid regions (ASALs) like Isiolo County. The Kenya Demographic and Health Survey (KDHS) 2022 found that 94% of women nationwide participated in at least one ANC visit. But in underserved areas, the completion of the suggested four or more ANC visits is still much lower.WRA who live in pastoral communities face a variety of difficulties, from illnesses preventable by vaccinations to sexually transmitted diseases, and have limited access to sufficient medical care. The marginalization of pastoral communities regarding infrastructure, health, and other social services is well known. Even though the Kenyan government has prioritized maternal care services, pastoral communities have little access to services for antenatal care and better-trained service providers. The results of this investigation provided a clear picture and served as a model for the ANC services exploitation among WRA living in Isiolo County, Kenya. Despite numerous studies on the uptake of ANC services in Kenya, only a few studies have focused on the nomad's pastoral community.

2.6 Theoretical Framework

Two theories served as a guide for this investigation. This encompasses the theory of reasoned action and the HBM.

2.6.1 Health Belief Model

This theory has been referred to as a psychological well-being model of behavior change, which was formed to explain anticipated behavior that is well-being-related and especially linked to the usage of well-being care services (Loke et al., 2015). This theory was postulated by an American psychologist from the public health service in the year 1950. This theory remains the most used in the field of health behavior globally. According to this theory, belief concerning a health problem, the expected benefits of action towards seeking good health services, self-efficacy, and the barriers to action explain the ability of human beings to engage or not in seeking good health-promoting behavior. According to this theory, a stimulus must be present to trigger the ability to seek a promotive health behavior (Loke et al., 2015).

According to this theory, for a person to take a health action, the following stimuli must exist: sufficient motivation to encourage healthy behavior, the conviction that a major medical problem is imminent, the presence of a disease that is viewed as a threat, and the conviction that by enchanting a healthy action, the anticipated well-being issue can be circumvented (Pamungkasari & Murti, 2020). This theory was crucial to this investigation because expectant mothers' behavior affects how many antenatal care services they attend. The expectant mother must receive prenatal services as soon as possible to avoid potentially fatal complications associated with pregnancy that can be identified early and treated.

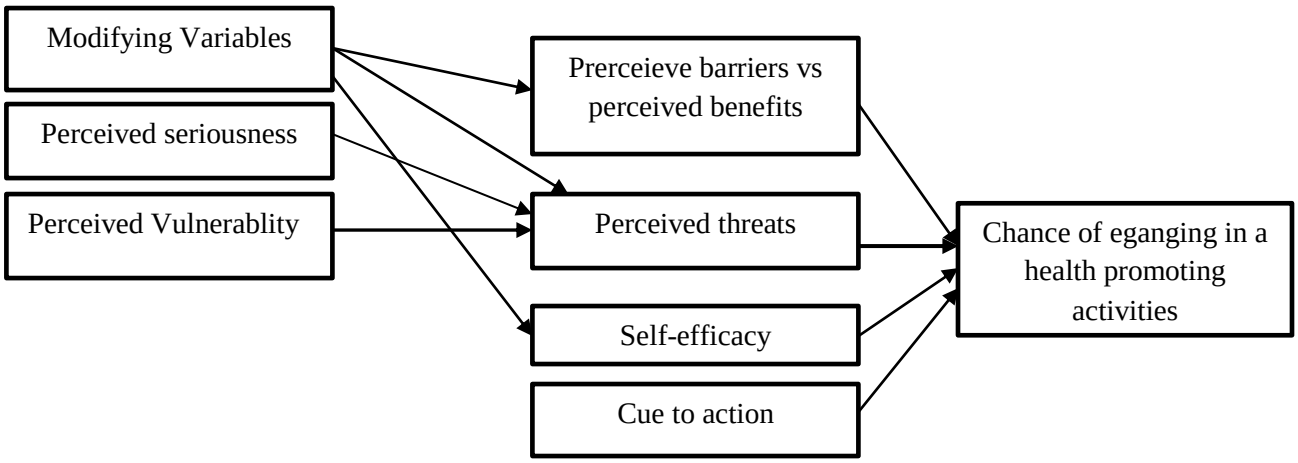

Figure 2.1: Health Belief Model

2.6.2 Reasoned Action Theory

This hypothesis was made in the year 1960. The HBM has been known to be enhanced by the theory of reason and action. Additional belief variables in this theory include those that are referred to as subjective standards as well as the way people act and attitudes. (Hosseini et al., 2015). This theory was pertinent to this investigation because for expectant mothers to make use of ANC services, they must be made aware of these amenities as well as any potential consequences that could result from failing to take advantage of the services for antenatal care that are offered. This theory advocates for the need to inform pregnant mothers so they can adopt informed decision making which will enable a positive behavior change that will provoke adequate utilization of antenatal care services (Fishbein, 2008).

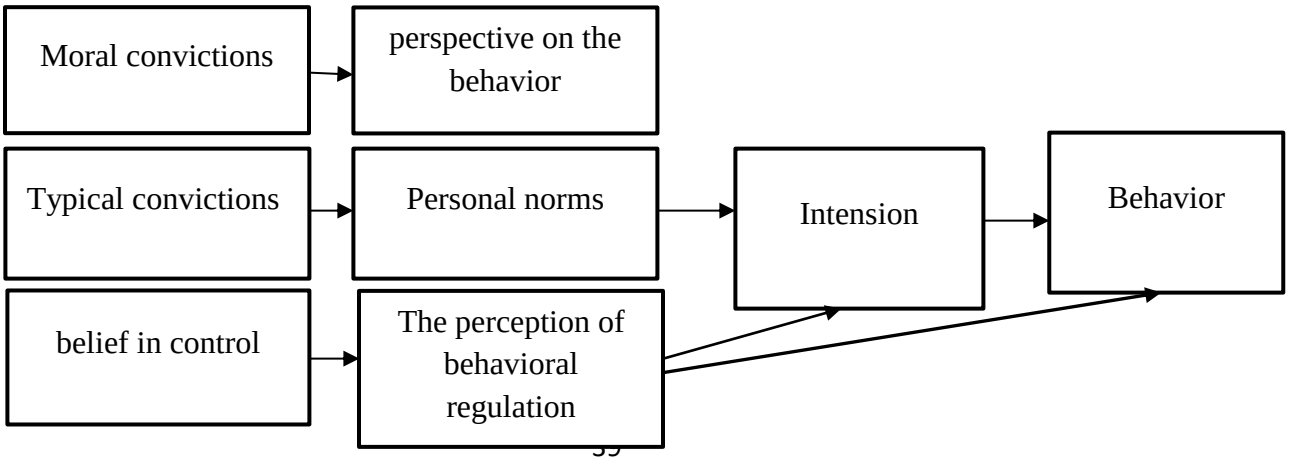

Figure 2.2: Theory of Reasoned Action

2.7 Conceptual Framework

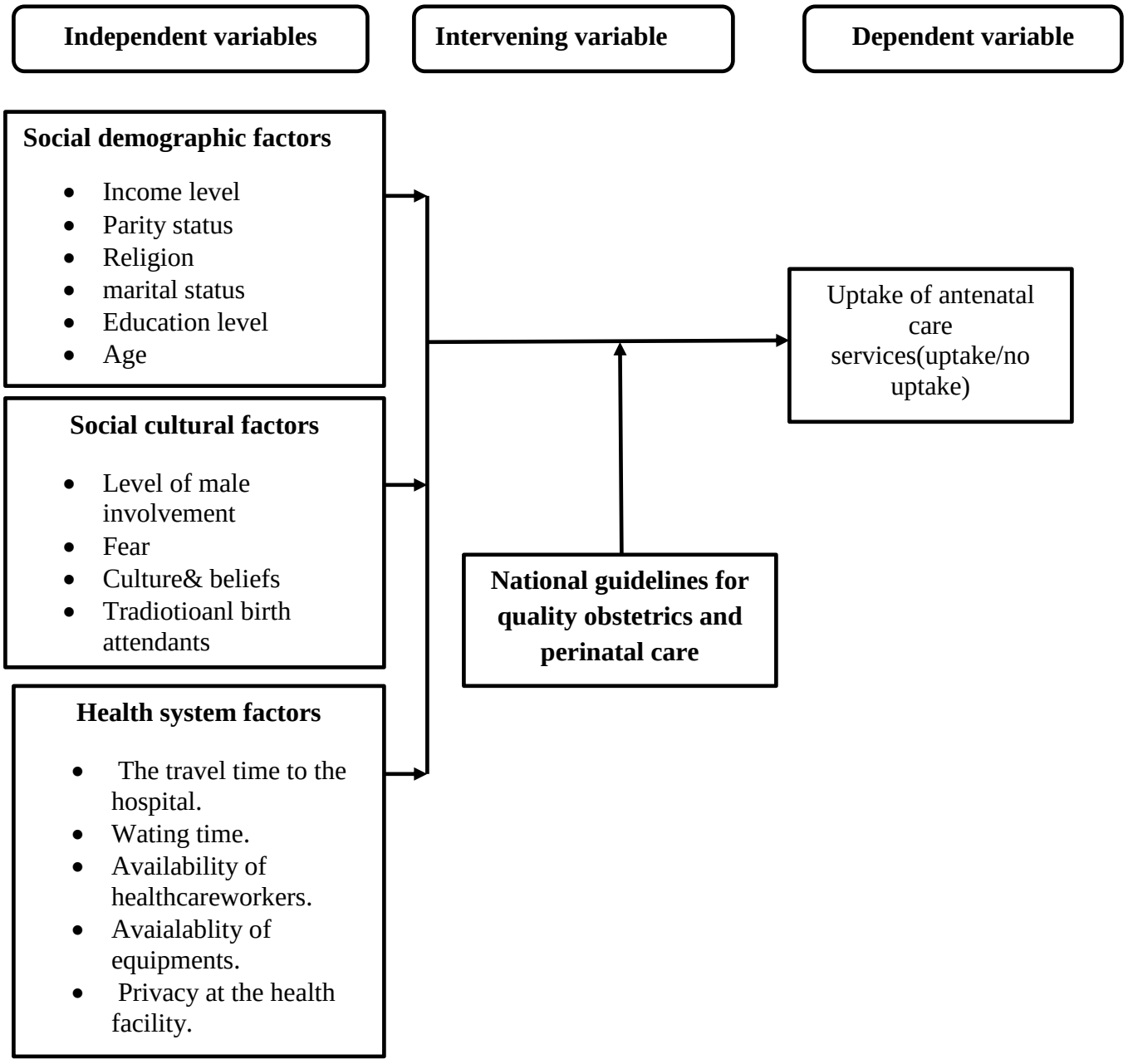

Figure 2.3: Conceptual framework on factors influencing ANC uptake

Source: Adapted and modified from Jimma et al., (2022)**.**

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Preamble

This section provides the investigation design adopted in the investigation, investigation area, inclusion, and exclusion measures, the study variables, the target population, data gathering instruments, sampling technique, size of the sample calculation, reliability and validity of the research, data analysis plan, and ethical issues.

