

**DETERMINANTS OF EIGHT CONTACTS ANTENATAL CARE UPTAKE AMONG
PRENATAL MOTHERS IN CHANGAMWE SUB-COUNTY MOMBASA, KENYA**

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DECLARATION

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

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DEDICATION

This research is dedicated to my family for their unwavering support and devotion throughout the duration of the study.

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ABSTRACT

Optimal antenatal care (ANC) uptake is critical for improving maternal and neonatal health outcomes. Despite global efforts to promote ANC, maternal and neonatal mortality rates remain high. In Kenya, neonatal mortality stands at 21 deaths per 1,000 live births, emphasizing the need to enhance ANC uptake. In Changamwe Sub-County, data from the MOH 711 digital reporting tool revealed persistently low adherence to the recommended eight ANC contacts, alongside rising fresh and macerated stillbirths and fluctuating maternal deaths. This study assessed the determinants influencing ANC uptake among prenatal mothers in Changamwe, Mombasa, Kenya. Specifically, the study examined the role of community health promoters, the quality of ANC services, health need-related factors, and household status in determining the completion of eight ANC contacts. A mixed-method research design incorporating both qualitative and quantitative approaches was employed. The target population included postnatal mothers attending maternal child health clinics in public health facilities and maternal child healthcare clinic nurse managers as key informants. A total of 370 mothers and 4 nurse managers participated in the study, selected using purposive and simple random sampling techniques. Data collection involved structured questionnaires for mothers and key informant interviews with nurse managers. Descriptive statistics were used to summarize the findings, while correlation and multiple regression analyses assessed relationships between study variables. The results indicated that household status, health need-related factors, and the quality of ANC services significantly influenced ANC uptake. Specifically, household status was positively associated with ANC uptake ($\beta = 0.45$, $p = .002$), indicating that increased support within the household correlates with higher ANC attendance. Health need-related factors also showed a significant positive relationship ($\beta = 0.38$, $p = .005$), suggesting that mothers with greater health needs are more likely to attend ANC services. The quality of ANC services was another significant predictor ($\beta = 0.42$, $p = .003$), emphasizing the importance of service quality in encouraging ANC visits. However, community health promoters had no statistically significant impact on ANC uptake ($\beta = 0.10$, $p = .08$). Based on the findings, the study recommends strengthening household support systems by involving spouses in ANC education and empowering women in healthcare decision-making. Enhancing ANC service quality through respectful care, skilled provider training, and ensuring reliable supply chains for ANC commodities is also advised. Addressing health need-related barriers by promoting early screening for pregnancy complications and increasing maternal health literacy is crucial. Additionally, re-evaluating the role of community health promoters through targeted training, supervision, and structured home visit and referral frameworks is necessary. Implementing broad community sensitization campaigns to boost awareness and dispel myths surrounding ANC. Further research on community health promoters' effectiveness in ANC promotion within varied contexts and explore the underlying factors contributing to the low rate of antenatal care (ANC) initiation before 12 weeks of gestation recommended. These recommendations underscore a need for multi-level interventions ranging from household empowerment to service delivery improvements to increase ANC uptake and ultimately reduce maternal and neonatal morbidity and mortality.

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ABBREVIATIONS AND ACRONYMS

ANC:	Antenatal Care
EUT	Expected Utility Theory
HIV:	Human Immunodeficiency Syndrome
KDHS:	Kenya Demographic Health Survey
LMIC:	Low Middle-Income Countries
TB:	Tuberculosis
TPB:	Theory of Planned Behavior
SDG:	Sustainable Development Goals
UNICEF:	United Nations Children's Fund
UN:	United Nations
WHO:	World Health Organization
CHPs	Community health promoters

CHAPTER ONE

INTRODUCTION

1.1 Background of study

The World Health Organization (WHO) identified six building blocks for health-system strengthening: service delivery, health workforce, health information systems, access to key medicines, governance, leadership, and financing (World Health Organization [WHO], 2016). This study was founded on the notion of service delivery, which works best when equitable access to a diverse range of high-quality health services is assured within a cohesive and patient-centred care continuum (Orton et al., 2018). Eight contacts antenatal care, is a critical aspect of service delivery because it provides a platform for health systems measures to boost the usage and level of care delivered, raising the demand for and standard of ANC services. Examples include midwife-led continuity of care and ANC contact regimens, among others. Antenatal care (ANC) refers to the support and medical attention provided by medical experts to teenage girls and expectant mothers in order to achieve the best possible health for both the mother and the foetus throughout pregnancy (WHO, 2016). This care package includes essential services and interventions throughout pregnancy, focusing on prevention, risk assessment, and the treatment of ailments connected to pregnancy. Additionally, it encompasses advice on nutrition, promoting good health, and preventing diseases including tuberculosis, HIV and malaria. This comprehensive approach aims to offer a high-quality, adaptable care package based on procedures based on evidence, providing appropriate and pertinent guidance and assistance throughout pregnancy (Hackett et al., 2019). ANC helps reduce perinatal and maternal morbidity and mortality by directly addressing problems associated with pregnancy and identifying those at higher risk for complications during labor and delivery, facilitating appropriate referrals (Wolde et al., 2019).

Furthermore, despite the availability of prenatal care, women's health has deteriorated in recent years, with maternal mortality rates increasing or decreasing in practically every region of the world (WHO, 2023). In 2020, the expected rate of maternal death per 100,000 live births was 223 worldwide, with Australia at 5, the United States at 21, Brazil at 72, Afghanistan at 620, and Bangladesh at 123 (Odusina et al., (2021). South Africa 127, Central African Republic 835, Kenya 530, and Nigeria 10479 (WHO 2023). Additionally, two million stillborn babies were delivered worldwide in 2019, occurring after 28 weeks of pregnancy, and many of these deaths could have been prevented with proper care (United Nations Children's Fund [UNICEF], 2020). Furthermore, it is anticipated that 2.4 million children died within their first month of birth in 2020, equivalent to around 6,500 newborns every day worldwide (UNICEF, 2021). Global newborn death rates per 1,000 live births varied, with Australia at 2, Brazil at 9, China at 3, Afghanistan at 34, Ethiopia and Bangladesh at 16, South Africa at 11, and Nigeria at 35 (Cresswell & World Health Organisation 2023). In Kenya, there were 21 neonatal deaths per 1000 live births (Kenya Demographic Health Survey [KDHS], 2022). As a result, identifying the factors of antenatal care uptake among pregnant mothers is critical for improving service delivery and strengthening the health system in order to minimize maternal and perinatal mortality rates.

The Sustainable Development Goals (SDGs) aim to reduce maternal fatalities to less than 70 per 100,000 live births and neonatal mortality to 12 per 1,000 live births by 2030 (UN General Assembly, 2015). Antenatal care (ANC) coverage is an important statistic for assessing healthcare access and utilisation throughout pregnancy, as well as for tracking progress towards SDG number three (Apanga & Kumbeni, 2021). In 2016, the World Health Organisation (WHO) issued updated ANC guidelines, recommending an increase from four ANC visit, to maximum of eight contacts. This statement is supported by data that more regular antenatal

care (ANC) uptake can reduce perinatal mortality and improve the pregnancy experience for women. The updated schedule includes an initial contact in the first trimester at 12 weeks, two contacts in the second trimester at 20 and 26 weeks, and five contacts in the third trimester at 30, 34, 36, 38, and 40 weeks (WHO, 2016). A systematic study of women's perceptions found that having a positive pregnancy experience is a strong motivator for attending ANC (Downe et al., 2019).

The proportion of women who had eight or more antenatal care (ANC) appointments varies by country: 74.0% in Jordan, 43.0% in Ghana, and 30.0% in Albania (Ekholuenetale, 2021). In Bangladesh, just 6% of women completed eight ANC sessions (Sarker et al., 2020), whereas in South Africa, the figure was 24.9% (Hoque et al., 2022), and in Nigeria, it was 17.4% (Ekholuenetale et al., 2020). Although Kenya's government followed the WHO's recommendation, 66% of women received four or more ANC visits from a skilled healthcare professional, with only 3.5% completing eight ANC visits (KDHS, 2022; Macharia et al., 2022). Changanwe sub-county, with 6% women, completed eight ANC contacts (Ministry of Health, Kenya. (2023). The persistently low uptake of antenatal care services reveals a significant gap between policy intent and community-level health behavior. This gap highlights the urgent need to investigate and address the underlying barriers limiting ANC participation a crucial step toward improving maternal and neonatal health outcomes in the region.

1.2 Statement of the problem

Despite the World Health Organization recommendation of eight antenatal care contacts to prevent newborn and maternal mortality, acceptance of this critical service remains alarmingly low in Kenya at 3.9% (Kere et al., 2025). In the Changanwe Sub-county. Between 2020 and 2022, the proportion of pregnant women who completed the required eight ANC visits in Changanwe remained persistently below 15%, with annual estimates of 5% in 2020, 5% in 2021, 6% in 2022, and 13% in

2022 (Ministry of Health, Kenya [MoH], 2022). During the same period, perinatal death rates in Changamwe Sub-county remained high, ranging from 25 to 32 per 1,000 live births, with annual rates of 32 in 2020, 31 in 2021, 25 in 2022, and 29 in 2022 (MoH, 2022).

Similarly, maternal fatalities per 100,000 live births fluctuated substantially, reaching 27 in 2020, 243 in 2021, 73 in 2022, and finally 25 in 2022 (MoH, 2022). The continued low ANC acceptance may reflect fundamental concerns regarding the quality, accessibility, and responsiveness of ANC services provided in public health facilities (MoH, 2022). These findings underscore a critical need to address the barriers limiting ANC participation in order to enhance maternal and neonatal health outcomes in the region.

1.3 Study Purpose

The study enabled gathering of data on determinants of eight contacts ANC among prenatal mothers in different health levels of care in Changamwe Sub County, Mombasa County, which enabled the development of strategies to improve ANC uptake.

1.4 Objectives

1.4.1 Broad Objective

To explore the determinants of eight contacts ANC uptake among prenatal mothers in Changamwe sub-county, Mombasa, Kenya.

1.4.2 Specific Objectives

- i. To evaluate how community health promoters, affect ANC uptake among pregnant women in Changamwe Sub-County.
- ii. To assess how quality ANC services influence ANC uptake among pregnant women in Changamwe Sub-County.
- iii. To investigate how health need-related factors influence ANC uptake among pregnant women in Changamwe Sub-County.

- iv. To examine how the household status of pregnant women influences the uptake of eight ANC contacts in Changamwe Sub-County.

1.5 Research Questions

- i. How do community health promoters affect the uptake of ANC among pregnant women in Changamwe Sub-County?
- ii. How do quality ANC services influence ANC uptake among pregnant women in Changamwe Sub-County?
- iii. How do health need related factors influence the uptake of ANC among pregnant women in Changamwe Sub-County?
- iv. How does the household status of pregnant women influence the uptake of eight ANC contacts among pregnant women in Changamwe Sub-County?

1.6 Justification of the study

Maternal and child health is a top global priority, and antenatal care is crucial for ensuring safe pregnancies and positive birth outcomes. However, utilizing eight contacts ANC services is influenced by various factors, ranging from individual beliefs and socio-cultural norms to healthcare system accessibility and quality. Understanding what influences pregnant mothers to seek eight ANC contacts is vital for improving healthcare service utilization during pregnancy. The result of the investigation is the foundation for evidence-based interventions tailored to the local context which are essential for designing effective interventions and strategies that discuss the particular difficulties that prenatal mothers and the needs of pregnant women in turn accelerate acceptance of eight contacts antenatal care and provide mothers with positive pregnancy experience. Furthermore, this study is expected to inform and strengthen

key maternal health policies in Kenya, including the reproductive, maternal, newborn, child and adolescent health policy (2016–2030), the national guidelines for quality obstetrics and perinatal care, resulting in improved maternal and neonatal outcomes.

1.7 Limitations of the study

Respondents were hesitant to reveal sensitive information regarding their reproductive health because of socio-cultural views. To solve this problem, the researcher informed respondents that their information would stay anonymous, used just for the study, and their identities would not be divulged to third parties. The study's focus on prenatal mothers at selected health facilities in Chagamwe Sub-County limits its generalizability to other regions. Additionally, the study examined only client-side factors influencing ANC uptake, without addressing health system or provider-level influences.

1.8 Delimitations of the study

The study looked at the factors that influence eight contacts ANC uptake, with a focus on expectant mothers. The study was done in Chagamwe, a sub-county of Mombasa County, at three levels of care: tier two, tier three and tier four. The study specifically established the influence of community health promoters, the relationship between perceived ANC service quality, the influence of health need related factors, and the influence of prenatal mothers' household status in the uptake of eight contacts ANC among prenatal mothers in Chagamwe sub-county.