3.1 Research Design

In this investigation, an analytical cross-sectional design was employed. The investigation design was used because it enabled researchers to pinpoint the precise variables influencing ANC services use among Kenyan WRA living in the Isiolo North sub-county at a single time. This study employed qualitative and quantitative data-gathering techniques; quantitative data provided statistics, while qualitative data explained behavior. For triangulation, which was crucial.

3.2 Study Area

Isiolo County is a county in what used to be Kenya's eastern region. 268.002 people are living there, conferring to the 2019 Kenya National Bureau of Statistics report (KNBS, 2019). The counties have prioritized Isiolo County for the Kenya Vision 2030 program's massive development. Isiolo is the country's capital, but it also has up-and-coming towns like Garbatula, Modogashe, Kinna, Merti, and Oldonyiro. (GOK, 2018) Isiolo County is bordered to the north by Marsabit County, the southeast by Garissa County, the west by Laikipia and Samburu Counties, the south by Tana River and Kitui Counties, and the southwest by Tharaka Nthi and Meru Counties. Isiolo County covers about 25,700 km2 of land. Isiolo County is situated 265 kilometers north of Nairobi, the largest city of Kenya, between the

longitudes 36° 50' and 39° 50' and the latitudes 0° 05' south and 2° north (GOK, 2018). Isiolo County has a total of 79 health facilities, including 3 Level 4 hospitals, 4 health centers, and 41 dispensaries. Despite this infrastructure, the county faces a critical shortage of healthcare personnel, with only 1,159 health workers compared to the required 2,338, and a doctor-to-populace ratio of 1:20,000—far below the WHO-recommended ratio of 1:1,000. This staffing gap significantly affects service delivery, including antenatal care (ANC) (KNBS, 2019). Only more than forty-five percent of pregnant women complete the necessary four visits (ANC4+), indicating that ANC access is still poor despite the availability of free maternity treatments under the Linda Mama program. About 50% of women still attend skilled births, which suggests that many women still give birth at home without medical assistance (KNBS, 2019).

Locals value the county's abundance of land, tourist attractions, and minerals as significant economic resources. Livestock rearing is the most significant economic activity, with over eighty percent of the population relying on it. As evidence of its equitable distribution of natural resources, the country is fortunate to have three national game reservations: Shaba, Buffalo Springs, and Bisanadi.

3.3 Study Variables

3.4.1 Dependent Variable

The ANC services use by WRA who live in the Isiolo North sub-county served as the research's dependent variable.

3.4.2 Independent Variables

The investigation independent variable was social demographics, which included (age, education level, status of marriage, parity grade, level of income, religion),social-cultural

factors entailing fear of seeking antenatal care services, level of male involvement, presence of traditional birth attendants and lastly cultural beliefs) and health system factors which included (The distance to the closest medical facility, the facility's privacy, the presence of medical staff, the presence of medical equipment, and last but not least, the length of time spent waiting there) linked to the uptake of ANC by womenfolk in Isiolo North Sub-County of reproductive age, Isiolo county. The use of ANC services would rise when the independent variables are in favor. There was a decrease in the demand for ANC when the independent variables were unfavorable.

3.5Target Population

All pregnant women under WRA who dwell in the Isiolo North sub-county made up the research's participant population.

3.6 Study Population

WRA who are expecting or have recently given birth and live in the Isiolo North sub-county constituted the population of interest for the study.

3.7. Criteria for Inclusion and Exclusion

3.7.1 Inclusion Criteria

1. WRA who have lived in the Isiolo sub-county for at least a year were included in the investigation.
2. WRA who consented to partake in the investigation were also considered in this research.
3. Women who were aged 18 years and above were also considered in this investigation.

3.7.2 Exclusion Criteria

1. WRA who had not lived in the Isiolo sub-county for one year before the study started was not encompassed in the investigation.
2. Women of reproductive age who were 18 years of age and below were excluded from the investigation, due to obtaining ethical consent for minors.
3. WRA who were extremely sick and unable to express themselves completely were also omitted from the research investigation.

3.8 Technique for Sampling and Determination of the Sample Size

3.8.1 Technique for Sampling

In this investigation, both cluster sampling and purposeful sampling were adopted. Only 33% of the women in Isiolo County, one of Kenya's 47 counties, were able to wide up the suggested sum of ANC visits, making it one of the few counties in Kenya with a low rate of ANC uptake. Isiolo County has two sub-counties, and Isiolo County's north sub-county was purposefully chosen because it has a lower uptake of ANC services than Isiolo County's south sub-county.

Isiolo North sub-county has seven locations where in this study they acted as clusters. The number of WRA required for the present investigation was attracted from the seven locations using a cluster sampling technique. The second stage cluster sampling method was employed to obtain study respondents from two locations which were randomly selected in the seven locations. Finally, a list of WRA-affected households was gathered from the community health volunteers, and those households were chosen from two predetermined locations using a simple random sampling procedure.

To find participants for the targeted group discussions and key informant interviews, a purposeful sampling technique was used. Four focus group discussions with 6-8 subjects each were held among WRA for this investigation, and they were directed by the point of saturation. To learn more about the elements that influence how many women of reproductive age use antenatal care services, three key informant interviews were conducted. They consisted of one nurse, CHEWs, and CHVs.

3.8.2 Determination of the Sample Size

The Fischer et al formula from 1991 was utilized to define the size of the sample for quantitative data, as shown below.

$n=z^2pq/d^2$

n= The anticipated size of the sample

z= With a 95% confidence interval, the Z score was set at 1.96.

p= Refers to the proportion of the target population and was adopted from the proportion of a preceding investigation conducted in Mandera County among WRA where the fraction of women who had used ANC services was at 83%(Adow et al., 2020).

q=1-p(0.5).

d=The degree of accurateness which was established at 5%(0.05)

therefore $n=1.96^2\times0.83\times0.17/0.05^2 = 217$

A total of 239 study respondents made up the intended sample size for this study, which is 217 study participants plus 10%(22) of non-respondents. The study recruited and reported data on 220 respondents. The 10% non-response rate was rational given the region's nomadic lifestyle, geographic inaccessibility, and possible mistrust or lack of awareness about formal research processes.

3.9 Data Collection Instruments

Key informants and focused group guides were implemented to get data that was qualitative, while semi-structured research-administered evaluations were used to gather data that was quantitative. Quantitative data was gathered using questionnaires with four sections: Section A collected information on the utilization of ANC services; Section B collected information on social demographic factors; Section C collected information on social-cultural factors; and Section D collected information on the components of the health system that affect expectant mothers' use of prenatal care.

3.10 Research Instrument Validity and Reliability

3.10.1 Validity

The study questionnaires were pretested to check for omissions, and consistency, or to consider adding essential information which aided in the achievement of the desired results. The tools were established based on a thorough evaluation of prevailing literature and consultation with experts in maternal health and research methodology to ensure comprehensive coverage of all relevant aspects related to antenatal care (ANC) service uptake. Pretesting helped to refine the tool and address any issues of clarity and relevance.

3.10.2 Reliability

This is a reference to how consistently and accurately research questionnaires produce results. The pretesting of the investigation's tools took into account 10% of the sample size or 22 research subjects from the adjacent Meru County. To assess the appropriateness of the questionnaires, an equivalence test was administered among randomly chosen respondents. Internal consistency was assessed using the Cronbach alpha coefficient. The literature states that for investigative tools to be deemed trustworthy and appropriate for use in carrying out

the research investigation, their reliability must be at least 0.7 (Ledford et al., 2018). Reliability was checked using SPSS version 26. A Cronbach alpha coefficient of 0.85 was found in this investigation, indicating that the data collection instruments were reliable and consistent throughout the data-gathering phase. No changes were made since the questionnaire met the threshold for an acceptable reliability score.

Table 3.1: Reliability Test Results.

Reliability Statistics		
	Cronbach's Alpha[a]	N of Items
ANC Uptake	.93	1
Socio-demographic	.83	7
Health facility factors	.81	5
Social-cultural factors	.85	6

3.11 Data Analysis and Presentation

3.11.1 Quantitative Data

Quantitative data was keyed into Excel for cleaning, editing, and validation in order to look for missing variables, both high and low values, and uniformity. The statistical software for social sciences, version 29, was used to evaluate the cleaned data. Categorical variables were displayed using percentages and frequencies. The link between the independent and dependent variables was also examined using the bivariate analysis. The bivariate analysis used binary logistic regression. The threshold for statistical significance was set at $P \leq 0.05$. To control for confounding variables, multivariate logistic regression was used with variables that were of statistical importance in the bivariate analysis. Finally, data was displayed in tables and figures.

3.11.2 Qualitative Data

Data that was qualitative was analyzed using Nvivo version 14. The recorded audio was objectively transcribed into text. After transcription, the transcripts were imported into Nvivo software for the proper analysis. The variables within each of the study's objectives were recorded as sub-main codes, and the study's objectives themselves were the principal codes. Each variable's information was assigned to the corresponding main and sub-codes. The quantitive data was later be triangulated.

Table 3.2:Data Analysis Plan

Objective	**Type of data**	**Method of analysis**
ANC uptake	Quantitative data	✓ Frequencies and percentages
Social demographic factors	Quantitative data	✓ Frequencies and percentages ✓ Binary logistic regression ✓ Multivariate logistic regression
	Qualitative data	✓ Thematic analysis
Social-cultural factors	Quantitative data	✓ Frequencies and percentages ✓ Binary logistic regression ✓ Multivariate logistic regression
	Qualitative data	✓ Thematic analysis
Health-system factors	Quantitative data	✓ Frequencies and percentages ✓ Binary logistic regression ✓ Multivariate logistic regression
	Qualitative data	✓ Thematic analysis

3.12 Ethical Considerations

Mount Kenya University's Institution of Ethics and Review Committee authorized the investigation's ethical approval (ref no.2432), NACOSTI authorized its execution (NACOSTI/P/24/32297), and the appropriate Isiolo County government departments authorized the study's fieldwork. To protect the privacy of data provided by respondents, the questionnaire was assigned a unique number instead of the participant's name(anonymity). The respondents gave their informed permission before any data was collected, and their partaking in the investigation was entirely deliberate. The subjects had the option to stop the investigation at any time during it. To prevent unauthorized use, the data was password-protected. Findings from the study were provided back to the county to benefit all stakeholders.

CHAPTER FOUR
RESULTS AND DISCUSSIONS

4.0 Preamble

This section provides descriptive statistics on the uptake of ANC services and ANC service visits. This section also provides descriptive, bivariate regression, and multivariate regression analyses on health facilities, social demographics, and social-cultural determinants of anc uptake. The discussion of the results investigation's response rate is also provided in this section.

4.1 Response Rate

The investigation gathered data from 220 respondents, representing a 100% response rate of the minimum expected sample size (217) and 92.1% of the anticipated sample size (239).

4.2 Uptake of Antenatal Care Services

Results on the total number of ANC services visits and ANC service utilization are shown in Figure 4.1. In comparison to the WHO ANC services uptake target, which requires all pregnant women to seek ANC services during their pregnancy period and to have at least four ANC visits, the study's antenatal medical care uptake rate of 75.9% (n=167) is extremely low (WHO, 2020). An uptake of 75.9% is a public health concern that needs efforts from various stakeholders to enhance the improved uptake of these essential services. The findings from this research were close (80.8%) to those of a study done in Burkina Faso (Badolo et al., 2022). However, another study carried out in the western region of Kenya recorded a higher uptake of ANC services of 97% (Ikamari, 2020b), while another study carried out in Benin recorded a low(59.7%) uptake of ANC services(Dansou et al., 2019). The difference in the ANC services utilization could be linked to dissimilarities in sampling procedures and different study settings. If a study uses a sampling procedure that only includes urban areas, findings might overestimate ANC uptake, as urban populations often have better access to

medical care facilities compared to rural areas. In contrast, a sample that includes predominantly rural or remote populations may underestimate ANC uptake.

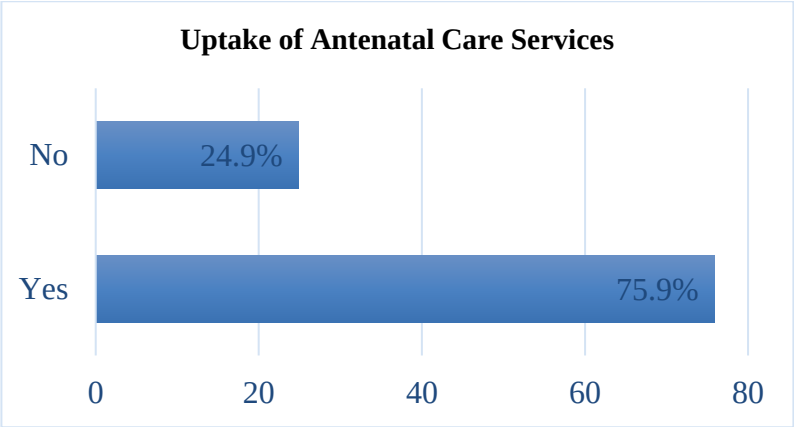

Figure 4.1: Uptake of Antenatal Care Services

4.3 Number of Antenatal Care Services Visits

Figure 4.2 provides results on the sum of ANC service visits by the study participants. About half (n=84, 50.3%) of the study respondents only sought ANC services once, while only a few (n=14, 8.4%) of the study partakers sought ANC services more than four times and above which is the suggested quantity of ANC visits(WHO, 2020).

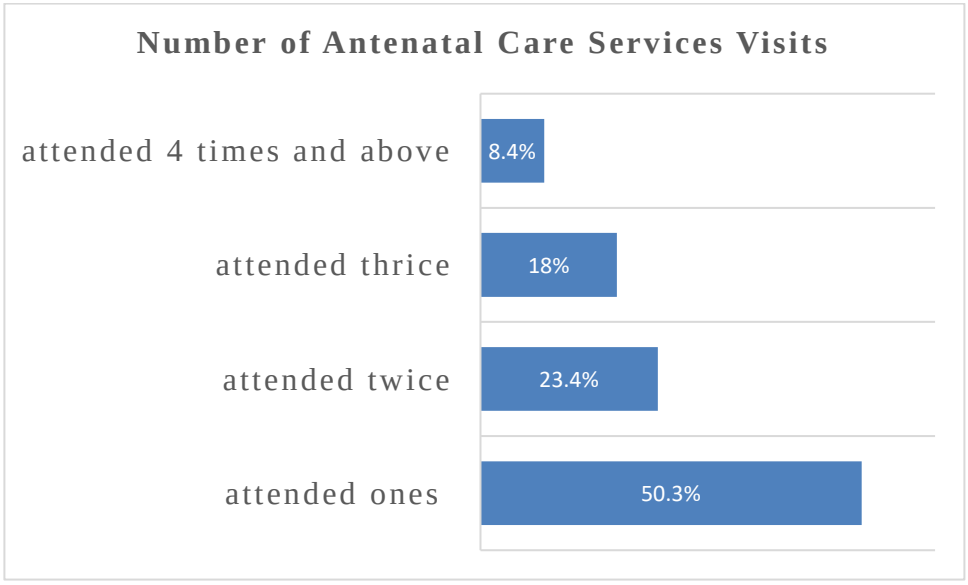

Figure 4.2: Number of Antenatal Care Services Visits

4.4 Socioeconomic and Demographic Characteristics of the Study Participants

Table 4.1 presents the descriptive statistics of the social demographic characteristics of the study partakers. Only a few(n=20,9.1%) of the study respondents were earning above 30,001 Ksh per month and this could be linked to the increasing inflation rate coupled with poor employment opportunities. More than a quarter (n=89,40.5%) of the study partakers in this study were earning 10001-20000 Ksh per month. As a result of primary and secondary education being free in Kenya, nearly half (n=91,41.4%) of the investigation's participants had completed secondary school. Just a small percentage of study participants (n=14,6.4%) had completed tertiary education. Married people made up the majority of those who took part (n=157,71.4%).

All pregnant women should seek and receive appropriate prenatal care, regardless of their marital status. Regular check-ups during pregnancy help identify and manage any possible medical problems. The mother's and the unborn child's health and welfare are of the highest significance. Only a few(n=5,2.3%) of the study respondents were windowed. Concerning the parity status of the participants, more than a quarter(N=80, 36.4%) of the study participants had a primiparous parity status which could attributed to their young age. Only a few(n=37,16.8%) of the study respondents were employed which could be linked to their level of qualification and poor employment opportunities. Close to half (n=97, 44.1%) of the study respondents reported being self-employed. More than half(n=134,60.9%) of the study partakers were Muslims which could be linked to the religion being Muslim dominant region while more than a quarter(n=86,39.1%) of the study partakers were Christians. Lastly, with respect to the age of the study partakers, More than a quarter(n=81,36.8%) of the study

respondents were aged between 18-23 years which could be linked to prime reproductive health age.

Table 4.1: Socioeconomic and Demographic Characteristics of the Participants

Variables	Categories	n	%
Income level	<10,000 ksh	40	18.2
	10,001-20,000 ksh	89	40.5
	20,001-30,000 ksh	71	32.3
	>30,001 ksh	20	9.1
Education level	No-formal education	59	26.8
	Primary	37	16.8
	Secondary	91	41.4
	Vocational	19	8.6
	Tertiary	14	6.4
Marital status	Married	157	71.4
	Single	58	26.4
	Windowed	5	2.3
Parity status	Nulliparous	65	29.5
	Primiparous	80	36.4
	Multiparous	75	34.1
Occupation	F.employed	37	16.8
	Self-employed	97	44.1
	Casual-labor	86	39.1
Age	18-23	81	36.8
	24-29	31	14.1
	30-35	47	21.4
	36-40	61	27.7
Religion	Muslims	134	60.9
	Christians	86	39.1

4.5 Socioeconomic and Demographic Factors Associated with the Uptake of Antenatal Care Services

Regarding income level, Table 4.2 shows that the vast of the study subjects (n=57, 80.3%) who reported using ANC services made between 20001-30000 Ksh. People with higher incomes might have easier access to information and education, which could raise awareness of the significance of ANC. This knowledge may encourage more proactive prenatal medical care seeking. There was no significantly different relationship between income level and ANC utilization of services, according to bivariate regression analysis. (p=0.05). These results were in line with a Tanzanian study that discovered no statistically significant association between reproductive-age women's income level and their use of ANC services (Mgata & Maluka, 2019b).Higher-income was found to boost the odds of ANC services utilization by 7.4 (AOR = 7.36, 95% CI: 3.35–16.17) in a Ugandan study, which contradicted this finding (Muhirwe & Aagard, 2023). This might be related to differences in the way income was calculated.

According to Table 4.2, the majority of individuals in the present investigation (n=76, 83.5%) who reported receiving ANC services had finished secondary school. A statistically significant relationship between the usage of ANC services and not having a formal education was found by the bivariate regression analysis's findings (COR = 2.5, 95% CI: 0.634-9.976, p=0.019). Multivariate logistic regression analysis (Table 4.7) further confirmed this, demonstrating that individuals without schooling had 8.8 times lower odds of ANC service use (aOR = 8.8, 95% CI: 0.953-12.205, p=0.05).Higher health literacy, or the capacity to

comprehend and apply health information efficiently, is a result of education. Better health-seeking practices, such as keeping ANC appointments and heeding medical advice, are linked to higher health literacy.

According to one of the key informants, these results concurred with the qualitative data.

" You see *education enhances an individual's ability to make informed decisions about their health. Those with higher education levels may be more empowered to make decisions regarding their pregnancy care and actively engage in seeking healthcare services. Furthermore, Education is often linked to socio-economic status. Individuals with higher education levels may have better economic resources, which can positively influence their ability to access and afford healthcare services, including ANC……*" (CHV, KII 3,2024)

These results were also consistent with an Ethiopian investigation that found that the odds of prenatal care utilization were 3.4 lower for those without formal education (Sisay & Mulat, 2023). The results of the present investigation ran counter to two other investigations that were carried out in Rwanda and Kenya and that revealed no connection between educational attainment and the use of ANC services (Raru et al., 2022; Uwimana et al., 2023). Variations in the statistical significance threshold and confidence intervals may determine whether an investigation finds an independently significant link.