1.9 Significance of the study

This study aimed at providing valuable insights into improving maternal and neonatal health, aligning with Sustainable Development Goal three and Kenya's Vision 2030 blueprint. Investigating factors affecting antenatal care (ANC) uptake informed policymaking and healthcare provision in Changamwe Sub-County. The findings contributed to existing knowledge, aiding guideline development and program design. By addressing specific barriers identified among prenatal mothers, the study promoted greater utilization of ANC services, ultimately enhancing maternal and neonatal health outcomes. This research filled gaps in the literature, offering a localized perspective that can inform broader discussions on ANC utilization. Furthermore, it laid the groundwork for future studies, encouraging further exploration of related factors and the long-term impact of interventions in this field.

1.10 Assumption of the study

It was considered that the respondents provided accurate responses to the questions and that the sample represented the population. Furthermore, it was assumed that the health care system in Changamwe sub-county had matured sufficiently to handle eight contacts of ANC.

1.11 Operational Definition of Terms

Maternal mortality ratio:	The number of deaths of mothers per 100,000 live births that result from pregnancy or its termination, regardless of the pregnancy's duration or location.
Neonatal Mortality rate:	Neonatal mortality is measured per 1,000 live births.
Uptake of ANC services	Attending at least eight antenatal care appointments with qualified healthcare professionals
Contact	An engaged relationship between expectant mothers and their healthcare professionals.
Positive pregnancy experience	Ensuring physical and sociocultural well-being during pregnancy, facilitating a seamless shift to healthy labor and delivery, and fostering a positive experience of motherhood.
Macerated stillbirth	occurs when the fetus dies in the womb and remains there for an extended period before delivery, leading to significant breakdown and decomposition of the skin and soft tissues. The fetus may appear discolored or swollen and may have skin that is softened or partially dissolved.
Fresh still births	occur when a fetus dies in the womb shortly before or during labor. The skin and soft tissues of the fetus remain intact, without signs of breakdown or discoloration.
Community health promoters	CHPs are trusted community members trained to deliver essential health services, share knowledge, and link households to the broader health system.
Health need related factors	Are individual determinants to access to healthcare and are the characteristics that influence an individual's ability to obtain healthcare services, such as income, education

level, and health literacy.

Quality of 8 contacts ANC

The 8-contact ANC model ensures comprehensive, respectful, and evidence-based care throughout pregnancy, providing full support at each visit to achieve better maternal and newborn outcomes.

Pregnant women status in the Household

This role, influence, autonomy, and level of support during pregnancy. It is shaped by factors such as gender norms, education, economic dependence, and family dynamics.

Eight contacts antenatal care uptake

8 contacts ANC refers to eight antenatal care contacts during pregnancy, as recommended by the World Health Organization (WHO) to improve maternal and perinatal health outcomes. This approach allows for more comprehensive, timely, and person-centered care throughout the pregnancy.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter reviewed literature related to the determinants of eight contacts ANC uptake among prenatal mothers. Specifically, the chapter reviewed eight contacts ANC, influence of community health promoters, the quality of ANC services, influence of health need-related factors and the influence of household status of prenatal mothers related to ANC uptake among prenatal mothers. The chapter was thus structured and guided by the study objectives.

2.2 Eight Contacts ANC uptake

Antenatal care (ANC) aims to enhance the pregnancy experience by focusing on favorable prenatal and maternal results, the woman and family's well-being, and personalized medical treatment. It defines a fundamental set of routine ANC services necessary for women and adolescent girls throughout their pregnancy. This comprehensive approach integrates clinical care, health promotion, nutritional support, and the preventive and early identification of diseases that coexist with pregnancy and disorders associated to it such as malaria, HIV, and tuberculosis (WHO, 2016). It also includes health system strategies to improve the quality and use of ANC services, contributing significantly to a positive pregnancy experience, which in turn motivates women to seek and adhere to ANC care. According to UNICEF (2024), less than two-thirds of pregnant women worldwide receive the minimum four ANC visits, and fewer than half complete eight contacts. The disparities are more pronounced in low- and middle-income countries, where socioeconomic inequalities, geographic barriers, and inadequate health systems hinder access and adherence to ANC schedules. In sub-Saharan Africa, coverage of at least eight ANC contacts remains particularly low, reflecting ongoing

challenges in the availability, quality, and continuity of maternal healthcare services.

Recommendations include continuity of care overseen by midwives throughout the shifting components of antenatal care (ANC), postnatal periods, intrapartum, and antenatal, to include health promotion and distribution of nutritional supplements, and focusing on attracting and keeping medical personnel in isolated and rural locations (Lee et al., 2024) . Additionally, there is a push for community mobilization to strengthen assistance and communication for expectant mothers, and the use of women-held case notes. These recommendations are designed to be adaptable to various country contexts, considering different disease burdens, social and economic conditions, and health system structures (Zarbiv et al., 2025). Lavin et al. (2020) found that adopting the 2016 WHO recommendations for improving pregnancy experiences is a promising public health approach for reducing stillbirths in South Africa. Increased ANC uptake enhances opportunities for better communication and support, aiding in the detection and management of conditions like hypertension.

2.3 Influence of community health promoters

Community health promoters (CHPs) often serve as the initial contact for health services for many women seeking care. They provide essential maternal and newborn health services directly within communities, bridging the gap between health facilities and households. CHPs play a crucial role in facilitating better and more equitable access to maternal care particularly in remote or underserved areas where formal health facilities are distant. Through regular counseling, home visits, and awareness campaigns, CHPs educate women about the importance of antenatal care (ANC), timely initiation of ANC visits, and the value of skilled delivery in health facilities. Their efforts address socio-cultural and logistical barriers that often delay or prevent expectant mothers from attending ANC early or completing the recommended number

of visits. According to Sserwanja et al. (2022) analysis of 5,432 women showed that only 44.8% (95% CI: 43.1–45.7) had their first ANC contact in the first trimester, while just 22.0% (95% CI: 21.2–23.4) achieved eight or more ANC contacts as recommended by the WHO. The study further revealed that women initiating ANC after the first trimester had significantly lower odds of completing eight contacts (aOR 0.58, 95% CI 0.49–0.68). Younger women aged 15–19 years also had reduced odds (aOR 0.64, 95% CI 0.45–0.91). Conversely, working women (aOR 1.33, 95% CI 1.10–1.62) and wealthier women were more likely to complete all ANC visits. Women who used the internet, lived in the southern region, and had fewer than five births showed higher odds of completing the recommended ANC contacts. Moreover, women who did not face significant obstacles obtaining permission to visit health facilities were also more likely to attend all ANC visits. These findings highlight how socioeconomic factors, empowerment, and accessibility influence ANC attendance. CHPs, therefore, are critical in addressing these determinants by improving health literacy, promoting autonomy in healthcare decisions, and linking women to available maternal health services (Sserwanja et al., 2022).

2.3.1 Role of CHPs in Creating Awareness

Wafula et al. (2022) carried out a quasi-experimental study in Uganda to evaluate the impact of community health promoters' involvement on ANC attendance. The intervention, which included community dialogues and health education sessions led by CHPs, resulted in a significant increase in women attending four or more ANC visits. Factors such as post-primary education, higher wealth quintile, and early ANC initiation further enhanced attendance. The study concluded that CHPs-led community education programs are effective in increasing ANC uptake through improved awareness and empowerment of expectant mothers.

Similarly, Regan et al. (2023) conducted a large-scale cluster-randomized trial in Dar es Salaam

involving 243,908 women. The study demonstrated that trained CHPs significantly increased the likelihood of attending four or more ANC visits (Relative Risk = 1.42; 95% CI: 1.05–1.92). Although the intervention did not significantly improve early ANC initiation, it modestly increased total ANC attendance by 7.7%. The authors recommended that combining CHP-led interventions with qualitative studies involving both patients and healthcare providers could identify persistent barriers to early initiation and full ANC compliance.

In a broader synthesis, Scharff et al. (2022) reviewed 123 studies assessing community health promoter interventions and found that CHPs were often part of multi-component programs that yielded positive impacts on maternal knowledge, ANC utilization, and birth outcomes. Most CHPs conducted home visits and community meetings, enhancing localized awareness of maternal and child health. The study emphasized the need for continued collaboration between CHPs and clinical providers to sustain maternal and neonatal health improvements.

In the Kenyan context, Nyobendo et al. (2023) explored healthcare providers' perceptions of ANC utilization and found that gaps in ANC uptake often stemmed from ignorance and lack of motivation, particularly among multigravida women. The study showed that structured health education and community sensitization delivered through CHPs significantly improved compliance with ANC recommendations. The authors advocated for the use of standardized health message packages and community advocacy initiatives to reinforce the importance of timely and complete ANC attendance.

Collectively, these studies underscore that CHPs are not merely health messengers but essential agents of behavioral change and community trust-building. By delivering health education, conducting follow-ups, and bridging the information gap between healthcare providers and communities, CHPs contribute significantly to improving maternal and neonatal health outcomes across diverse settings

2.3.2 CHPs Follow-Up Through Home Visits

Home visits conducted by Community Health Promoters (CHPs) play an essential role in improving maternal health outcomes by ensuring continuity of care, offering personalized counseling, and encouraging timely initiation and sustained attendance of antenatal care (ANC) visits. Pregnant mothers who receive home visits from CHPs during pregnancy are more likely to attend their first ANC appointment within 12 weeks than those who do not. This improvement is attributed to the dissemination of information and education within the community regarding the timing, significance, and benefits of ANC attendance (Acup et al., 2023).

In a study conducted by Acup et al. (2023), early ANC attendance among women was recorded at 36.1%. However, women who were unmarried (aOR = 0.40, 95% CI 0.16–0.99), took more than two hours to reach a health facility (aOR = 0.21, 95% CI 0.07–0.62), or were not visited by village health teams or healthcare workers at home (aOR = 0.33, 95% CI 0.12–0.92) were significantly less likely to attend their first ANC early. Conversely, women who attended ANC from private facilities (aOR = 2.89, 95% CI 1.27–6.15), had two to three healthcare workers present at the clinic (aOR = 1.79, 95% CI 1.03–3.13), or became pregnant without the consent of their spouse (aOR = 4.29, 95% CI 1.75–10.55) were more likely to seek early ANC. These findings underscore the influence of household outreach and community engagement on timely ANC initiation.

Similarly, Ssetaala et al. (2022) conducted a quasi-experimental study in Ugandan fishing villages to evaluate the effect of household-based maternal health visits by CHPs on antenatal care utilization. Nearly all women accepted the CHP intervention (90.9%), which was associated with increased early ANC attendance within 20 weeks of pregnancy (aOR = 2.1, 95% CI 0.6–7.6). Although the association with attending four or more ANC visits or skilled

birth attendance was not statistically significant, the findings highlighted the crucial role CHPs play in encouraging maternal health awareness and linking communities to formal healthcare systems.

Further evidence from Kayentao et al. (2023), who implemented a cluster-randomized trial in Mali, showed that active home-visit interventions by CHPs significantly improved ANC uptake. The estimated risk ratios were 1.05 (95% CI 1.02–1.07) for receiving any ANC, 1.25 (95% CI 1.08–1.43) for attending four or more ANC visits, and 1.11 (95% CI 1.02–1.19) for initiating ANC in the first trimester, compared with control groups. Although institutional delivery rates did not differ between groups, 19% of pregnancies in the intervention clusters received at least eight ANC contacts, compared with just 2% in control clusters.

The study by Kayentao et al. (2023) also revealed several mechanisms explaining the success of CHP home-visit programs: (1) proactive case detection that encouraged early ANC initiation, (2) reduction of opportunity costs and geographical barriers by delivering services directly to households, and (3) the establishment of trust through personal engagement, counseling, and appointment reminders. These interventions ultimately fostered stronger community-facility linkages and enhanced compliance with ANC schedules.

Collectively, the evidence suggests that CHP home-visit programs are instrumental in improving ANC initiation and continuity, particularly in resource-constrained settings. By combining personalized household outreach with community health education and system-level support, CHPs serve as a bridge between pregnant women and health facilities, helping to overcome logistical, social, and informational barriers that hinder optimal maternal healthcare utilization

2.3.3 CHPs Role as Referral Links Between Households and Health Facilities

Community Health Promoters (CHPs) serve as a crucial bridge between households and healthcare facilities, ensuring that women and families can access timely and appropriate maternal healthcare services. Their responsibilities encompass home visits, identification of pregnant women, provision of counseling, follow-up of defaulters, and facilitation of referrals for antenatal, delivery, and postnatal care. These efforts contribute not only to improving service utilization but also to enhancing the continuity of maternal healthcare from the community to health facilities.