According to Table 4.2, married people made up the bulk of investigation participants (n=134, 85.4%) who reported using ANC services. Marriage and the utilization of ANC services were found to be statistically significantly correlated by bivariate regression analysis (COR = 2.1, 95% CI; 0.041-1.626, p=0.001). Pregnant married people may receive more emotional and practical support from their spouses, as marriage frequently offers a social support network. Because the woman may feel more motivated to seek and attend prenatal

care, this support can have a positive impact on ANC uptake. However, the multivariate logistic regression analysis showed that there were other confounding factors present because there was no significant statistical association between being married and the uptake of ANC services (aOR = 0.09, 95% CI;0.002-4.772, p=0.24) (Table 4.7).

These findings were contrary to the qualitative data, where one of the discussants in the focused group discussion noted that:

"*I may prefer to say that marriage may be associated with increased financial stability. Couples with more financial resources may find it easier to access healthcare services, including ANC. Financial stability can reduce practical barriers to attending prenatal appointments*….." (Partcipants 4, Age 32, FGD 3).

These results were consistent with a research investigation conducted in Kenya that demonstrated no correlation between marital status and the use of ANC care (Ikamari, 2020b). The results from this study were not in harmony with those of two other studies carried out in Ethiopia where study respondents who were married were 3.4 and 2.1 to utilize ANC services respectively (Negash et al., 2022; Tekelab et al., 2019a). This may perhaps be linked to different populations with varying demographic characteristics. For instance, one study included a population with a diverse range of marital statuses (single, married, divorced, widowed), while the other study omitted single population limiting the variability needed to detect an association.

Regarding the investigation participants' occupational situation, Table 4.2 shows that the majority (n=33,89.2%) of those who reported using ANC services were self-employed. Bivariate logistic regression analysis revealed a strong statistical relationship between employment and ANC service usage (COR = 4, 95% CI: 0.081-0.778, p=0.017). Employed individuals may have more financial resources compared to those who are unemployed.

Financial stability can facilitate better access to healthcare services, including ANC. It can help cover costs associated with transportation, medical tests, and potential out-of-pocket expenses. This association was however not consistent in the multivariate logistic regression analyses(Table 4.7) where being employed didn't have a statistically significant relationship with ANC services Use(aOR = 0.395, 95% CI; 0.072-2.168,p=0.285).

According to one of the key informants, these results concurred with the qualitative data.

"*According to my observation, Many employed women, especially those in informal or low-wage jobs, may not have employer-provided health insurance or other benefits that cover ANC costs, limiting their ability to access care despite being employed. ……."*(Nurse, KII 1,2024),

The verdicts of the present investigation were steady with a research investigation conducted in Malawi that found no correlation between ANC uptake and occupational status (Kachimanga et al., 2020). Employed people were twice as likely to use ANC services as their counterparts, according to another Ethiopian investigation, which contradicted the results presented above (Ousman et al., 2019). Studies involving various populations with disparate occupational distributions may be connected to this.

According to Table 4.2, more than half (n=37, 60.7%) of the study subjects who claimed to use ANC services were in the 36–40 age range. The age of the investigation's respondents (18–23 years) and their usage of ANC services were found to be significantly correlated by bivariate regression analysis (COR = 4.2, 95% CI; 0.107-0.549, p=0.001). Additionally, the multivariate logistic regression analysis (Table 4.7) corroborated this finding, demonstrating that study subjects aged 18–23 were twice as likely to use ANC services as those aged 36–40 (aOR = 2, 95% CI; 0.143-1.911, p=0.016).

Pregnant women who are older may be more diligent in seeking and attending ANC appointments because they may be more educated and health conscious. They might be more aware of the advantages of prompt and consistent prenatal care. Additionally, older women may be more familiar with medical care or have had pregnancies in the past, which increases their awareness of the significance of ANC. However, young individuals between the ages of 18 and 23 can be less or more knowledgeable of reproductive health and the value of ANC. Their comprehension of prenatal care can be influenced by elements including health literacy and access to comprehensive sex education, which can improve the adoption of ANC services. The results of the current study were in line with an investigation done in Ethiopia that discovered that among WRA, youth raised the chance of ANC uptake (Wolde et al., 2019).Maternal age was not statistically related to ANC uptake, according to a different Nigerian investigation, which contradicted these results (Fagbamigbe et al., 2021). This might be related to the fact that the populations under investigation in the present investigation have varying age distributions, which could affect the results.

The majority of people who reported using services provided by ANC (n=102, 76.1%) were Muslims, according to Table 4.2 below, which details the religion of the investigation's subjects. The use of ANC services and the investigation's participants' Christian status did not statistically significantly correlate, according to bivariate logistic regression (COR = 0.97, 95% CI; 0.516-1.827, p=0.927). Write something like; In some contexts, religious practices or beliefs might influence healthcare utilization patterns. For instance, cultural or religious norms and teachings within the Muslim community might promote or facilitate greater use of ANC services.

However, since no significant association was found for Christians, it suggests that religion may not be a major determinant of ANC service uptake among Christian women in this study, or other factors might be more influential in this regard.

One of the key informants made the following observation, which was in line with the qualitative data:

" *In my opinion, many individuals and communities may differentiate between religious beliefs and medical care, viewing healthcare as a practical necessity rather than a religious issue. In such cases, religious practices or teachings may not directly influence decisions to seek ANC……"* (Community health extension worker, KII 5,2024)

An investigation conducted in Malawi and Uganda found no statistically significant relationship between religion and ANC uptake, which was in line with the findings of the current analysis (Muhirwe & Aagard, 2023; Sakala et al., 2021). In contrast to the findings above, another investigation carried out in Somalia discovered that religion affected the utilization of ANC services (Miikkulainen et al., 2023). The religious context in Somalia might be more directly linked to health practices and beliefs compared to the contexts in Malawi and Uganda. For instance, religious organizations might have a more prominent role in health education or community support in Somalia.

According to Table 4.2, more than half (n=44,58.7%) of the participants who reported accessing prenatal care services were multiparous. A strong statistical link was found between the use of ANC services and the outcome of the research among subjects who were primiparous when the bivariate logistic regression analysis was conducted (COR = 4.9, 95% CI; 0.091-0.454, p=<0.001). Primiparous mothers were 4.5 times more likely than multiparous mothers to seek ANC services, according to the multivariate logistic regression analysis (Table 4.7) (aOR = 4.5, 95% CI; 0.062-0.794, p=0.002).

Women experiencing their first pregnancy (primiparous) may have different experiences and needs compared to those who have had previous pregnancies. Primiparous women might be more expected to seek ANC as they navigate the new experience of pregnancy and childbirth. Moreover, multiparous women may have previous experience with pregnancy and ANC services. They might feel more confident managing their pregnancies and thus might not prioritize ANC visits as much as primiparous women. Their previous pregnancies might have also been less complicated, influencing their perception of the necessity for regular ANC visits.

The results of the present investigation aligned with a Ugandan study that discovered primiparous moms were 3.4 times more likely to use ANC services (Towongo et al., 2023). However, as parity status had no effect on the use of ANC services, the findings of another investigation carried out in Ethiopia were in conflict with these findings (Tizazu et al., 2020). In settings where medical treatments are widely accessible and economically priced, parity may not be a significant determinant in ANC uptake. If ANC services are readily available, free, or reasonably priced, women may be equally likely to use them regardless of the number of children they have had.

According to one of the discussants in the focused group discussion, these results were consistent with the qualitative data.

"*From what I have seen first-time mothers may experience higher levels of anxiety and concerns about pregnancy and childbirth. This heightened anxiety can motivate primiparous women to seek ANC earlier and more consistently for reassurance, guidance, and monitoring. In addition, Due to their lack of previous experience, primiparous women may have greater health education needs. They may require more information about the*

importance of ANC, potential complications, and healthy behaviors during pregnancy……"(Participants 5, Age 22, FGD 4)

Table 4 2: Bivariate Regression Analysis on Socioeconomic and Demographic Factors Associated with the Uptake of Antenatal Care Services

Variables	ANC Uptake		COR	95% CI	P Value
	Yes (N=167)	No (N=53)			
Income level					
< 10,000 ksh	29(72.5)	11(27.5)	1.14	0.334-3.882	0.837
10,001-20,000 ksh	66(74.2)	23(25.8)	1.05	0.342-3.197	0.938
20,001-30,000 ksh	57(80.3)	14(19.7)	0.74	0.229-2.371	2.609
>30,001 ksh	15(75)	5(25)	***(Ref)***		
Level of education					
No-formal education	35(59.3)	24(40.7)	2.514	0.634-9.976	0.019
Primary	30(81.1)	7(18.9)	0.856	0.187-3.907	0.840
Secondary	76(83.5)	15(16.5)	0.724	0.180-2.910	0.649
Vocational	15(78.9)	4(21.1)	0.979	0.181-5.283	1.979
Tertiary	11(78.6)	3(21.4)	***(Ref)***		
Marital status					
Married	134(85.4)	23(14.6)	2.13	0.041-1.626	0.001
Single	30(51.7)	28(48.3)	0.257	0.218-9.010	0.723
Windowed	3(60)	2(40)	***(Ref)***		
Parity status					
Nulliparous	53(81.5)	12(18.5)	3.1	0.148-0.699	0.074
Primiparous	70(87.5)	10(12.5)	4.9	0.091-0.454	<0.001
Multiparous	44(58.7)	31(41.3)	***(Ref)***		
Occupation					
Employed	33(89.2)	4(10.8)	4	0.081-0.778	0.017
Self-employed	76(78.4)	21(21.6)	0.572	0.296-1.109	0.098
Casual-labor	58(67.4)	28(32.6)	***(Ref)***		
Age of the study respondent					
18-23	70(86.4)	11(13.6)	4.166	0.107-0.549	0.001
24-29	29(93.5)	2(6.5)	1.016	0.023-0.487	0.061
30-35	31(66)	16(34)	0.796	0.360-1.757	0.572
36-40	37(60.7)	24(39.3)	***(Ref)***		
Religion					
Muslims	102(76.1)	32(23.9)	0.97	0.516-1.827	0.927
Christians	65(75.6)	21(24.4)	***(Ref)***		

4.6 Social-Cultural Factors

Table 4.3 presents descriptive statistics on the social-cultural factors of the study partakers. Concerning pregnancy disclosure status, more than half (n=123, 55.9%) of the study partakers reported practicing pregnancy disclosure during their early stages of pregnancy. Cultural norms and societal expectations regarding pregnancy disclosure can vary. In some cultures, pregnancy may be disclosed early, while in others, there may be a tradition of waiting until a certain gestational age. Understanding and respecting cultural norms is important for providing appropriate ANC services. Most of those who participated (n=147, 66.8%) stated that there were no detrimental cultural customs. People may be more likely to start ANC early in their pregnancies in cultures that do not engage in harmful practices, such as delayed pregnancy disclosure or reliance on conventional and potentially harmful birthing methods. Only a small percentage of study participants (n=21,28.8%) reported fear of supernatural repercussions, whereas more than half (n=40,54.8%) said taboo was the most prevalent. More than half(n=127,57.7%) of the study partakers reported the presence of spouse support when seeking antenatal care services. Spousal encouragement can influence the timing of ANC initiation. Pregnant individuals who receive encouragement from their spouses may be more likely to initiate ANC early in their pregnancies, allowing for timely and comprehensive care. Only a quarter(n=77,35%) of the study partakers reported seeking antenatal care from traditional birth attendants. In some communities, individuals may seek advice and support from TBAs due to cultural or historical practices. However, there is an increasing awareness of the importance of ANC from skilled healthcare providers for the health and well-being of both the pregnant individual and the baby. Lastly, only a few(n=65,29.5%) of the study partakers reported experiencing Stigma linked to the uptake

of antenatal care practices. Cultural or religious beliefs may contribute to the Stigma surrounding certain pregnancy circumstances. Individuals may hesitate to seek ANC if they perceive their situation goes against cultural or religious norms.

Table 4.3: Social-Cultural Factors Among the Study Participants

Variables	Categories	n	%
Presence of pregnancy disclosure	Yes	123	55.9
	No	97	44.1
Presence of harmful cultural practices	Yes	73	33.2
	No	147	66.8
Type of harmful cultural practices	Home birth	12	16.4
	Taboo	40	54.8
	Fear supernatural consequences	21	28.8
Do you get spouse support	Yes	127	57.7
	No	93	42.3
Seeking care from traditional birth attendants	Yes	77	35
	No	143	65
Do you experience stigma	Yes	65	29.5
	No	155	70.5

4.7 Social-Cultural Factors Associated with the Uptake of Antenatal Care Services

According to Table 4.4, almost all of research participants (n=106, 86.2%) who reported using ANC services informed their spouse they were expecting. The presence of pregnant disclosure and the adoption of ANC services were found to be statistically significantly correlated by the bivariate logistic regression analysis (COR = 3.7, 95% CI; 1.907-7.100, p=<0.001). The multivariate logistic regression analysis (Table 4.7) corroborated this, demonstrating that the presence of pregnant disclosure increased the probability of accessing ANC services by 2.9 (aOR = 2.9, 95% CI: 0.115-0.997, p=0.04). By disclosing their pregnancy, people may find it easier to obtain information about the importance of ANC.

The decision to seek and maintain ANC services can be inclined by an awareness and appreciation of the advantages of ANC. Disclosing pregnancy often leads to increased social support, including emotional and practical assistance. Social support can positively influence ANC uptake, as individuals may feel more encouraged and supported in seeking healthcare services.

These findings aligned with a Tanzanian investigation that discovered that informing your partner of your pregnancy increased your chances of receiving ANC by 1.9 (Mgata & Maluka, 2019b). In contrast, an investigation carried out in Somalia revealed no statistically significant association between pregnancy notification and the utilization of ANC services (Mouhoumed & Mehmet, 2021a). The lack of a statistically significant relationship between ANC use and pregnancy disclosure in Somalia may be the result of cultural norms or social dynamics that differ from those in Tanzania or the current setting of the investigation. In some contexts, disclosing pregnancy may not necessarily lead to greater spousal support or influence ANC-related decisions.

The vast majority of the participants in the study (n=106,83.5%) who reported using ANC services also reported having spouse support during pregnancy, as shown in Table 4.4. The decision to start ANC early in pregnancy may be influenced by spousal encouragement. By encouraging the expectant mother to seek medical attention as soon as possible, a supportive partner can help ensure that ANC is started on time. The usage of ANC services and support for spouses were found to be statistically significantly correlated when the bivariate analysis was conducted (COR = 2.6, 95% CI; 1.404-4.993, p=0.003). These results were contradictory, nonetheless, as the multivariate logistic regression analysis (Table 4.7) showed no statistically significant relationship between the utilization of ANC services and the existence of spouse support (aOR = 1.2, 95% CI; 0.242-2.913, p=0.783).

These results were consistent with the qualitative information, as one of the participants in the targeted group discussion pointed out:

"*I would say some women may prefer to make their own healthcare decisions independently, regardless of their spouse's support. This can be especially true if they feel that their spouse's involvement is superficial or lacks genuine understanding of their needs….*" (Particpant2, Age 28, FGD 1).

The verdicts of the present investigation were consistent with two other Ethiopian investigations that found no statistically significant relationship between spouse support and ANC utilization (Mamo et al., 2021a; Mohammed et al., 2019). A different investigation conducted in Rwanda, however, contradicted these results, finding that the likelihood of ANC services being used decreased by two when spouse support was lacking (Rurangirwa et al., 2017a). Women who experience higher levels of stress, anxiety, and depression during pregnancy due to a lack of emotional support from their spouse may be less inclined or unable

to attend ANC. Emotional well-being is closely tied to health-seeking behaviors, and women who feel unsupported may lack the confidence or mental strength to seek necessary care.

The majority of the study subjects (n=115,78.2%) who reported using ANC services said that there were no detrimental cultural customs, as shown in Table 4.4. The lack of detrimental cultural practices may be the reason for the existence of health awareness campaigns and initiatives on the significance of ANC uptake. When the bivariate analysis was performed, there was no statistically significant correlation between the adoption of ANC services and detrimental cultural practices (COR = 0.7, 95% CI; 0.363-1.307, p=0.25).

According to one of the key informants, these results were consistent with the qualitative data, which showed:

"I may say community leaders, women's groups, or local organizations advocating for maternal health can create a supportive environment that encourages ANC uptake, overriding harmful cultural beliefs……" (Nurse, KII 2,2024).

The findings of the present investigation were in line with an investigation carried out in Ethiopia that concluded that cultural practices had no impact on the usage of ANC services (M. Tesfaye et al., 2022). However, another systematic review study was not in harmony with these findings as the presence of harmful traditional practices reduced the odds of seeking antenatal care services by 2.2 (Alibhai et al., 2022b). In communities where traditional practices are prevalent, there may be a lack of awareness about the benefits of antenatal care and the risks associated with not receiving it. Education and outreach might be limited, affecting the uptake of modern medical services.

Regarding Stigma, as indicated in Table 4.4 below, close to half (n=30,46.2%) of the study partakers who reported uptake of antenatal care services reported the presence of stigma linked to their pregnancy status. Some pregnant women may avoid ANC due to

misconceptions about medical interventions, fear of judgment, or concerns about the cost of healthcare. The usage of ANC services and stigma were found to be statistically significantly correlated by the findings of the bivariate regression analysis (COR = 10, 95% CI: 0.056-0.225, p=<0.001). This conclusion was corroborated by the multivariate logistic regression analysis (Table 4.7), which revealed that stigma reduced the likelihood of utilizing ANC services by 7.1 (aOR = 7.1, 95% CI; 2.731-4.601, p=0.001). Social conventions and the fear of criticism from family or neighbors may deter women from getting ANC. Since pregnancy is usually viewed as a private subject, seeking medical attention could be perceived as a sign of weakness or vulnerability.

These results were consistent with an investigation conducted in Nigeria that found stigma associated with pregnancy decreased the likelihood of using ANC services by four times (Dirisu et al., 2020). This, however, ran counter to a Tanzanian investigation that found no statistically significant correlation between stigma and ANC services use (Boniphace et al., 2022). The impact of stigma may be underestimated as a result of people underreporting it out of fear of criticism or retaliation. As a result, there may be less statistical evidence linking stigma to the use of prenatal care.

The majority of the partakers in the study (n=115,80.4%) who reported using ANC services never sought ANC services from traditional birth attendants, as shown in Table 4.4. This may be related to the availability of sufficient information from a trained healthcare professional regarding the necessity of seeking ANC services. Bivariate regression analysis revealed no statistically significant correlation between ANC services use and seeking ANC services from traditional birth attendants (COR = 0.56, 95% CI; 0.269-0.952, p=0.08).

According to one of the key informants, these results were consistent with the qualitative data, which showed:

"I would say that relying solely on TBAs may result in delays in accessing professional medical care. Prompt access to ANC services is crucial for monitoring and managing pregnancy-related issues and ensuring safe delivery. In this area, TBAs are not common due to health education and promotion programs in place…." (CHV, KII 4,2024)

The results of the present investigation aligned with an investigation carried out in Ethiopia that found no link between using ANC services and requesting them from TBA (Gurara et al., 2020). Another investigation conducted in Uganda, however, disagreed with these findings because using TBA to obtain ANC services decreased the likelihood of ANC adoption by 2.5 (Atuoye et al., 2020).When opposed to qualified healthcare professionals, TBAs frequently offer a less range of services. They might not see a need for official ANC services if they lack the tools or expertise necessary to do thorough prenatal exams, tests, and interventions.

Table 4. 4: Bivariate regression analysis of Social-Cultural Factors Associated with the Uptake of Antenatal Care Services

Variables	ANC Uptake		COR	95% CI	P Value
	Yes (N=167)	No (N=53)			
Pregnancy disclosure					
Yes	106(86.2)	17(13.8)	3.7	1.907-7.100	<0.001
No	61(62.9)	36(37.1)	***(Ref)***		
Harmful cultural practices					
Yes	52(71.2)	21(28.8)	0.69	0.363-1.307	0.25
No	115(78.2)	32(21.8)	***(Ref)***		
Spouse support					
Yes	106(83.5)	21(16.5)	2.6	1.404-4.993	0.003
No	61(65.6)	32(34.4)	***(Ref)***		
Traditional birth attendants					
Yes	52(67.5)	25(32.5)	0.56	0.269-0.952	0.08
No	115(80.4)	28(19.6)	***(Ref)***		
Stigma					
Yes	30(46.2)	35(53.8)	10	0.056-0.225	<0.001
No	137(88.4)	18(11.6)	***(Ref)***		

4.8 Health System Factors

Table 4.5 presents the descriptive statistics of the health system factors of the study partakers. More than half(n=146,66.4%) of the study partakers reported taking 31-60 minutes of traveling time to seek antenatal care services from the nearest health facility; this could be attributed to enough medical facilities offering antenatal care services to pregnant women. Close to half (n=100,45.5%) of the study participants reported the distance being near to their residence. This could be accredited to medical facilities near the respondents, which could be linked to the devolvement of health facility services in this region. Regarding waiting time at the health facility to receive ANC services at the health facility, only a few(n=17,7.7%) of the study partakers reported waiting for less than 30 minutes; this could be credited to a lack of adequate healthcare providers coupled with poor healthcare services. More than half(n=146,66.4%) of the study partakers reported a longer waiting time. Concerning the presence of adequate medical equipment to offer antenatal care services, the majority(n=158,71.8%) of the health providers reported these amenities being present to aid in offering adequate antenatal care services. This could be linked to ANC services being prioritized as essential health services for pregnant mothers. Close to half(n=97,44.1%) of the study partakers reported health care providers being not available when they sought antenatal care services. This could be linked to this region's poor devolvement of medical care services. Lastly, concerning the observation of patient privacy when seeking antenatal care services, Close to three-quarters(n=159,72.3%) of the study partakers reported their privacy being observed when seeking antenatal care services. This could be linked to the presence of friendly healthcare providers.