According to Samuel and Joyce (2022), community health volunteers (CHVs) played a significant role in promoting maternal health through structured home visitation and referral services. All CHVs in their study conducted home visits, with the majority (89%) performing more than two visits for antenatal care and postnatal follow-up. Furthermore, 78% identified pregnant mothers for referral, while 67% traced those who defaulted from care. However, the study revealed a weaker link between CHPs and healthcare facilities after discharge from antenatal care clinics due to the absence of a standardized framework for implementing home visits and referrals. This underscores the importance of establishing a structured community maternal health framework to enhance supervision, coordination, and tracking of community-based maternal services.

Similarly, Kachimanga (2020) examined the impact of community health worker programs on perinatal service utilization in Malawi. The study found substantial improvements following CHP engagement: enrollment of women in antenatal care increased by 18% (95% CrI: 8–29%), initiation of ANC in the first trimester rose by 200% (95% CrI: 162–234%), and completion of four or more ANC visits grew by 37% (95% CrI: 31–43%). These findings highlight that CHP-led interventions, particularly those involving education, reminders, and psychological support,

significantly improve early and comprehensive ANC attendance.

The importance of CHPs as referral agents is further reinforced by ud Din et al. (2023), who studied female Lady Health Workers (LHWs) in Pakistan. Their findings showed that respondents had excellent experiences with referral services, noting that timely referrals by LHWs to appropriate health facilities greatly improved maternal health outcomes. The study recommended expanding the use of LHWs and CHPs to underserved areas to reduce maternal mortality through effective linkage of community and facility-based care.

Furthermore, Kinshella et al. (2021) explored how digital tools could strengthen the role of community-based health workers in maternal health referrals. Their study introduced the *Pre-eclampsia Obstetric Monitoring (POM)* mobile application, used by LHWs to guide counseling and management of maternal complications. LHWs reported improved confidence, enhanced maternal health knowledge, and stronger relationships with communities and health facilities. The integration of clinical home care, including postpartum monitoring, was found to improve the quality and timeliness of referrals. These outcomes collectively demonstrate that digital support and continuous training can amplify the effectiveness of CHPs in referral systems.

Overall, the reviewed evidence indicates that CHPs are indispensable in linking communities with health facilities through home visits, education, and timely referrals. However, to optimize their impact, it is essential to institutionalize supportive frameworks that provide supervision, standardized referral protocols, and data tracking systems. Strengthening collaboration between CHPs and healthcare providers can ensure that women referred from communities receive timely, high-quality, and continuous maternal health services

2.4 Quality of ANC Services

The Donabedian model is used to assess ANC quality across three dimensions: input, process, and output. Examples of input dimensions include physical infrastructure, documentation,

skilled people, medical medications, immunizations, equipment, and supplies. Interpersonal communication, history-taking, clinical examination, counselling, health screening, and preventive interventions are all process characteristics. Client satisfaction will ultimately determine the outcome (Amare & Bekalu, 2023).

2.4.1 Satisfaction with 8 contacts ANC

Client satisfaction with antenatal care (ANC) services is a key indicator of healthcare quality and an essential determinant of continued ANC attendance and maternal health outcomes. Satisfied patients often demonstrate improved adherence to medical advice, stronger continuity of care, and more positive health-seeking behaviors, which collectively enhance maternal and newborn health outcomes. They are also more likely to recommend and return for ANC services, thereby strengthening community trust in the healthcare system (Ademuyiwa, 2020). In Nigeria, Olusesi (2022) conducted a study assessing the level of satisfaction among expectant women attending ANC services and found that most of the services were accessible, except for routine home visits and directly observed therapy (DOTS) services. The study revealed a high level of overall satisfaction (mean = 67.41; 84.3%), emphasizing that positive nurse–patient interactions and caring attributes were strongly correlated with ANC satisfaction. The findings highlighted that promoting patient-centered care through respect, empathy, effective communication, and service reliability significantly enhances ANC utilization and satisfaction levels.

Similarly, Lire et al. (2022) reported that 79.2% of pregnant women in Ethiopia were satisfied with ANC services. Specific aspects contributing to higher satisfaction included the provision of adequate information, effective counseling, and shorter waiting times. The study also found that women who received iron tablets, counseling on HIV testing, and information on fetal movement were significantly more likely to report satisfaction with ANC. This indicates that

satisfaction is closely linked to both the quality and comprehensiveness of services delivered during ANC visits.

Building on this, Amare and Bekalu (2023) explored the predictors of ANC service quality and satisfaction among Ethiopian women, finding that 64% were satisfied with ANC services. However, deficiencies in structural and process quality attributes such as limited staff capacity and inadequate client follow-up were identified. Mothers aged 20–24, those who traveled more than 30 minutes to reach health facilities, and those who had the option to choose their care provider were significantly more likely to report satisfaction. The authors emphasized the need for interventions that enhance process and input quality, as these directly influence client satisfaction and overall service perception.

In a related context, Hsai et al. (2020) examined ANC satisfaction in South Okkalapa, Myanmar, and found that only 48% of pregnant women expressed high satisfaction with services. Factors such as long waiting times, poor laboratory services, and inadequate clinic facilities negatively impacted satisfaction levels. Conversely, aspects like prompt service delivery, respectful treatment, privacy during consultations, and the availability of essential medicines significantly improved satisfaction. These findings underscore the importance of ensuring that ANC facilities are well-equipped, efficiently managed, and patient-responsive to meet the growing demand for quality care.

Consistent with these studies, Ademuyiwa (2020) further highlighted systemic barriers that reduce satisfaction and utilization, including long waiting hours, financial constraints, high service costs, and the distance to health centers. Addressing these factors through health system strengthening, equitable resource allocation, and patient-centered service design could lead to substantial improvements in both satisfaction and ANC completion rates.

Overall, the reviewed studies converge on the conclusion that satisfaction with ANC services especially within the eight-contact model is strongly influenced by service accessibility, interpersonal relationships, waiting time, provider competence, and the quality of facility infrastructure. Enhancing these dimensions is critical to promoting early initiation and sustained participation in ANC, ultimately leading to improved maternal and neonatal health outcomes.

2.4.2 Organization of ANC Services

The organization and structure of antenatal care (ANC) services play a crucial role in determining attendance consistency and the completion of recommended visits. Efficient scheduling, adequate staffing, and supportive facility environments are essential for ensuring that pregnant women can access timely and satisfactory care. The duration of patient waiting times, clinic operational hours, and consultation protocols significantly influence appointment adherence and overall client experience. As noted by Opon et al. (2021), the adherence rate to ANC appointments is closely linked to the responsiveness and attitude of healthcare staff. In their study conducted in Homa Bay and Kisumu County hospitals, 71.4% and 40% of clients, respectively, missed appointments due to inadequate staff responsiveness, while 71.4% and 56% cited staff attitude as the main cause. The study further revealed that single and separated antenatal clients were more likely to miss scheduled appointments compared to their married or cohabiting counterparts, highlighting how social and relational factors also affect ANC attendance.

Improving adherence rates may therefore require health system managers to expand consultation points, extend operational hours, and strengthen staff–client interactions. This approach would not only increase accessibility but also foster a more welcoming and

responsive care environment that motivates women to complete all recommended ANC visits (Opon et al., 2021).

In alignment with these findings, Muhirwe (2021) emphasized that completion of ANC attendance is largely determined by the timing of service provision. His study demonstrated that clients were more likely to complete their ANC schedules when facilities offered flexible operating hours and multiple appointment options per week. Moreover, the availability of essential medicines and supplies, though secondary, also contributed to improved service completion. The research suggests that the timing and organization of ANC services should be prioritized as a key strategy in enhancing maternal health service uptake. The introduction of tools such as the service-level index offers innovative ways to evaluate and improve ANC service delivery efficiency compared to conventional assessment models.

Furthermore, Tsegaye et al. (2021) identified significant structural and systemic barriers to the sustainable attendance of ANC services. These included a shortage of medical equipment, essential drugs, and basic supplies factors that directly undermine the ability of healthcare providers to deliver comprehensive ANC. Poor care, disrespectful provider attitudes, and a lack of patient receptiveness were also cited as major deterrents. Environmental constraints, such as poorly designed ANC rooms and insufficient waiting areas, discouraged women from attending clinics. In addition, socioeconomic and cultural barriers including transportation costs, lack of partner support, and prevailing community norms further limited access to care.

Therefore, enhancing the organization of ANC services requires a multifaceted approach that addresses both health system and community-level challenges. Improving facility infrastructure, expanding service hours, ensuring consistent availability of essential supplies, and providing patient-centered, respectful care are essential to strengthen ANC attendance and

ensure women complete the recommended eight contacts

2.4.3 Availability of Commodities and Supplies in Facilities

The availability of essential commodities and supplies is a cornerstone of high-quality antenatal care (ANC). Facility readiness defined by adequate infrastructure, availability of medicines, trained personnel, and operational efficiency plays a pivotal role in determining the accessibility and quality of ANC services. When health facilities lack necessary equipment, medicines, and basic supplies, the quality and continuity of maternal healthcare delivery are compromised. Khatri et al. (2022) established that both input- and process-related factors contribute to the suboptimal quality of ANC services across low- and middle-income countries. Input factors included facility readiness challenges such as poor infrastructure, shortage of commodities and supplies, and inadequate staffing. Process-related factors included deficiencies in the technical quality of care such as limited skilled attendance, poor adherence to ANC guidelines and in the social quality of care, characterized by weak communication and low client satisfaction. These gaps have contributed significantly to inequities in access and utilization of quality ANC services.

In a systematic review conducted across six East African countries, Yihune Teshale (2024) identified barriers to ANC access and service quality at multiple levels. Individual-level challenges included low awareness, financial constraints, and fear of mistreatment. At the health-facility level, poor infrastructure, shortages of medical supplies, and a lack of trained providers were the most recurrent obstacles to accessing quality ANC. The study emphasized that enhancing the availability of essential commodities and improving supply chain management are vital steps toward achieving equitable and efficient ANC service delivery.

In Kenya, Kilowua and Otieno (2019) demonstrated that the adequacy of facility supplies and the perception of service quality significantly influenced ANC attendance. Using chi-square

analysis, their study revealed that variables such as distance to the facility ($p=0.043$), waiting time ($p=0.012$), means of transport ($p=0.016$), perceived service quality ($p=0.000$), and the attitude of healthcare providers ($p=0.000$) were strongly associated with the number of ANC visits. When health centers experience stock-outs of essential supplies, pregnant women are less likely to complete the recommended ANC contacts. The authors recommend prioritizing the equipping of rural health facilities to reduce the need for referrals and to encourage continuity of care.

Complementing these findings, Gamberini et al. (2022) highlighted that deep-rooted sociocultural norms, poor resource allocation, and systemic discrimination exacerbate barriers to accessing ANC. Their study emphasized the need for health system reforms to ensure equitable distribution of resources and the provision of respectful, high-quality maternal and child health services. Similarly, Defar et al. (2020) assessed the readiness of healthcare facilities to provide ANC services and found that although 80.5% of the surveyed facilities offered ANC, the availability of essential components such as tetanus toxoid vaccination, folic acid, and iron supplementation remained inadequate, with an overall service readiness index of only 50%. Health centers and clinics scored significantly lower than hospitals, indicating a need for targeted investment to improve service readiness, especially in lower-tier facilities.

Mollet et al. (2024) further reinforced these observations, finding that fear of stigma, lack of decision-making autonomy, and frequent stock-outs of health commodities deterred pregnant women from seeking ANC services. Both clients and healthcare providers reported that shortages of maternal health commodities and long waiting times caused by inadequate staffing limited access and contributed to poor maternal health outcomes. Addressing these supply-related barriers requires strengthening procurement systems, ensuring timely delivery of essential commodities, and maintaining a well-trained and motivated health workforce.

Collectively, these studies underscore that improving the availability and management of commodities and supplies is fundamental to enhancing ANC service delivery. Strengthening supply chains, ensuring adequate resource allocation, and investing in infrastructure and workforce capacity are critical strategies for advancing maternal and neonatal health outcomes. Ensuring that all facilities, particularly at the primary level, are well equipped and consistently stocked will promote equitable access to ANC and help women complete the recommended eight ANC contacts (Yihune Teshale, 2024).

2.5 Health Need-Related Factors

Health needs-related factors encompass various elements influencing an individual's health status and healthcare requirements. Bhandari et al., (2024).

2.5.1 Evaluated Pregnancy-Related Complications

Pregnancy-related medical complications significantly influence women's antenatal care (ANC) initiation and utilization patterns. Women experiencing or anticipating complications are often more motivated to seek timely ANC services due to their heightened awareness of the associated health risks. The timing of ANC initiation is a critical determinant of maternal and neonatal outcomes, as delayed attendance increases the probability of adverse pregnancy complications and poor delivery outcomes.