Table 4.5: Health System Factors

Variables	Categories	N	%
Distance to the facility	0-30 mins	50	22.7
	31-60 mins	146	66.4
	>1hr	24	10.9
Opinion on distance	Near	100	45.5
	Far	120	54.5
Waiting time	0-30 mins	17	7.7
	31-60 mins	142	64.5
	>1hr	61	27.7
Opinion on waiting time	Short waiting time	74	33.6
	Long waiting time	146	66.4
Adequate medical equipments	Yes	158	71.8
	No	62	28.2
Healthcare workers availability	Yes	123	55.9
	No	97	44.1
Patient Privacy	Yes	159	72.3
	No	61	27.7

4.9 Health System Factors Associated with the Uptake of Antenatal Care Services

Only a small percentage of research participants (n=3,12.5%) stated that it took more than an hour to get to the closest medical facility for antenatal care services, as shown in Table 4.6. Accessing healthcare facilities can be challenging for people living in rural or isolated places due to issues with infrastructure and transportation. Geographical constraints may cause ANC visits to be reduced and the start of ANC to be delayed. The subjects of the study who reported taking 0–30 minutes to travel to the nearest facility showed a strong statistical link with their utilization of ANC services when the bivariate analysis was conducted (COR = 3.7, 95% CI; 0.017–0.113, p=<0.001).The investigation individuals who reported traveling less than 30 minutes to the nearest medical facility were 2.8 times more likely to seek ANC services than those who took over an hour to get there (aOR = 2.8, 95% CI; 0.004-0.206, p=<0.001), according to the multivariate logistic regression analysis (Table 4.7).

According to one of the discussants in the focused group discussion, these results were consistent with the qualitative data.

"*I would prefer to say that availability and affordability of transportation play a crucial role. If reliable and affordable transportation options are limited, pregnant individuals may find it challenging to travel to healthcare facilities for ANC appointments. Like for me the hospital is close, I can walk there in just a few minutes. It makes it easy to attend my ANC appointments regularly without much hassle.* ……" (Participants 6, Age 24, FGD 4)

These results were consistent with a Tanzanian investigation that found that the likelihood of using ANC services increased with a shorter commute to a medical facility (Rwabilimbo et al., 2020). This, however, ran counter to a Ugandan investigation that found no statistically significant correlation between ANC services use and the distance to the closest medical facility (Tumwizere et al., 2024). Distance alone may not fully capture accessibility. Factors

such as transportation availability, road conditions, and travel costs can significantly impact a person's ability to reach a health facility. Thus, a longer distance might not be a deterrent if transportation and access are manageable.

As shown in Table 4.6, more than half(n=11,64.7%) of the study partakers who reported uptake of antenatal care services reported waiting for 0-30 minutes before being attended. Individuals may associate shorter waiting times with efficient and well-organized healthcare services, contributing to positive perceptions of the facility. Subjects of the study who reported waiting between 31 and 60 minutes at the medical institution had a statistically significant link with their usage of ANC services, according to bivariate analysis (COR = 2.6, 95% CI; 0.192-0.746, p=0.005). The multivariate logistic regression analysis (Table 4.7) showed that waiting times between 31 and 60 minutes were not statistically significantly associated with the utilization of ANC services (aOR = 0.77, 95% CI;0.224-2.637, p=0.67).

The results of this investigation were in contrast to those of a research investigation done in Somalia, where waiting time was statistically associated with ANC services use(p=0.004) (Mouhoumed & Mehmet, 2021b). Meanwhile, a research investigation carried out in Ethiopia found that waiting at the medical center was not statistically related to the ANC services use (Mussa et al., 2023). Long waiting times can be perceived as a significant inconvenience or deterrent. Women may be discouraged from seeking ANC if they anticipate lengthy waits, especially if they have other responsibilities or face time constraints.

As can be seen in Table 4.8 below, the majority of partakers in the study (n=123,77.8%) who reported using ANC services confirmed the availability of sufficient medical equipment to support the provision of such services. People's willingness to seek and use ANC services may be positively impacted by having access to the right medical equipment, which also

improves the quality of medical care. There was no statistically significant relationship between the presence of enough medical equipment to allow the provision of ANC services and their adoption, according to the results of the bivariate analysis (COR = 1.4, 95% CI; 0.740-3.638, p=0.28).

These findings were contrary to the qualitative data, where one of the key informants noted that:

"Let me say this, Adequate medical equipment enhances the quality of ANC services. Modern and well-maintained equipment allows healthcare providers to conduct necessary tests, examinations, and assessments, leading to more accurate diagnoses and better monitoring of maternal and fetal health. Furthermore, Proper medical equipment facilitates the timely and accurate diagnosis of pregnancy-related conditions and complications. This includes tools for ultrasound examinations, blood pressure monitoring, and laboratory tests, which are essential components of comprehensive ANC……" (Nurse, KII 2,2024).

The findings of the present investigation were in line with a research investigation carried out in Ethiopia that discovered no statistically significant relationship between the availability of adequate medical equipment and the usage of ANC services (Shiferaw et al., 2021). A different investigation conducted in South Africa, however, contradicted these results, finding that having access to sufficient medical equipment doubled the likelihood of seeking prenatal care services (Costantino et al., 2022). A well-equipped healthcare facility is indicated by adequate medical equipment, which promotes confidence in the caliber and security of the treatment given. Women are far more inclined to seek ANC services from organizations they believe can offer thorough and efficient care.

As indicated in Table 4.6, the majority(n=130,81.8%) of the study partakers reported their privacy being observed when seeking antenatal care services. The physical layout of healthcare facilities, including waiting areas, examination rooms, and consultation spaces, can impact the perceived level of privacy. Facilities that design spaces with privacy in mind may enhance the overall experience for ANC attendees. The utilization of ANC services and patient privacy surveillance were found to be statistically significantly correlated by the bivariate analysis (COR = 2.9, 95% CI; 1.514-5.584, p=0.001). Consistent with the multivariate logistic regression analysis, confidentiality of patient observation increased the probability of using ANC services by 2.4 (aOR = 2.4, 95% CI;1.086-5.129, p=0.03) (Table 4.7). When patients are given the assurance that their personal information will be kept confidential, they are more likely to trust hospitals and medical personnel. They are encouraged to seek ANC services because of this trust, which removes any fear of being judged or exposed.

According to one of the discussants in the focused group discussion, these results were consistent with the qualitative data.

"In this region, I would note that cultural factors play a significant role in shaping individuals' perceptions of privacy. Health facilities that are culturally sensitive and respectful of the need for privacy are more likely to create an environment where pregnant individuals feel comfortable seeking ANC services…." (Participants 3, Age 32, FDG 2024)

The verdicts of the present investigation were consistent with a research investigation conducted in Ethiopia that found that protecting patient privacy increased the likelihood of using ANC services by four times (Mussa et al., 2023). Nevertheless, another investigation conducted in low-income African nations contradicted these results since patient privacy was

not linked to the use of prenatal care services (Dahab & Sakellariou, 2020). Some women might not be aware of their rights to privacy in healthcare settings or may have low expectations regarding privacy due to past experiences. If privacy has never been emphasized or is not perceived as an important aspect of care, it may not influence their decision to seek ANC.

As indicated in Table 4.6, the majority(n=100,81.3%) of the study partakers who reported the availability of healthcare workers sought antenatal care services. The availability of ANC services is facilitated by the presence of an adequate number of medical professionals, including as physicians, nurses, and midwives. Pregnant women may have trouble getting care in areas with a shortage of medical personnel, which could delay the start of and decrease the frequency of ANC visits. The availability of medical experts and the usage of ANC services were found to be statistically significantly correlated by bivariate analysis (COR = 1.9, 95% CI; 1.042-3.638, p=0.03). These results were challenged by the multivariate logistic regression analysis (Table 4.7), which showed no statistically significant relationship between the utilization of ANC services and the presence of medical professionals (aOR = 0.54, 95% CI;0-168-1.719, p=0.295).

These findings were contrary to the qualitative data, where one of the key informants noted that:

"Personally I would say that the availability of skilled and knowledgeable healthcare workers is essential for the provision of high-quality ANC services. Well-trained healthcare professionals can conduct thorough assessments, offer appropriate counseling, and address any complications, contributing to improved maternal and fetal outcomes. Timely interventions during pregnancy, including the identification and management of risk factors

or complications, are crucial for maternal and child health. Sufficient healthcare staffing allows for timely screenings, diagnostics, and interventions, reducing the risk of adverse outcomes……." (Community health extension worker, KII 5,2024*).*

The outcomes of the present investigation were consistent with an investigation steered in Malawi that found no correlation between ANC services use and the availability of trained medical professionals (Lungu et al., 2023). The availability of competent and experienced healthcare professionals raised the likelihood of ANC services uptake by 2.5, according to a different Ethiopian investigation, which contradicted the results presented above (Arefaynie et al., 2022b). Healthcare professionals who are educated and experienced engender confidence in their capacity to deliver high-quality care. When women think that medical professionals are qualified, experienced, and able to handle their health needs during pregnancy, they are far more inclined to seek ANC services.

Table 4.6: Bivariate Analysis of Health System Factors Associated with the Uptake of Antenatal Care Services

Variables	ANC Uptake		COR	95% CI	P Value
	YES (N=167)	NO (N=53)			
Distance to the facility					
0-30 mins	42(84)	8(16)	3.7	0.017-0.113	<0.001
31-60 mins	122(83.6)	24(16.4)	0.52	0.025-0.102	0.06
>1hr	3(12.5)	21(87.5)	***(Ref)***		
Waiting time					
0-30 mins	11(64.7)	6(35.3)	0.967	0.314-2.974	0.953
31-60 mins	117(82.4)	25(17.6)	2.6	0.192-0.746	0.005
>1hr	39(63.9)	22(36.1)	***(Ref)***		
Adequate medical equipments					
Yes	123(77.8)	35(22.2)	1.4	0.740-3.638	0.284
No	44(71)	18(29)	***(Ref)***		
Healthcare workers availability					
Yes	100(81.3)	23(18.7)	1.9	1.042-3.638	0.03
No	67(75.9)	30(24.1)	***(Ref)***		
Patient Privacy					
Yes	130(81.8)	29(18.2)	2.9	1.514-5.584	0.001
No	37(60.7)	24(39.3)	***(Ref)***		

4.10 Multivariate Analysis on Social Demographics, Social-Cultural, and Health System Factors Associated With ANC Services Uptake

Multivariate analysis was used to account for confounding variables for all variables that showed a statistically noteworthy correlation with the utilization of ANC services in bivariate regression analyses. Lack of formal education decreased the odds of ANC use by 8.8 (aOR = 8.8, 95% CI: 0.953-12.205, p=0.05), as shown in Table 4.7. Study participants between the ages of 18 and 23 were twice as likely to utilize ANC services as those between the ages of 36 and 40 (aOR = 2, 95% CI; 0.143-1.911, p=0.016). Compared to multiparous mothers, primiparous mothers were 4.5 times more probable to seek ANC services (aOR = 4.5, 95% CI; 0.062-0.794, p=0.002). The odds of using ANC services rose by 2.9 when pregnancy disclosure was present (aOR = 2.9, 95% CI: 0.115-0.997, p=0.04). The likelihood of seeking ANC services was 2.8 times higher for study participants who stated they spent less than 30 minutes to get to the closest medical center than for those who took more than an hour (aOR = 2.8, 95% CI; 0.004-0.206, p=<0.001). The odds of using prenatal care services increased by 2.4 (aOR = 2.4, 95% CI:1.086-5.129, p=0.03) when patient privacy was observed. Last but not least, stigma decreased the likelihood of using prenatal care services by 7.1 (aOR = 7.1, 95% CI; 2.731-4.601, p=0.001).

Table 4.7: Multivariate analysis on Social Demographics, Social-Cultural, and Health System Factors Associated with ANC Services Uptake

				95% C.I.		P Value
Variables	**B**	**S.E.**	**aOR**	**Lower**	**Upper**	
Waiting time						
0-30 mins	.672	1.192	1.957	.189	20.253	.573
31-60 mins	-.264	.630	.768	.224	2.637	.675
>1hr			*(Ref)*			
Healthcare workers availability						
Yes	-.622	.594	.537	.168	1.719	.295
No			*(Ref)*			
Patient Privacy						
Yes	1.567	.585	2.4	1.086	5.129	**0.03**
No			*(Ref)*			
Distance to the facility						
0-30 mins	3.555	1.009	2.8	.004	.206	**.000**
31-60 mins	-3.521	.899	.030	.025	.172	.071
>1hr			*(Ref)*			
Stigma						
Yes	-2.354	.689	7.1	2.731	4.601	**.001**
No			*(Ref)*			
Spouse support						
Yes	-.175	.635	1.2	.242	2.913	.783
No			*(Ref)*			
Pregnancy disclosure						
Yes	1.081	.550	2.9	.115	.997	**.049**
No			*(Ref)*			
Marital status						
Married	-2.386	2.015	.092	.002	4.772	.236
Single	-.107	1.962	.898	.019	2.024	.956
Windowed			*(Ref)*			
Educational level						
No formal education	-2.180	1.137	8.849	.953	12.205	**.05**
Primary	.550	1.188	1.732	.169	17.784	.644
Secondary	.918	1.151	2.505	.262	23.915	.425
Vocational	-.172	1.630	.842	.034	20.561	.916
Tertiary			*(Ref)*			
Parity status						
Nulliparous	-1.434	.687	.238	.062	.915	.217
Primiparous	1.502	.649	4.5	.062	.794	.021
Multiparous			*(Ref)*			
Age of the study respondent						
18-23	1.650	.662	2	.143	1.911	**.016**
24-29	-3.041	1.639	.048	.002	1.187	.084
30-35	.848	.714	2.335	.576	9.463	.235
36-40			*(Ref)*			
Occupation						
Employed	-.930	.869	.395	.072	2.168	.285
Self-employed	.560	.601	1.751	.539	5.681	.351
Casual-labor			*(Ref)*			

4.11 A summary of Qualitative data

Table 4.8 below provides a summary of the qualitative findings obtained from the study respondents.

Table 4.8:Barriers to ANC Utilization

Theme	Sub-theme	Key Insights from Quotes	Number of Quotes	Example Quotes
Barriers to ANC Utilization	Distance to the hospital	Distance and lack of transportation are significant barriers preventing women from attending ANC services.	10	“ The hospital is so far away, and the transport cost is too high. I cannot afford to pay for a boda boda (every time I need to go for my ANC check-up."
	Patient Privacy	I worry that the nurses might share my personal information with others.	5	"I don’t like going to the hospital because there is no privacy. Everyone sees you when you go for ANC, and then they start gossiping in the community."
	Waiting time	Women who are pregnant may experience physical discomfort while waiting for extended periods	6	" Let me say the discomfort that comes with a heavy pregnancy cannot allow me to wait long be I see a doctor."

Table 4.9:Social-cultural Factors as a Theme

Theme	Sub-theme	Key Insights from Quotes	Number of Quotes	Example Quotes
Socio-cultural factors	Traditional Birth Practices	I would say TBAs often practice and endorse traditional methods and beliefs related to pregnancy and childbirth	5	"In our region, TBAs are often deeply rooted in the local culture and community hence we prefer giving birth at home"
	Stigma	Women may feel ashamed or guilty about their pregnancy.	4	"Sometimes being pregnant and you didn't want can bring shame which can reduce their motivation to attend ANC…"

Table 4.10:Facilitators of ANC Utilization as a Theme

Theme	Sub-theme	Key Insights from Quotes	Number of Quotes	Example Quotes
Facilitators of ANC Utilization	Social support	Supportive relationships provide motivation for women to attend ANC appointments	4	"My husband motivates me to go to the hospital so the baby and I we can get checked and always ensure we are in good health"
	Employment	Employment provides a steady source of income, which can reduce financial barriers to accessing ANC services.	8	" Let me say I being employed I am more likely to have the means to cover costs related to transportation, consultation fees, medications, and any additional diagnostic tests required during pregnancy"
	Marital status	Married women often receive emotional, financial, and practical support from their spouses	6	In my culture, there is a strong social expectation for married women to seek ANC services to ensure the health and safety of the mother and child.
	Education level	education enhances an individual's ability to make informed decisions about their health.	3	" I would say education fosters a preventive mindset, where women understand the value of regular check-ups and screenings to prevent complications during pregnancy."

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATIONS

5.0 Preamble

The study's summary, conclusion, and recommendations are all included in this section.

5.1 Summary of the Study

In summary, from this study, the uptake of antenatal care services was 75.9%. The majority (n=157, 71.4%) of the investigation subjects were married. More than a quarter(n=81, 36.8%) of the study respondents were aged between 18-23 years. Only a few(N=37,16.8%) of the study respondents were employed. More than a quarter (n=80, 36.4%) of the study participants had a primiparous parity status.

According to the second objective on social demographic factors linked to the utilization of ANC services, the investigation's participants' age, marital status, parity status, type of occupation, and degree of education were all found to be statistically related to the uptake of ANC services; as a result, they were imported for multivariate logistic regression analysis. ANC service use was not statistically correlated with religion or income level in bivariate logistic regression.

From the third objective on social-cultural factors associated with ANC services uptake; disclosing pregnancy status, stigma, and presence of spouse support were found to be statistically related to ANC services uptake hence they were imported for multivariate logistic regression analysis while the presence of harmful cultural practices and traditional birth attendants was not statistically associated with ANC services uptake during bivariate regression analysis.

Lastly, the fourth objective on health system factors related to ANC services uptake; distance to a medical facility, hospital waiting time, health care workers availability, and observation

of patient privacy were found to be statistically related to ANC services uptake hence they were imported for multivariate logistic regression analysis while adequacy of medical equipments and was not statistically associated with ANC services uptake during bivariate regression analysis.

5.2 Conclusion of the Study

This is a public health issue because the utilization of ANC services was 75.9%, which is significantly lower than the national goal of 85%. In terms of the socioeconomic demographic parameters linked to the use of ANC services, women between the ages of 18 and 23 and primiparous moms were more likely to utilization ANC services, whilst those without a formal education were less likely to do so. Pregnancy status disclosure increased the likelihood of using ANC services in relation to social-cultural characteristics linked to ANC service use. The likelihood of ANC uptake was decreased when stigma was present. Last but not least, the likelihood of ANC service uptake was increased by patient privacy observation and the proximity to the closest medical facility, two health system parameters linked to ANC service utilization.

5.3 Recommendations of the Study

5.3.1 Recommendations for Practice

1. The county government of Isiolo, the MOH, and other relevant stakeholders should establish healthcare facilities in closer proximity to communities, especially in underserved rural areas, which can enhance accessibility and reduce travel distances. Furthermore conducting community-based ANC services, mobile clinics, or outreach programs can help bring healthcare services closer to pregnant women, reducing the need for long-distance travel.
2. The county government of Isiolo, the MOH, and other relevant stakeholders should ensure that healthcare providers are trained to handle patient information ethically

and confidentially. This includes promoting a culture of respect for patient privacy within healthcare facilities.

3. The county government of Isiolo, the MOH, Community leaders, and other relevant stakeholders should conduct awareness campaigns to dispel myths and misconceptions related to pregnancy and ANC. Providing accurate information can contribute to reducing stigma among pregnant mothers.
4. The study recommends family support networks that involve family members in discussions about maternal health and ANC. This will enable the reduction of stigma as well as create an enabling environment that will enable early pregnancy disclosure among pregnant women which will promote increased uptake of ANC services.

5.3.2 Recommendations for Policy

1. The MOH and other relevant stakeholders should put more effort into enriching the existing policies on maternal health by including community-based health education campaigns to raise consciousness about the significance of ANC, its benefits, and the recommended schedule for visits throughout pregnancy.

5.3.3 Recommendation for Further Research

1. This research recommends intervention research on the role of community education and awareness programs towards the use of ANC services among WRA in arid and semi-arid regions.