According to Ali et al. (2020), nearly half (50.2%) of women in their study-initiated ANC late, despite 841 participants reporting it was their first visit. The research identified that mothers with higher education levels, previous infertility treatment, or past miscarriage were more likely to initiate ANC at the appropriate time [adjusted odds ratio (aOR): 1.66, 95% confidence interval (CI): 1.05–2.62; aOR: 3.68, 95% CI: 1.50–9.04; aOR: 1.80, 95% CI: 1.16–2.79, respectively]. Conversely, women who expressed fear or anxiety about childbirth were less likely to achieve timely ANC initiation (aOR: 0.54, 95% CI: 0.34–0.85). These findings suggest

that psychosocial and emotional factors play an important role in the timing of care-seeking behaviors.

Similarly, Gelassa et al. (2023) found that women with a previous history of abortion were nearly six times more likely to begin ANC visits early (AOR = 5.96, 95% CI 2.07–17.13). Other predictors of early ANC initiation included living in urban areas (AOR=2.21, 95% CI 1.11–2.72), higher education (AOR=3.42, 95% CI 1.01–6.04), planned pregnancy (AOR=8.01, 95% CI 2.79–23.03), husband accompaniment (AOR=2.48, 95% CI 2.77–7.98), and exposure to media (AOR=6.95, 95% CI 2.68–18.02). These findings illustrate that both prior reproductive experiences and social support systems substantially shape women's engagement with ANC.

In line with these observations, Kolola et al. (2020) reported that 40.6% of pregnant women in Debre Berhan, Ethiopia, booked their first ANC visit within the first trimester. Women who had secondary (AOR: 1.84; 95% CI: 1.10–3.19) or higher education (AOR: 2.26; 95% CI: 1.27–4.03), as well as those who experienced ill health during pregnancy (AOR: 1.99; 95% CI: 1.21–3.27), were more likely to start ANC early. The odds of first-trimester booking were also threefold higher among women knowledgeable about ANC services (AOR: 3.05; 95% CI: 1.52–6.11). This indicates that educational attainment and health literacy are central enablers of early ANC initiation.

Adding to this evidence, Adulo and Hassen (2023) found that only 31% of women began ANC within the first three months of pregnancy, while 87.7% identified distance from health facilities as a major barrier. Their results revealed that maternal education, age, media access, occupation, wealth status, and pregnancy planning were significant determinants of ANC initiation. Women with higher education (AOR = 1.52, $p=0.02$), access to media (AOR = 2.4, $p=0.04$), and planned pregnancies (AOR = 1.26, $p=0.02$) were more likely to begin ANC early.

Those experiencing pregnancy complications (AOR = 1.58, $p \leq 0.001$) were also more proactive in seeking care. Conversely, private workers, housewives, and those living far from health centers were less likely to attend ANC before 12 weeks of gestation. These results reinforce the influence of socioeconomic and geographical factors on ANC timing.

Furthermore, Laisser et al. (2022) conceptualized antenatal care engagement through the framework of a “tipping point,” where women decide to seek care once they perceive that the benefits outweigh the potential challenges. Their study identified four critical determinants of ANC engagement: awareness of health benefits, experiential motivators, influential social support, and environmental challenges. Women who had experienced miscarriages or difficult previous births were especially motivated to complete their ANC schedules in subsequent pregnancies, believing that earlier and consistent care could prevent adverse outcomes.

Taken together, these studies demonstrate that early ANC initiation and consistent attendance are shaped by a combination of medical, psychosocial, and contextual factors. Pregnancy-related complications, prior adverse outcomes, and infertility treatments increase women’s perceived vulnerability, encouraging earlier engagement with ANC services. Conversely, barriers such as distance, limited health literacy, and fear of childbirth can delay care-seeking. Strengthening awareness campaigns, improving health facility accessibility, and integrating psychological support into maternal health programs can significantly improve ANC initiation and continuity, ultimately reducing pregnancy-related complications and enhancing maternal outcomes.

2.5.2 Self-Perceived Health Benefits

Expectant women often perceive antenatal care (ANC) as a vital aspect of maintaining their health and ensuring favorable pregnancy outcomes for their babies. ANC provides a unique

opportunity for preventive health interventions, early diagnosis, and timely treatment of pregnancy-related complications. It also serves as an educational platform where women receive counseling on nutrition, hygiene, danger-sign recognition, and preparation for delivery.

According to Dhavalshankh et al. (2019), nearly half (48.1%) of the women surveyed were knowledgeable about ANC check-ups, yet only 26.7% understood the full importance of regular ANC visits. Furthermore, 35.8% recognized the importance of the ANC card, while only 23% agreed that each visit contributes directly to improving maternal health and fetal growth. These findings highlight persistent gaps in understanding the broader health benefits of ANC despite reasonable awareness of its existence. Women's attitudes toward ANC also varied, with only 32.6% actively inquiring about possible improvements or complications—suggesting that education and engagement efforts are still needed to transform awareness into meaningful action.

In a related study, Geltore and Anore (2021) examined knowledge and attitudes toward ANC attendance among 250 women with infants aged 0–18 months. The mean ANC attendance rate was 10.24 ± 7.364 , and most women had moderate knowledge (56.4%) and moderately positive attitudes (49.2%) toward ANC. However, the correlation analysis revealed a significant negative relationship between attitude and ANC attendance ($r = -0.276$, $p = 0.000$), suggesting that while some women valued ANC, other external or structural factors limited consistent attendance. The researchers concluded that although respondents understood the importance of ANC, targeted health education emphasizing the number of visits required before delivery is essential to enhance full ANC compliance.

Moreover, Laisser et al. (2022) revealed that women in Tanzania and Zambia often linked ANC attendance with positive health outcomes for both mother and child. Many participants described ANC as a pathway to maintaining strength, preventing complications, and ensuring healthy

delivery. They also highlighted the potential of community-based testimonials from satisfied mothers to encourage broader ANC uptake through shared lived experiences and peer motivation.

Collectively, these studies affirm that women's self-perceived health benefits are central to their decision to initiate and continue ANC visits. When expectant mothers recognize ANC as a proactive health measure rather than a reactive service, their commitment to completing all recommended visits increases. Therefore, strengthening maternal health education, using community role models, and enhancing midwife-led counseling can bridge knowledge-attitude gaps and further promote consistent ANC engagement throughout pregnancy.

2.5.3 Pregnancy intentions

The findings from Arteaga et al. (2019) reveal that personal experiences significantly shape perceptions of pregnancy planning. Many participants identified a spectrum of pregnancy status, highlighting that the binary classification of planned versus unplanned does not fully capture the complexities of women's experiences. This nuance suggests that healthcare providers should consider these varying perceptions when designing educational and support programs.

Hajizadeh and Nghiem (2020) found a clear link between unwanted pregnancies and lower attendance rates at antenatal care visits. Specifically, mothers with unwanted pregnancies had a 3.6% lower probability of attending four or more ANC visits compared to those whose pregnancies were wanted. This underscores the need for targeted interventions, as this relatively small percentage can have significant implications for maternal and child health.

Moreover, Chivers et al. (2020) reported a significant gap in awareness regarding reproductive life plans among women, with approximately 90.2% of women unaware of these plans. This highlights a critical area for intervention, suggesting that educational programs informing women about pregnancy planning and the importance of preconception care could lead to improved

health outcomes.

Cultural barriers also play a significant role in care-seeking behavior. Mulondo (2020) indicated that 83% of pregnant women were from rural areas and had unplanned pregnancies, which are factors associated with the underutilization of antenatal care services. Cultural beliefs regarding early presentation to antenatal care can lead to delays in accessing necessary health services, particularly among women in rural settings.

Additionally, Tessema et al. (2022), Ahinkorah et al. (2022), and Habte et al. (2024) identified several socio-economic and educational factors that predict ANC utilization. For example, women aged 35–39 at childbirth had an adjusted odds ratio (aOR) of 3.99 for having eight or more ANC visits, indicating a strong likelihood of increased healthcare engagement with age and education.

The studies by Battu et al. (2023) and Tello-Torres (2021) found that 70% of pregnant women experienced delayed first ANC bookings, with unplanned pregnancies being a significant contributor. Specifically, women who were unaware of pregnancy-related danger signs had an aOR of 6.76 for experiencing delays in seeking care. Tello-Torres (2021) further found that only 35% of women adequately complied with ANC guidelines, emphasizing the need for improved education and support systems.

2.6 Pregnant women's status in the household

Several cultural factors together with social conditions as well as economic aspects determine how pregnant women are ranked within household structures. The improvement of expecting mothers' health requires actions that confront structural inequalities and support gender equality alongside providing full healthcare services with social assistance programs (Tessa et al., 2023).

2.6.1 Pregnant Mother's Level of Enlightenment

The level of enlightenment reflected in education, awareness, and exposure to information plays a decisive role in shaping women's health-seeking behaviors during pregnancy. Enlightenment affects how women perceive antenatal care (ANC), the timeliness of their first visits, and their likelihood of completing the recommended eight or more ANC contacts as outlined in the 2016 WHO guidelines (Alem et al., 2022).

Empirical findings consistently demonstrate a strong positive relationship between women's education, household wealth, and ANC attendance. Ekholuenetale et al. (2020) reported that in Ghana, the weighted prevalence of eight or more ANC contacts stood at 41.9% (95% CI: 37.9–45.9%). However, this figure concealed major socioeconomic disparities. Women in the richest households recorded the highest prevalence at 59.6%, while those from the poorest households had only 34.0%. Similarly, education level had a pronounced effect: 33.0% of women with no formal education achieved eight or more visits compared to 42.6% of women with secondary or higher education. The study's concentration indices (Conc. Index = 0.089 for wealth; 0.053 for education, both $p < 0.001$) further highlighted inequitable access, indicating that higher income and better schooling significantly increase ANC utilization. The authors concluded that despite WHO's eight-contact recommendation, institutionalization remains incomplete in Ghana, emphasizing that expanding health insurance and removing financial barriers are crucial to bridging gaps for the poor and uneducated.

These disparities are echoed in multi-country analyses across sub-Saharan Africa. Alem et al. (2022) found that the overall timely initiation of ANC averaged 38.0% (95% CI: 37.8–38.2%), varying dramatically between 14.5% in Mozambique and 68.6% in Liberia. In their multilevel regression model, women with secondary (AOR = 1.08; 95% CI: 1.06–1.11) and higher

education (AOR = 1.43; 95% CI: 1.36–1.51) were more likely to initiate ANC timely compared to women with no education. Other factors positively influencing timely initiation included older maternal age (≥ 35 years: AOR = 1.30; 95% CI: 1.26–1.35), belonging to the richest households (AOR = 1.19; 95% CI: 1.14–1.22), perceiving distance to health facilities as “not a big problem” (AOR = 1.05; 95% CI: 1.03–1.07), and media exposure (AOR = 1.29; 95% CI: 1.26–1.32). In contrast, women who wanted their pregnancy later (AOR = 0.84; 95% CI: 0.82–0.86), did not want any more children (AOR = 0.80; 95% CI: 0.77–0.83), or lived in rural settings (AOR = 0.90; 95% CI: 0.87–0.92) were less likely to begin ANC early. The authors concluded that both individual education and community literacy levels—especially where literacy rates are medium (AOR = 1.51) or high (AOR = 1.56)—play major roles in improving maternal healthcare access and early ANC utilization. The association between enlightenment and ANC attendance extends beyond formal education.

Sserwanja et al. (2022), in a Ugandan analysis of 5,432 women, found that 44.8% initiated ANC in the first trimester, and only 22.0% had eight or more contacts. Women who began ANC after the first trimester were significantly less likely to complete eight or more visits (AOR = 0.58; 95% CI: 0.49–0.68). Younger women aged 15–19 were also at a disadvantage (AOR = 0.64; 95% CI: 0.45–0.91), whereas working women (AOR = 1.33; 95% CI: 1.10–1.62) and wealthier women were more likely to meet the WHO-recommended frequency. Internet use emerged as an important determinant: women who accessed digital information were substantially more likely to achieve eight or more visits. Moreover, women who faced no difficulty obtaining permission to visit health facilities had higher odds of completing their ANC schedules pointing to the critical role of empowerment and autonomy alongside enlightenment. Mass media exposure has proven a particularly effective avenue for spreading maternal health awareness. According to Sui et al. (2021) and Alem et al. (2022), women

exposed to health information through television, radio, or online platforms were significantly more likely to initiate ANC early. Such media exposure enhances maternal literacy, shaping positive health behaviors and promoting awareness of ANC's importance. Sserwanja et al. (2022) noted that even women with low formal education benefited substantially from access to radio and television information. The combination of formal schooling and media exposure thus constitutes a dual mechanism for improving ANC utilization one structural and the other behavioral.

Collectively, these findings affirm that a pregnant woman's level of enlightenment comprising her formal education, financial standing, media exposure, and empowerment has a profound influence on her ANC participation. Education improves understanding of health messages, empowers women to question harmful cultural norms, and fosters autonomy in health decisions. Wealth and employment enhance affordability, enabling women to overcome logistical barriers such as transportation costs and clinic fees. Media exposure supplements formal education by providing accessible health information to women in both urban and rural settings, bridging literacy gaps and promoting positive maternal behaviors.

2.6.2 Pregnant Women's Gender Roles

Evidence from multiple studies underscores the pivotal role of women's autonomy in improving ANC uptake. In Nigeria, Imo (2022) found that although a substantial proportion of women (75.9%) initiated ANC before 12 weeks of pregnancy, only 24.2% achieved at least eight visits, and just 58.2% delivered in health facilities. Crucially, women who had decision-making autonomy over their healthcare had significantly higher odds of completing eight ANC visits (aOR = 1.24, CI: 1.02–1.51). Likewise, women who controlled how their earnings were spent were even more likely to achieve this target (aOR = 2.02, CI: 1.64–2.48). However, this

same financial autonomy paradoxically reduced the likelihood of initiating ANC early (aOR = 0.75, CI: 0.63–0.89), possibly reflecting the time and responsibility burdens that come with increased economic independence. Imo concluded that socio-economic and demographic empowerment factors especially decision-making power are central to enhancing both the quality and quantity of ANC utilization.

Similarly, Tungaraza and Joho (2022) revealed that among 384 women, 77.1% booked ANC late, yet 53.4% described themselves as self-determined. Women with high perceived autonomy were over twice as likely to book ANC on time (AOR = 2.36; 95% CI: 1.33–4.18; $p = 0.003$). Employment and self-employment significantly strengthened timely ANC initiation (AOR = 5.64 and AOR = 5.97, respectively), suggesting that women with economic agency are better equipped to prioritize health services. Advice from relatives also positively influenced timely ANC booking (AOR = 2.50; 95% CI: 1.25–4.98; $p = 0.009$), demonstrating that social support networks can reinforce women's autonomy in healthcare decisions.

The intersection of gender roles and healthcare decision-making directly impacts maternal outcomes. Habte et al. (2024) found that autonomy in decision-making was a significant predictor of adequate ANC uptake (AOR = 2.29; 95% CI: 1.83–2.54). This aligns with Maluka et al. (2020), who observed that women's empowerment initiatives that foster independent decision-making contribute to higher ANC attendance and earlier initiation of care. Empowered women are less constrained by male partner interference, cultural expectations, or familial authority, allowing them to seek medical attention freely and consistently.

In contrast, patriarchal norms that reinforce male dominance and dependency perpetuate gender inequalities in health. According to Mollel et al. (2024) and Gamberini et al. (2022), entrenched cultural stereotypes restrict women's freedom to make reproductive and financial decisions, which undermines their ability to access timely ANC services. When men retain unilateral

control over family finances or healthcare decisions, women's attendance at clinics becomes conditional on spousal approval, often resulting in delayed or insufficient care.

Research by Obasohan et al. (2019) in Nigeria further supports the argument that women's empowerment directly correlates with improved ANC service utilization rates. Their findings suggest that strengthening female autonomy enhances the success of community-level health programs and improves adherence to WHO's eight-contact recommendation. However, empowerment must extend beyond the individual level. Gender-sensitive interventions are needed to address systemic inequities and integrate women's rights into reproductive health policies.

2.6.3 Socio-Cultural and Structural Determinants of ANC Uptake

Beyond individual-level factors such as education and autonomy, broader structural and socio-cultural contexts critically shape the utilization of antenatal care (ANC) services. Maternal health outcomes are profoundly influenced by access-related barriers, social support systems, and the quality of healthcare delivery.

According to Dahab and Sakellariou (2020), transportation difficulties, economic hardship, and entrenched cultural beliefs represent some of the most significant barriers to accessing maternal healthcare. Their study emphasizes that even when awareness of ANC benefits exists, inadequate transportation infrastructure and prohibitive healthcare costs often prevent women from attending the required number of visits. In addition, sociocultural expectations such as gendered mobility restrictions or traditional norms discouraging women from traveling alone further compound the problem.

Dahab and Sakellariou (2020) concluded that addressing these barriers requires *multi-sectoral policy responses*, combining health, transport, education, and gender sectors to meet the Sustainable Development Goals (SDGs) related to maternal health by 2030.

Complementing this structural perspective, Gebrekirstos et al. (2021) explored determinants of adequate ANC utilization and found that only 23.13% of women achieved adequate ANC service use. The study identified multiple interrelated predictors: tertiary education (AOR = 4.15; 95% CI: 1.95–8.83), having a best friend who used maternal care (AOR = 2.01; 95% CI: 1.18–3.41), and husband support (AOR = 3.84; 95% CI: 1.05–14.08) all significantly increased ANC utilization. Furthermore, women in the highest wealth quintile (AOR = 3.61; 95% CI: 1.86–6.99), those attending private health facilities (AOR = 2.27; 95% CI: 1.33–3.88), and women with a history of risky pregnancies (AOR = 2.59; 95% CI: 1.55–4.35) were more likely to attend adequate ANC. Planned pregnancy also positively influenced ANC use (AOR = 2.60; 95% CI: 1.35–4.99).

These findings reveal that ANC utilization is not merely an outcome of individual motivation but also a reflection of social networks, economic capacity, and institutional accessibility. Women supported by their husbands and peers especially those with role models or encouragement from other mothers show significantly higher ANC compliance. Moreover, the study underscores that financial security and education jointly empower women to make informed health choices and seek quality care, often through private facilities where perceived service quality is higher.

2.7 Theoretical Framework

The research utilized Expected Utility (EU) Theory and Theory of Planned Behaviour (TPB) as its theoretical basis. The theories serve as conceptual bases to understand both decision processes and behavioral intentions of prenatal mothers regarding their antenatal care uptake.

2.7.1 Expected Utility (EU) Theory

The Expected Utility (EU) Theory provides a valuable framework for understanding how pregnant women in Changamwe Sub-County make decisions about attending antenatal care (ANC) amid competing priorities and uncertainties. The theory suggests that individuals act rationally by choosing options that maximize their expected satisfaction or “utility.” In this context, women weigh the perceived benefits of ANC such as better maternal and child health, early detection of complications, and improved pregnancy outcomes—against the costs involved, including financial expenses, time constraints, and social or cultural barriers (Manning & Marquis, 1996).

For many women in Changamwe, the decision to attend ANC depends on whether the perceived benefits outweigh these costs. When ANC is seen as valuable in preventing complications and ensuring safe delivery, women are more likely to complete the recommended visits. However, when challenges such as transport costs, lack of family support, or long clinic waiting times increase the perceived cost, attendance tends to decline. This observation supports the findings of Ekholuenetale et al. (2021), who demonstrated that financial and accessibility barriers significantly reduce ANC utilization among low-income mothers.

In applying the EU Theory to this study, several relationships emerge among the variables examined. Community Health Promoters (CHPs) play an important role in influencing women’s perceptions by providing information and encouragement that can increase the perceived benefits and reduce the perceived costs of ANC. When CHPs are active and well-trained, they help women understand the importance of ANC and make participation more worthwhile. Similarly, the quality of ANC services directly affects women’s utility calculations. High-quality care that ensures comfort, respect, and reliable treatment enhances the perceived benefit and encourages

women to continue attending their appointments.

Health need-related factors also align with the EU framework, as women who perceive themselves at risk of complications or poor pregnancy outcomes tend to assign higher value to ANC visits, viewing them as essential for their well-being. Furthermore, a woman's status and autonomy within the household influence her utility assessment. Women who can make independent health decisions or control household resources perceive greater utility in seeking ANC, while those dependent on others for permission or financial support may find the perceived costs too high to justify consistent attendance.

Ultimately, the decision to complete the eight recommended ANC contacts represents the outcome of this utility-based evaluation. Women attend ANC when they believe the benefits—such as improved health and safe delivery outweigh the costs of time, money, or effort. Therefore, enhancing ANC uptake in Changamwe requires strategies that increase the perceived utility of ANC attendance. This includes improving service quality, reducing financial and logistical barriers, strengthening the role of CHPs in community engagement, and empowering women through education and decision-making autonomy. By aligning health interventions with the principles of Expected Utility Theory, policymakers can better address the factors influencing ANC participation and promote more consistent maternal health care utilization.

2.7.2 Theory of Planned Behaviour (TPB)

The psychological model known as the Theory of Planned Behaviour (TPB) provides an understanding of health-related behaviors by explaining among others, why pregnant women attend ANC. According to the Theory of Planned Behavior behavioral intentions result from evaluating specific attitudes while responding to perceived social pressures and feeling one's ability to act on the behavior. The positive or negative evaluations of behaviors determine how much expectant

mothers attend their ANC appointments. The research conducted by Laisser et al. (2022), shows that positive maternal attitudes lead to higher usage rates of ANC services. Subjective norms derive their influence from social and cultural aspects, which play an essential part. Research shows that mothers base their decision about attending ANC appointments on how important people, including relatives will support them (David, 2022). The belief that one possesses the capability to perform a behavior defines Perceived Behavioural Control. Self-efficacy levels, together with external obstacles, determine how people perceive their behaviors. Intervention strategies should include these elements because they enhance the likelihood of women using ANC services. Empirical evidence confirms this model per the recommendation of Ajzen (1991). The Theory of Planned Behaviour (TPB) provides a strong psychological foundation for understanding the determinants of antenatal care (ANC) uptake among pregnant women in Changamwe Sub-County. According to Ajzen (1991), behavior is guided by three primary components: attitude toward the behavior, subjective norms, and perceived behavioral control. These elements collectively influence an individual's intention to perform a behavior—in this case, to attend ANC visits.

This study's findings align closely with the TPB framework, illustrating how expectant mothers' attitudes, social influences, and perceived control shape ANC utilization patterns.

First, attitude toward ANC the woman's evaluation of the importance, usefulness, and outcomes of ANC emerged as a central determinant of uptake. The results showed that health need-related factors were the most powerful predictor of ANC attendance, reflecting positive attitudes toward ANC's health benefits. Many women reported attending ANC because they believed it helps prevent complications, provides essential health knowledge, and ensures a safe delivery. This mirrors Khatri and Karkee's (2018) and Laisser et al.'s (2022) findings that positive maternal attitudes are associated with higher ANC attendance. Interventions that reinforce these positive beliefs such as education on ANC's preventive role can therefore enhance motivation and behavioral intention.

Second, subjective norms, which capture the influence of significant others such as partners, family members, and community leaders, were also strongly evident in the study. The findings highlighted the influence of social expectations and family encouragement, showing that women with supportive spouses and families were more likely to initiate ANC early and complete all visits. This aligns with David (2022), who noted that social approval and encouragement from significant others strengthen behavioral intention toward ANC attendance. Culturally sensitive interventions that engage male partners and family networks are thus crucial in shifting social norms toward greater maternal health support.

Third, perceived behavioral control a woman's sense of her capability and opportunity to attend ANC was reflected in several factors identified in the study. Challenges such as financial constraints, transport difficulties, and limited autonomy were found to negatively affect ANC attendance. Conversely, women who had greater decision-making power and control over household resources were significantly more likely to complete all ANC contacts. This supports the TPB's assertion that behavior is more likely to occur when individuals feel they have the resources and autonomy to perform it. The study by Imo (2022) similarly demonstrated that women with decision-making autonomy were more likely to achieve eight ANC visits.

The study also found that Community Health Promoters (CHPs) played a limited role in influencing perceived behavioral control due to inadequate training and weak linkages with health facilities. However, with proper capacity building, CHPs could enhance women's confidence and perceived control by providing accurate information, addressing misconceptions, and facilitating access to services.

Theory of Planned Behaviour effectively anchors this study by explaining ANC uptake as a function of positive maternal attitudes, supportive social environments, and sufficient perceived control. The strong associations between household support, health awareness, and ANC attendance in

Changamwe confirm TPB's central propositions. Interventions aiming to improve ANC uptake should therefore focus on enhancing positive attitudes through health education, reinforcing supportive subjective norms through family and community engagement, and increasing perceived control by empowering women economically and socially to make independent health decisions.