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APPENDICES

APPENDICES 1:Letter of Introduction and Informed Consent

Researcher name: Martin Miriti

Study topic: antenatal care services use and determinants among females of reproductive age in Isiolo North sub-county, Isiolo County, Kenya.

Introduction and Study Purpose

I'm Martin Bundi Miriti, an MKU student, and I'm conducting studies to investigate the variables that affect the number of women who opt to use prenatal care services in Isiolo North sub-county, Isiolo County, Kenya. Evaluating ANC service consumption and the relevant factors is the main goal of the project. The coursework is required to obtain this master's degree and is entirely academic in character.

Participation and Withdrawal from the Research

Participation in the present investigation is entirely deliberate, and partakers are free to end their involvement at any time without penalty.

Benefits of the Research

The research will provide information on the adoption of prenatal care services and related variables among WRA in Isiolo North sub-county, Isiolo County, Kenya, but it has no immediate benefits.

Potential Risk and Discomfort

You might feel that some of the questions you will be asked are too personal, in which case you might decide not to answer them. At any time during the interview, you have the option to leave. Your time commitment for the session will be around 20 minutes.

Confidentiality and Anonymity

Any form of verification will not be made public in the research's final report, and answers to questions generated by this investigation will be kept in the strictest confidence. The study

questionnaires will be coded, and after a year, the unique ones will be destroyed. This study is entirely academic.

Contact Information

You can get in touch with Mr. Martin Bundi Miriti at +254727844193, Martin.miriti28@gmail.com, or the Institutional of Ethics and Review Committee at Mount Kenya University at research@mku.ac.ke.

Participant Statement

I have been given information about the goals, advantages, and risks associated with this research in a language that I can understand. My participation in the research is therefore charitable, and I have the choice to pull out at any moment. I received answers to my inquiries about the study and was given the assurance that my information would remain private and anonymous. I willingly agree to take part in the investigation.

Respondent's Signature/Thumbprint

……... Date……..

Research Statement

The intention of this study has been made clear to the participant by me, the researcher, in a language they are both comfortable with.

Researcher Signature

……... Date……..

APPENDICES 2: Questionnaire
Social and Demographic Traits

Instruction:

Tick the box that suits your response

1. What age are you?

.....

2. What is your highest educational level?

a)Primary education [ ]

b)Secondary education [ ]

c)Tertiary education [ ]

d)No formal education [ ]

3. What is your marital status

a)Single [ ]

b)Married [ ]

c)Windowed [ ]

d)Divorced [ ]

4. What is your level of income in a month?

……..

5. How many pregnancies have you conceived?

…….

6. What is your religion?

a)Pagan [ ]

b)Hindu [ ]

c)Islam [ ]

d)Christian [ ]

Uptake of Antenatal Care Services

7. During your last pregnancy did you seek antenatal care services from the nearest health facility(if no to question number 7, proceed to question number 10)

a)Yes

b)No

8. Number of times mother visited the ANC clinic for a check-up

……

9. Gestitation period at the first visit

a)First

b)Second

c)Third

d)Fourth

Health Facility Factors

10. During examination when attending antenatal care clinics, do you feel your privacy is observed by the health care providers

a)Yes [ ]

b)No [ ]

11. Are health care providers available during antenatal care visits?

a)Yes [ ]

b)No [ ]

12. Do you feel the health facility you seek antenatal care services has enough health care workers?

a)Yes [ ]

b)No [ ]

13. Do health facilities near you have adequate medical equipments for antenatal care services?

a)Yes [ ]

b)No [ ]

14. How long do expectant mothers wait before they are attended for antenatal care services at the hospital

a)0-30 minutes [ ]

b)31-60 minutes [ ]

c)>1 hour [ ]

d)I don't know [ ]

15. What is your view on the waiting time

a)Long waiting time [ ]

b)Short waiting time [ ]

c)Any other? Specify [ ]

16. How long does it take to reach the next health facility where antenatal care services are provided

a)15-30 minutes [ ]

b)31-60 minutes [ ]

c)>1 hour [ ]

d)I don't know [ ]

17. What is your opinion about the distance?

a)Near [ ]

b)Far [ ]

Social Cultural Factors

18. Does your culture allow you to disclose your pregnancy early enough before its visible

a)Yes [ ]

b)No [ ]

19. Are pregnant women denied access to social activities in your community

a)Yes [ ]

b)No [ ]

20. Do you believe in harmful cultural practices such as witchcraft that may affect pregnant mothers

a)Yes [ ]

b)No [ ]

21. Does your spouse escort you to antenatal care clinics to the nearest health facility

a)Yes [ ]

b)No [ ]

22. Do you prefer seeking antenatal care services from traditional birth attendants

a)Yes [ ]

b)No [ ]

23. do you experience fear or anxiety that may hinder you from seeking antenatal care services from the nearest health facility?

a)Yes [ ]

b)No [ ]

APPENDICES 3:Focused Group Guide
Outline

My name is Martin Bundi Miriti, and I'm a alumna scholar at Mount Kenya University studying epidemiology and disease control. I'm taking part in research on the factors that influence how many WRA use ANC services in Kenya's Isiolo North sub-county. So, I humbly ask that you give this conversation 45 to 60 minutes of your time so that you can get involved and contribute. I humbly ask for your participation in the conversation and sincere responses.

1. How would you rate the adoption of reproductive women in Kenya's Isiolo North sub-county of services for antenatal care?
2. In Isiolo North sub-county, Isiolo County, Kenya, what social and demographic factors are related to WRA using ANC services?
3. In Isiolo County, Kenya's north sub-county, what social and cultural factors are involved with WRA using ANC services?
4. In Isiolo County, Kenya's north sub-county, what aspects of the health system are related to women of reproductive age using antenatal care services?

END OF INTERVIEW

APPENDICES 4: Key Informant Interview Guide
Outline

My name is Martin Bundi Miriti, and I'm an alumna scholar at Mount Kenya University studying epidemiology and disease control. I'm taking part in research on the factors that influence how many WRa use ANC services in Kenya's Isiolo North sub-county. Therefore, I humbly ask that you give this discussion about 20 to 25 minutes of your time so that you can participate. I humbly ask for your participation in the conversation and sincere responses.

1. How would you rate the adoption of reproductive women in Kenya's Isiolo North sub-county of services for antenatal care?
2. In Isiolo North sub-county, Isiolo County, Kenya, what social and demographic factors are related to WRA using ANC services?
3. In Isiolo County, Kenya's north sub-county, what social and cultural factors are involved with WRA using ANC services?
4. In Isiolo County, Kenya's north sub-county, what aspects of the health system are related to WRA using ANC services?

END OF INTERVIEW

APPENDICES 5: ERC Certificate

Mount Kenya University

REF: **MKU/ISERC/3388** Date: 13 December 2023
TO: **MARTIN BUNDI MIRITI**
REG: **MPH/2022/49779**

Dear Sir/Madam,

RE: DETERMINANTS OF ANTENATAL CARE SERVICES UPTAKE AMONG WOMEN OF REPRODUCTIVE AGE IN ISIOLO NORTH SUB-COUNTY, ISIOLO COUNTY, KENYA

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **2432.** The approval period is **13/12/2023 - 12/12/2024.**

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.

The Chairman
Mount Kenya University
Ethics Review Committee
P. O. Box 342 - 0100, Thika

Yours sincerely,

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

APPENDICES 6: Nacosti License

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: **148492**

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

RESEARCH LICENSE

This is to Certify that Mr.. Martin Miriti Bundi 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 Isiolo on the topic: DETERMINANTS OF ANTENATAL CARE SERVICES UPTAKE AMONG WOMEN OF REPRODUCTIVE AGE IN ISIOLO NORTH SUB-COUNTY, ISIOLO COUNTY, KENYA for the period ending : 03/January/2025.

License No: **NACOSTI/P/24/32297**

148492

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

APPENDICES 7: Permit from the Department of Health

ISIOLO COUNTY GOVERNMENT
OFFICE OF THE DIRECTOR
HEALTH SERVICES

REF. ISO/CONT/DDMS/P.E/VOL.3/24

Date: 19TH JANUARY, 2024

MR. MARTIN MIRITI BUNDI

RE: RESEARCH AUTHORIZATION

The department of health is in receipt of your letter dated 9th January 2024 requesting to conduct a research on: ***Determinants of Antenatal care services uptake among women of reproductive age in Isiolo North Sub County.*** This office has no objection for you to conduct your research in our County.

This letter therefore serves as an authorization from the County Department of Health Services Isiolo, for you to conduct the study. You will be expected to liaise with our County Reproductive Health Coordinator for guidance and assistance. You will also be expected to adhere to all laid down MOH guidelines, work and research ethics.

Wish you well in your research.

Thank You

COUNTY GOVERNMENT OF ISIOLO
DIRECTOR OF HEALTH
Date:.....
P.O. Box 36- 60300, ISIOLO

MOHAMED ABDI BORU
DEPUTY DIRECTOR MEDICAL SERCICES
ISIOLO COUNTY

APPENDICES 8: Permit from County Commissioner

OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND
NATIONAL ADMINISTRATION

Telegrams 'DISTRICTER' Isiolo
Telephone: Isiolo 064-52011.
isiolocc@yahoo.com
Fax :064- 52160
When replying please quote

Ref: No: **CC/ST. I/7/VOL.II/27**

OFFICE OF THE COUNTY
COMMISSIONER
P.O. BOX 3-60300
ISIOLO

19th January, 2024

Deputy County Commissioner
ISIOLO SUB-COUNTY

RE: RESEARCH AUTHORITY –MARTIN BUNDI MIRITI

The above named student is pursuing Master of Public Health at Mount Kenya University has been authorized to do research on the topic **"Determinants of Antenatal Care Services Uptake Among Women of Reproductive Age in Isiolo North Sub-County".**

The research period is January, 2024 to 3rd January, 2025.

Kindly accord him any necessary support.

COLLINS BETT
For: COUNTY COMMISSIONER
ISIOLO COUNTY

COUNTY COMMISSIONER
ISIOLO COUNTY
P. O. Box 3 - 60300
ISIOLO

APPENDICES 9: Similarity Index Report

Martin Thesis

by martin miriti

Submission date: 19-Jun-2025 01:19PM (UTC+0300)
Submission ID: 2418552434
File name: MARTIN_BUNDI_MIRITI_-_Thesis.docx (3.35M)
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Martin Thesis

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APPENDICES 10: Map of The Study Area