2.8 Conceptual Framework

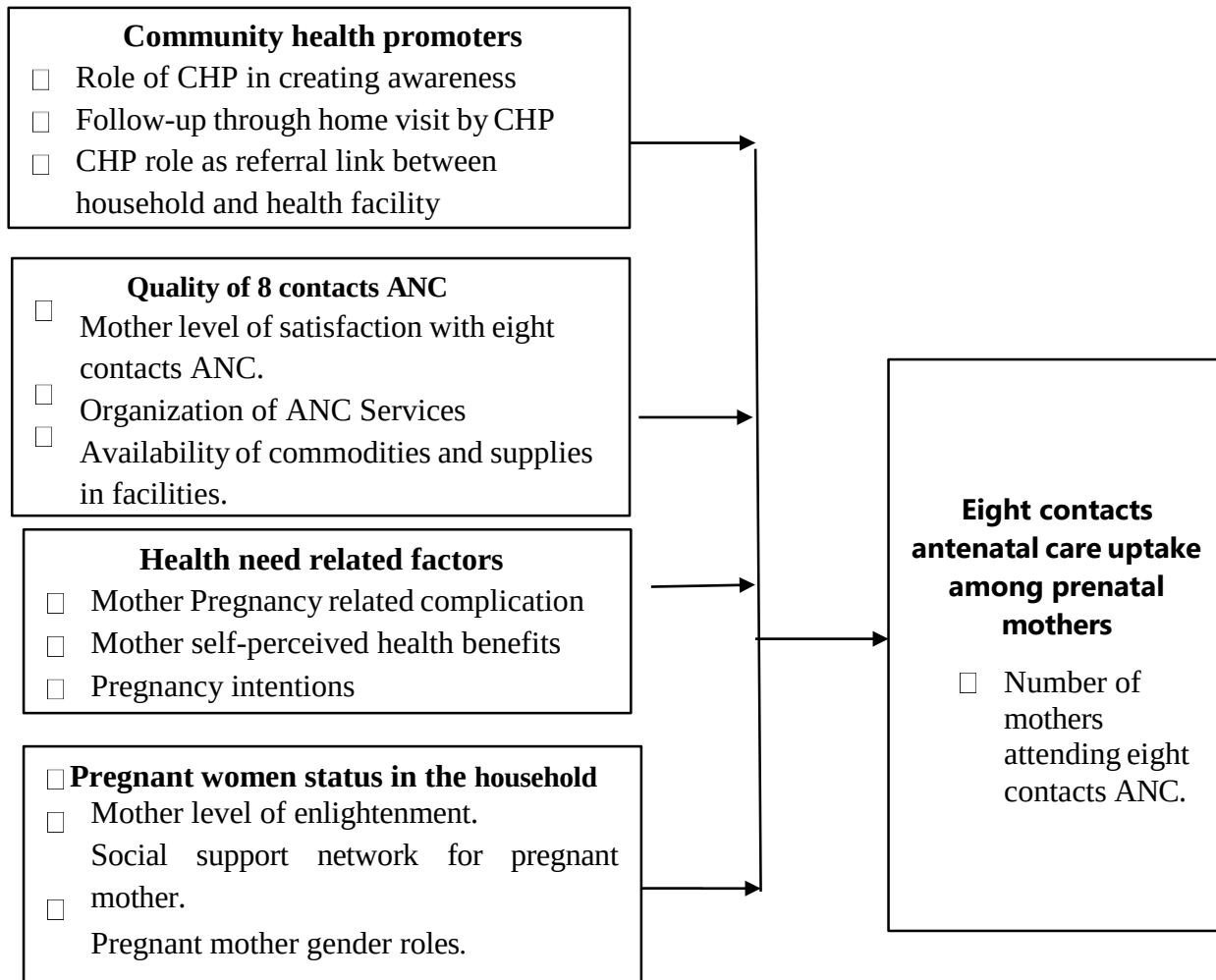
The framework outlined by Mugenda and Mugenda (2019) illustrates the connections between study variables. According to this framework, modifications in the independent variables lead to changes in the dependent variable. The figure below visualizes the relationship between these independent and dependent variables in the current study.

Figure 2.1:

Conceptual Framework

Independent variables

Dependent variable



2.9 Research Gap

The existing literature on antenatal care (ANC) uptake in Kenya reveals a notable research gap concerning the utilization of eight contacts ANC specifically among prenatal mothers. While studies predominantly focus on the focused ANC model, limited attention has been given to the factors affecting eight contacts' ANC uptake. Studies in the South Africa region, conducted by Kareem et al. (2021) respectively, highlight unsatisfactory compliance with WHO ANC recommendations, indicating a need for further investigation. Similarly, Mulondo (2020) identified the underutilization of ANC services in South Africa, emphasizing the limitation of small sample sizes and restricted age brackets. Addressing these gaps, the study in Mombasa County aimed to examine determinants of eight contacts ANC uptake among prenatal mothers in a large population size, encompassing women of all ages. Furthermore, the necessity of a woman-centered strategy in ANC, as indicated by Marsland et al. (2019), underscores the importance of conducting research across various healthcare tiers with diverse populations. By addressing these gaps, the study sought to enhance understanding and improve ANC uptake in Kenya, particularly in Mombasa County.

2.10 Summary of literature review

The chapter discussed Planned Behaviour theory and Expected Utility theory, which served as the study's models. In addition, the chapter discussed previous studies on the study objectives. The part also includes the conceptual framework, research gaps, and a chapter's summary.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter introduces the research methods used in the study. It went into detail about the research design, the targeted target population, the sample size determination procedure, and the sampling technique. Furthermore, it discussed the development and pre-testing of the research instrument, as well as worries about the tool's authenticity and trustworthiness. The data gathering technique were given first, followed by a description of the data analysis procedures. Finally, the section addresses legal and ethical considerations.

3.2 Research design

The study took a descriptive approach, as Mugenda and Mugenda (2019) described. This strategy sought to collect information regarding the current state of the phenomenon, focusing on characterizing the current state of variables within a certain context. Furthermore, the study used a cross-sectional design, which allowed for the collecting of data on variables at a specific time point. This strategy was chosen to provide a snapshot of the issue being studied. To collect data, a mixed-method technique was used. This strategy combines quantitative and qualitative data collection techniques. By doing so, researchers hoped to gain a thorough comprehension of the research issue. As Mugenda and Mugenda (2019) point out, this approach allowed researchers to go further into the phenomenon, capturing both the breadth and depth of the research issue.

3.3 Study Location

The study was conducted in Changamwe Sub-County, one of the six administrative sub-counties in Mombasa County, Kenya. Changamwe is located on the western mainland of Mombasa and serves as a major industrial and residential hub within the coastal region. The sub-county is bordered by Jomvu to the west, Kisauni to the north, and the Indian Ocean to the south and east.

Changamwe covers an area of approximately 54.6 square kilometers and has an estimated population of over 200,000 residents, according to the Kenya National Bureau of Statistics [KNBS] (2019). The population is characterized by socio-economic diversity, with many residents engaged in informal employment, industrial work, and small-scale trade. Despite its urban setting, a significant proportion of households face challenges related to poverty, housing, sanitation, and access to quality healthcare.

The sub-county hosts several public and private health facilities, including Changamwe Sub-County Hospital, which serves as the primary referral and maternal health center. Other key facilities include Port Reitz Hospital, Chaani Health Centre, and several dispensaries and community health units. These facilities provide essential reproductive, maternal, and child health services, including antenatal care (ANC), delivery, postnatal, and family planning services under the Ministry of Health's guidelines.

However, despite the availability of these health services, ANC uptake in Changamwe remains below national targets, with only a small proportion of pregnant women completing the recommended eight ANC visits (Kenya Demographic Health Survey [KDHS], 2022). Factors such as limited awareness, economic hardship, healthcare worker shortages, and cultural perceptions continue to influence maternal health-seeking behaviors within the area.

This location was selected for the study due to its unique blend of urban and peri-urban

characteristics, high population density, and persistent maternal health challenges. Understanding the determinants of ANC uptake within this context provides valuable insights for designing targeted interventions to improve maternal and neonatal health outcomes in both Changamwe and similar urban settings across Kenya.

3.4 Target population

The study targeted mothers attending postnatal clinics for postnatal and child welfare services at public facilities in Changamwe sub-county who are one year post-delivery, and Maternal and Child Health/Family Planning (MCH/FP) nurse managers of these facilities. These mothers, having completed the antenatal period, were likely to provide insights reflecting determinants of antenatal care. The MCH/FP nurse managers, responsible for supervising and delivering antenatal care services, offered valuable information. The study concentrated on four public health facilities: Portreitz Sub-County Hospital, Chaani Health Centre, Bokole Health Centre, and Magongo Dispensary. According to the Mombasa County Annual Work Plan 2020/2021, there were four nurse managers across these four facilities. Kenya health information system indicated an estimated 5,270 pregnant women per month in public health facilities within Changamwe sub-county. (Ministry of Health, 2022), The distribution of the target population across facility levels is outlined in the table below.

Table 3.1:*Target Population*

Level Facility	Target Population	Percentage of Population (%)
Portreitz Sub-County Hospital	3,100	59
Chaani Health Centre	930	18
Bokole Health Centre	930	18
Magongo Dispensary	310	5
Total	5,270	100

3.5 Sample size determination and sampling technique

The study utilized purposive sampling as the sampling method, focusing specifically on certain characteristics of the sample of interest. The target population comprised mothers attending postnatal clinics for postnatal and child welfare services in public health facilities in Changanwe sub-county, who are post-delivery, as well as MCH/FP nurse managers. The desired sample size was determined using Yamane's (1967) formula. The formula was selected because it allows researchers to determine a representative sample with a reasonable degree of accuracy without requiring detailed prior knowledge of population variance. In this study, it was used to ensure that the sample adequately represented pregnant women in Changanwe Sub-County while minimizing sampling bias and optimizing the use of available resources.

A stratified sampling strategy was used to choose the health facilities, which were divided into four strata. Additionally, simple random sampling was used to select respondents from every tier. This technique ensured that the sample was a representative of the total population, providing a more precise estimate for each subgroup. It also minimized bias and increased the likelihood of the sample reflecting the characteristics of the entire group (Bhardwaj, 2019). By employing this method, every mother in the targeted population had an equal opportunity to be

incorporated into the research, resulting in a representative and unbiased sample (Bhat, 2019). The sample size was calculated at a 95% confidence level and +- 5% precision using the Yamane formula (1967) as shown

$$\text{Formula: } n = N / 1 + N (e)^2$$

Where: n – demonstrates sample size

N – denotes Population size

e –the level of precision or sampling error at 5%

$$n = \frac{N}{1 + Ne^2}$$

Hence;

$$372 = \frac{5270}{1 + 5270 (0.0025)}$$

Therefore, the study sample size was 372 mother respondents was 7% of the Target population.

Table 3.2:

Postnatal Mothers' Sample Size Distribution

Facility	Population(N)	Sample size (n)
Portreitz Sub-County Hospital	3100	218
Chaani Health Centre	930	66
Bokole Health Centre	930	66
Magongo Dispensary	310	22
Total	5270	372

Researcher (2025)

Table 3.3:*KII Sample size distribution*

Level facility	Target population	Percentage of population
Portreitz sub-County Hospital	1	25
Chaani Health Centre	1	25
Bokole Health Centre	1	25
Magongo Dispensary	1	25
Total	4	100

Researcher (2025)

3.6 Inclusion and Exclusion Criteria**3.6.1 Inclusion criteria**

Mothers who had given birth within the previous 12 months and were visiting public health facilities, specifically the MCH/FP clinic, for postnatal care, child welfare services, and family planning. Furthermore, mothers were willing to grant informed consent to participate in the study.

3.6.2 Exclusion Criteria

The study excluded mothers who had not delivered within the previous 12 months, those who had not accessed antenatal care (ANC) services from public health institutions, and those who were unable or unwilling to provide informed permission.

3.7 Instrumentation

Quantitative data collection involves administering structured questionnaires to postnatal mothers. Questionnaires offered several advantages, including their ability to reach a wide population and their ease of creation and administration (Mugenda, 2019). They also saved

time for interviewers and were cost-effective compared to direct observations and interviews.

Maternal and Child Health/Family Planning (MCH/FP) Nurse Managers were interviewed as key informants for qualitative data collection. This method was chosen because it is appropriate and effective for acquiring detailed information, allowing for future investigation into certain themes. The interview guide included questions that closely related to the research objectives. Structured interviews were easier to analyse, cost-effective, and provided a basis for extrapolating results.

3.8 Pre-testing of the research instrument.

The pretest was conducted in three facilities within Mombasa County Mrima Sub-County Hospital, Miritini Health Centre, and Mikindani Dispensary. These facilities were selected purposively because they serve populations demographically and contextually similar to Chagamwe Sub-County, yet were excluded from the main study to prevent contamination and response duplication. This choice ensured that feedback from the pretest would be generalizable to the study population while maintaining the independence of the main sample. Approximately 10% of the final sample size as guided by (Kothari & Garg, 2023) was used during the pretest across the three facilities. The questionnaires were administered by the researcher and collected directly from respondents to ensure completeness and accuracy.

Following data collection, a preliminary analysis was conducted to examine: Response rates and missing values, Clarity of instructions and item wording and internal consistency of Likert-scale items. Feedback from respondents indicated the need to revise certain terms for clarity (e.g., replacing “ANC contact” with “ANC visit”) and to adjust the flow of questions for better comprehension. These refinements enhanced the instrument's structure and face validity.

3.8.1 Validity of the research instrument

According to Mugenda and Mugenda (2019), validity refers to the precision and relevance of the conclusions derived from research outcomes. It indicates how well the results of data analysis reflect the study's variables. Face and content validity were prioritized in this study to enhance clarity and ensure the tools accurately capture the intended data. The study instruments were reviewed by departmental supervisors to assess their precision and adequacy. Their feedback was utilized to enhance the representation and sampling adequacy of the content under investigation, thereby improving the instruments.

3.8.2 Reliability of the instruments

Reliability refers to the process of determining an instrument's consistency and accuracy. An instrument is deemed dependable if it delivers consistent findings when repeated measurements are performed under steady conditions Kothari and Garg (2023). Cronbach's alpha was used in this study to measure the internal consistency of the questionnaire items and the questionnaire's reliability (Cronbach, 1951). A reliability coefficient of 0.70 or more was regarded sufficient for the study tools (Souza et al., 2017). The table below presents the Cronbach's Alpha values for the main variable constructs:

Table 3.4:

Reliability Results (Cronbach's Alpha)

Construct	Number of Items	Cronbach's Alpha
Community Health Promoters' Role	5	0.78
Quality of ANC Services	6	0.81
Health Need-Related Factors	5	0.84
Pregnant Women's Household Status	4	0.76
ANC Uptake (Eight Contacts)	2	0.82

Researcher (2025)

All constructs achieved a Cronbach's Alpha value above the recommended threshold of 0.70, indicating good internal consistency and reliability of the measurement scales used in the questionnaire. These results confirm that the instrument was appropriate for data collection and further statistical analysis.

3.9 Data collection procedure

The researcher administered the questionnaire, ensuring adherence to the research protocol and ethical considerations. The study employed the "drop and pick on the spot" method for questionnaire distribution. Each questionnaire was estimated to require 15-20 minutes for completion. Data collection spanned three weeks to allow ample time for comprehensive data gathering. The study utilized an ordinal scale of measurement based on a five-point Likert scale. Respondents rated their level of agreement with various statements, with response options ranging from 'Strongly Disagree' to 'Strongly Agree'.

In the Key Informant Interviews (KIIs), selected individuals were notified of their inclusion and the interview's purpose via telephone communication. Before the interview, respondents were asked for their consent to participate, and upon receiving it, they were invited to suggest a convenient time and location for the interview. An interview agenda was then tailored accordingly. Reminders were sent to interviewees one day before the scheduled interviews.

Face-to-face interviews were conducted in the respondent's respective offices to ensure privacy. At the end of each day, summaries of the interviews were compiled, carefully documenting significant statements.

The study used both quantitative and qualitative approaches to achieve its goals. Data from the field were sorted for completeness, cleaned, coded, entered, and analyzed using Statistical Package for Social Sciences version 26.0. Descriptive statistics such as percentiles, standard

deviations, and means were used to summarize the data, with the findings displayed in figures and tables. Pearson correlations were used to assess the strength of the connections between the research variables. Additionally, multiple regressions were performed to determine the combined predictive capacity of the independent factors on the dependent variable. The qualitative data were thematically analyzed in accordance with the study goals. The conceptual model below was used to demonstrate the link between the independent and dependent variables.

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

The variables were identified as follows:

Dependable variable **Y** = Eight contacts ANC among prenatal mothers

Independent variable **X₁** = Community health promoters' roles

Independent variable **X₂**= Quality of 8 ANC

Independent variable **X₃** = Health need related factors

Independent variable **X₄** = Pregnant women status in the household

While **β₁**, **β₂**, and **β₃** are coefficients of determination and **ε** is the error term

The qualitative phase of the study began by transcribing key informant interviews meticulously to ensure accuracy and completeness. Thematic coding identified key Phrases, themes, and relevant information from the transcripts. Codes were assigned to recognize recurring patterns and emerging ideas, and a codebook were established to ensure coding consistency. Open coding allowed themes to emerge naturally from the data, followed by axial coding to connect codes into broader categories and themes. The most significant themes were focused on to gain a comprehensive understanding. Key informant quotations were strategically incorporated into the report to provide authentic evidence. Qualitative

findings were presented in a narrative format, and data visualization tools like concept maps were used to illustrate significant themes. For clarity, a table summarizing major themes and the number of informants referencing each were created. This approach offered a clear and concise means of communicating the study's findings.

3.9.1 Integration and Analysis

During this crucial stage, quantitative outcomes and qualitative observations were combined to gain a comprehensive knowledge of the variables influencing eight contacts of ANC among prenatal mothers. A comparative assessment aligned quantitative outcomes with the qualitative viewpoints acquired from interviews. This integration of data sources enhanced overall conclusions, offering a multi-faceted insight into the dynamics of eight contacts ANC among prenatal mothers. By combining quantitative and qualitative data, this investigation provided a thorough grasp of the elements impacting eight contacts of ANC among prenatal mothers.

3.10 Ethical considerations in research involving human respondents.

The study addressed all legal and ethical considerations per Creswell and Hirose (2019). Ethical approval was sought from Kenya Methodist University Scientific Ethics and Research Committee, and permission was sought from the National Council for Science, Technology, and Innovations, the County Government of Mombasa, and the administration of Changamwe sub-county hospital to obtain permission for data collection. Respondents were informed about the research objectives and associated benefits. They were assured of the confidentiality and privacy of their data, ensured through anonymization and coding of questionnaires. Additionally, respondents were treated fairly, with dignity, and their rights were protected to prevent any harm. Measures were taken to ensure that data and information collected were only used for the study, with questionnaires securely stored and later destroyed after five years. The researcher upholds accuracy and honesty in reporting the results.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The chapter presents data analysis, finding interpretations, and statistical evaluations from the collected research data to address the study goals. The research evaluated the demographic characteristics as well as attendance at antenatal clinics and partnership assistance together with cultural conditions that drive maternal health care choices. Statistical methods of correlation and regression analysis were used to determine variable associations.

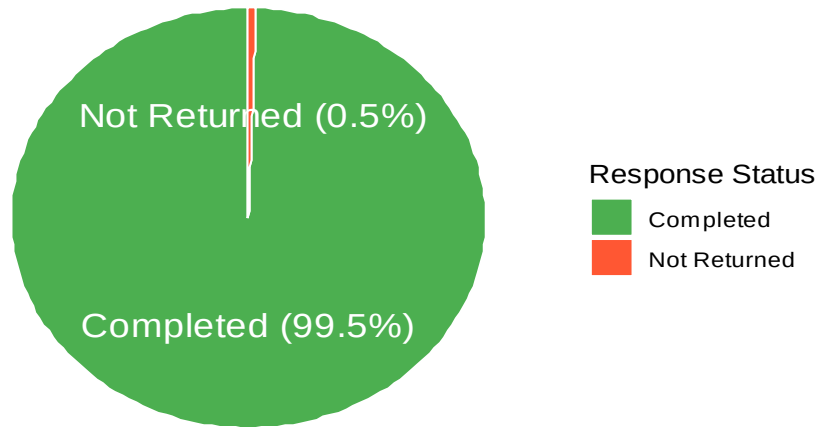
4.2 Response Rate

A total of 372 questionnaires were distributed, with 370 valid responses obtained. Four targeted MCH/FP nurse managers participated in the interviews, achieving a 100% response rate for this group. Social science research standards indicate that the received responses of 99.5% demonstrate high satisfaction (Mugenda & Mugenda, 2019). The study results gain higher reliability and broader generalisability through this high response rate.

Figure 4.1:

Response Rate

Questionnaire Response Rate



4.3 Demographic Characteristics

4.3.1 Age Distribution

The study analysed the age distribution of respondents to understand its impact on maternal healthcare decisions. The results are shown in Table 4.1:

Table 4.1:

Age Distribution of Respondents

Age Group	Frequency	Percent
25 years and below	139	37.6%
26-30 years	103	27.8%
31-35 years	75	20.3%
36-40 years	46	12.4%
41-45 years	6	1.6%
46-50 years	1	0.3%
Total	370	100%

Researcher (2025)

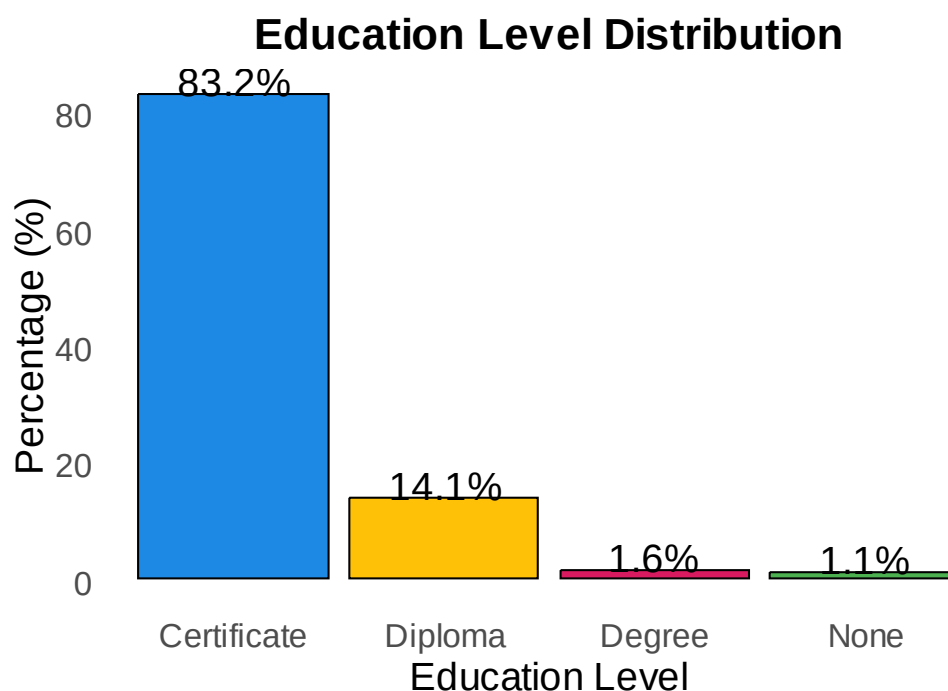
The primary age group among respondents consisted of people aged 25 years or younger based on study results (37.6%), while 27.8% of respondents were between 26 to 30 years old. Adults in the age range of 41 to 45 made up only 1.6% of the respondents, while people exceeding age 45 were

the least represented with 0.3%. The data shows that majority of respondents in this research belong to women aged fifteen to forty-nine who form an essential group for studies in maternal healthcare (WHO, 2019).

4.3.2 Level of Education

Figure 4.2:

Education Level

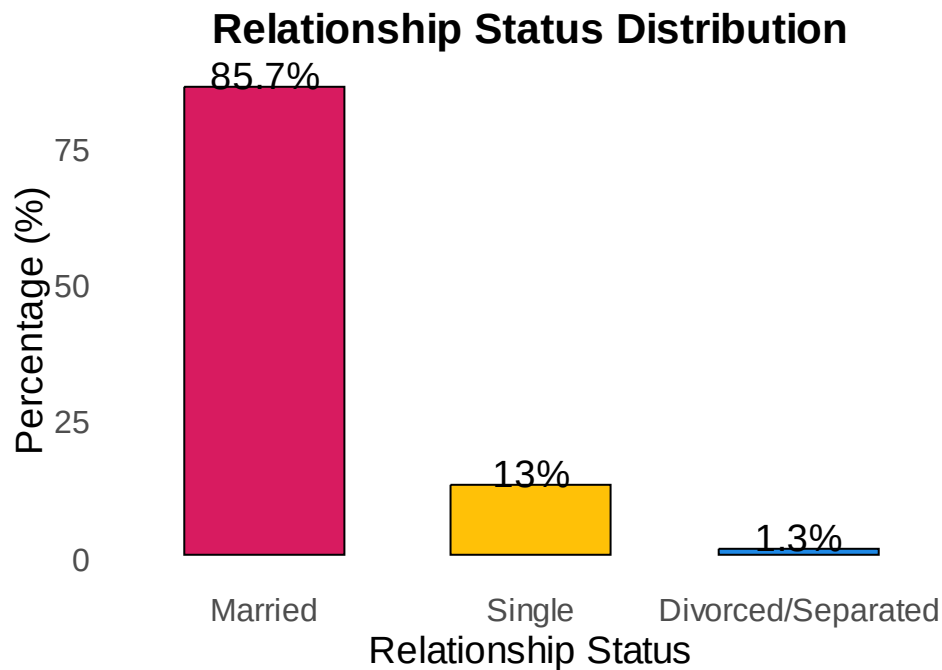


Most respondents held a Certificate (83.2%) level of education, followed Diploma (14.1%). The remaining, 1.6% had Degrees, and 1.1% had no formal education at all. A maternal health nurse from a key informant interview noted: *"Women with higher education are more proactive in seeking ANC services because they understand its importance."* . This is supported by findings that show a positive association between maternal education and the likelihood of attending ANC visits according to standards, highlighting the need for targeted health education and counseling interventions to raise awareness among pregnant women (Shibeshi et al., 2025).

4.3.3 Relationship Status

Figure 4.3:

Relationship Status



Most respondents (85.7%) were married, while 13% were single, and 1.3% disclosed being separated or divorced. The significance of partner support for maternal healthcare choices makes marital status play a role in ANC uptake (WHO, 2021). Qualitative data from KIIs reinforced this, with one nurse manager stating:

"Husbands who accompany their wives for ANC uptake create a supportive environment, encouraging full ANC uptake."

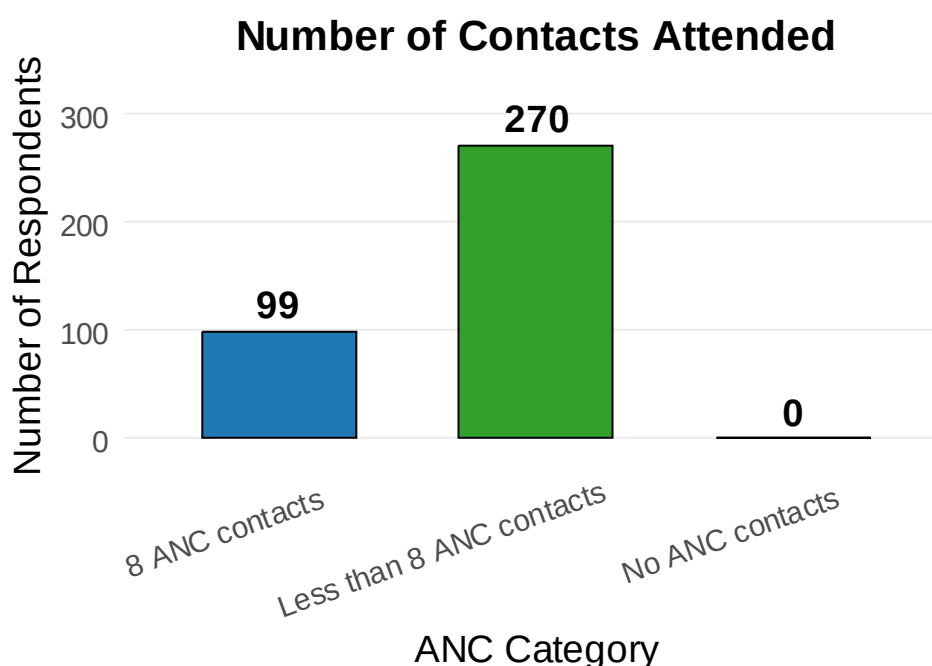
A study identified spousal motivation and support as key factors influencing ANC attendance under the eight-contact policy. The presence and involvement of male partners were found to positively impact a woman's decision and ability to attend ANC appointments consistently (Mwenebanda et al., 2024).

4.3.4 ANC Uptake Based on Number of Contacts Attended

This section presents the summary of respondents' ANC attendance categorized according to the number of contacts attended during their previous pregnancy. The categorization follows the WHO (2016) guideline, which recommends eight or more ANC contacts for optimal maternal and fetal outcomes.

Figure 4.4.

ANC Uptake by Number of Contacts Attended



The findings show that a majority, 270 (73.2%) of respondents attended less than eight ANC contacts, while only 99, 26.8% completed all eight contacts as recommended by the World Health Organization (2016). None of the respondents reported having no ANC contact.

This pattern indicates that while ANC services are generally utilized, adherence to the full WHO eight-contact model remains low. Similar observations were made by Apanga and Kumbeni (2021) and Muthoni et al. (2022), who noted that early initiation and consistent follow-up of ANC visits are crucial to achieving optimal maternal and neonatal outcomes. This highlights the need for targeted health education and motivation strategies to encourage pregnant women to attend all recommended ANC visits (Shee et al., 2021).

4.4 Antenatal Care (ANC) Uptake

Descriptive statistics on ANC uptake are summarized in Table 4.2.

Table 4.2:

Antenatal Care (ANC) Uptake

Variable	N	Minimum	Maximum	Mean	Std. Deviation
ANC uptake attended	369	1	8	5.82	1.75

Researcher (2025)

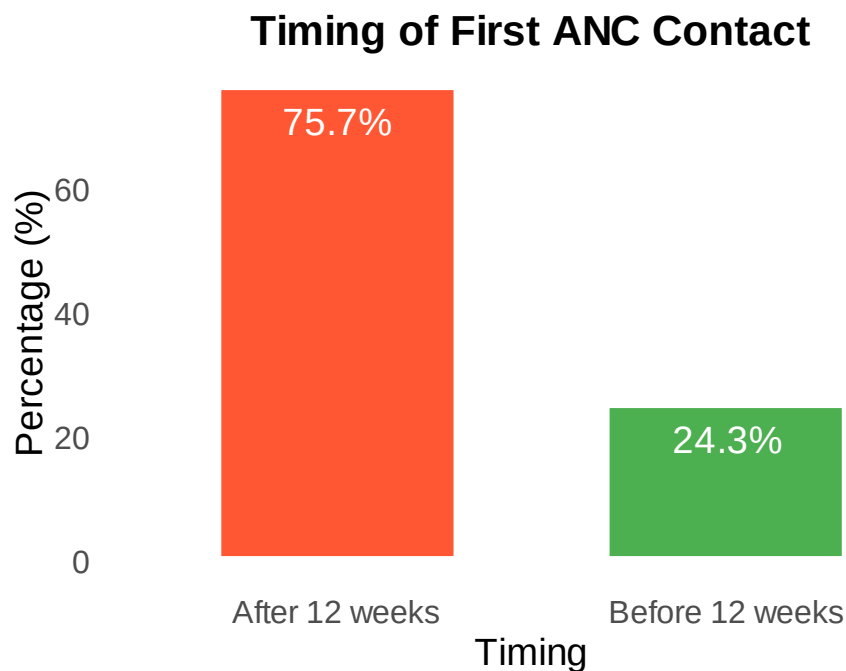
The research established 5.82 as the mean number of ANC uptake and 1.75 as the standard deviation of uptake. Pregnant women mostly followed their appointments, yet a segment of respondents missed the recommended WHO standard of eight uptake (WHO, 2016). This finding is supported by a study conducted in Eastern Uganda, where compliance with the WHO-recommended 8+ ANC contacts was found to be low. Only 23.2% of women attended their first ANC visit within the first trimester, which significantly affected their ability to complete all eight recommended contacts (Lee et al., 2024).

4.4.1 Timing of First ANC Uptake

According to the data, only 24.3% of respondents commenced ANC uptake before 12 weeks, 75.7% commence after 12 weeks

Figure 4.5:

Timing of First ANC Uptake



The result which contradicts WHO guidelines that urge early ANC uptake for better maternal outcomes (WHO, 2016).

Apanga and Kumbeni (2021), focused on a study on correlates of late initiation and underutilization of the recommended eight or more antenatal care visits among women of reproductive age in LMIC the study found that early ANC was positively associated with eight contacts ANC. The study recommended promotion of early ANC among all women, particularly those residing in rural areas is important, as this may help achieve the recommendations of the updated WHO guidelines for a positive pregnancy experience, and also provide of incentives to pregnant women who receive early ANC, as this may play an important role in increasing the coverage of early 8 contacts ANC.

In a related study by Muthoni et al. (2022), in Kenya found a majority of the pregnant women (137, 69.2%) achieved timely initiation of ANC, while (61, 30.8%) did not. Recommended an aggressive

creation of awareness on the importance of early initiation of ANC for the achievement of eight contacts ANC.

A study by Boah et al. (2022); Islam and Al-Balushi (2021), discovered adherence to the new WHO recommendations for the frequency and timing of ANC contacts was associated with receiving quality prenatal care. The study emphasizes that for a woman to have a positive pregnancy experience, must begin ANC in the first trimester and have at least eight contacts with healthcare providers before delivery.

4.5 Bivariate Analysis of Demographic Information and ANC Uptake

Bivariate analysis was performed using the Chi-square test to assess associations between categorical independent variables (e.g., age group, marital status, education level) and ANC uptake, which was categorized by the number of visits. The test is appropriate when both the independent and dependent variables are categorical in nature. No formal hypotheses were previously stated; however, the null hypothesis for each Chi-square test assumed no significant association between the respective demographic characteristic and ANC uptake.

For the purpose of Chi-square testing, the dependent variable, ANC uptake, was recoded into a binary variable: women who attended eight ANC visits versus those who attended fewer than eight. Similarly, independent variables such as age, marital status, and education level were grouped into categories (e.g., “primary,” “secondary,” and “tertiary”) to facilitate cross-tabulation. This allowed the computation of Chi-square statistics to test for significant associations, the results are summarized in Table 4.3.

Table 4.3:*Cross tabulation of ANC Uptake by Demographic Characteristics & Chi-Square Test Results*

Demographic	Category	1	2	3	3	4	5	6	7	Total	Chi-	df	p-value
Characteristic		Contact	contact	contact	contact	contact	contact	contact	contact		Square		
Age of Respondents	≤ 25 years	2	5	8	25	25	17	19	38	139	55.139	35	0.016
	26-30 years	0	3	8	9	38	7	13	25	103			
	31-35 years	0	1	2	12	19	12	9	20	75			
	36-40 years	0	1	1	7	6	12	3	15	45			
	41-45 years	0	0	0	2	2	0	1	1	6			
	46-50 years	0	0	1	0	0	0	0	0	1			
Relationship Status	Divorced/Separated	0	0	0	2	2	1	0	0	5	13.572	14	0.482
	Married	2	7	16	44	76	43	37	91	316			
	Single	0	3	4	9	12	4	8	8	48			
Highest Level of Education	Certificate	2	9	18	51	78	38	37	75	308	23.781	21	0.304
	Degree	0	0	1	1	0	1	0	3	6			
	Diploma	0	1	1	3	10	7	8	21	51			
	None	0	0	0	0	2	2	0	0	4			

The results indicate that younger women (25 years and below) had the highest proportion of respondents attending eight or more ANC contacts (38), followed by those in the 26–30 age group (25). The number of ANC contacts declined as age increased, with only one respondent in the 46–50 years category attending ANC uptake. The chi-square test revealed a statistically significant association between age and ANC uptake ($\chi^2 = 55.139$, $df = 35$, $p = 0.016$).

These findings are consistent with studies that show younger women are more likely to attend ANC contacts due to increased awareness and exposure to maternal healthcare campaigns (Oladele et al., 2024). Younger women may also be first-time mothers who actively seek maternal healthcare services to ensure a healthy pregnancy (Ekholuenetale, 2021). However, studies conducted in Sub-Saharan Africa indicate that older women, particularly those with multiple pregnancies, may rely on past experiences and, therefore, have fewer ANC contacts (Odusina et al., 2021). In contrast, research in Sierra Leone suggests that older women with formal employment and financial stability are more likely to complete the recommended ANC uptake (Sserwanja et al., 2022).

Married women constituted the largest proportion of those attending ANC contacts, with 91 attending eight contacts and 76 attending five. Single and divorced/separated women had significantly lower attendance rates. However, the chi-square test did not show a statistically significant association between relationship status and ANC uptake ($\chi^2 = 13.572$, $df = 14$, $p = 0.482$). These results align with studies of pregnant women in Indonesia where marriage is often associated with better healthcare-seeking behavior due to spousal support. Married women may have greater access to financial resources, decision-making power, and encouragement from their partners, which facilitates ANC uptake (Oladele, et al., 2024). However, other studies suggest that single mothers, despite having fewer financial resources, may be more proactive in seeking ANC services due to a higher perceived risk of pregnancy complications (Olusesi, 2022) Conversely, research by

Al-Mamun et al. (2025) found that some married women face cultural and spousal barriers that limit their ability to make independent healthcare decisions, which can negatively impact ANC uptake. Education level was also analyzed about to ANC uptake. The results showed that respondents with certificate-level education had the highest frequency of attending ANC contacts, with 75 attending eight contacts and 78 attending five contacts. Those with diploma-level education had lower attendance, while respondents with no education had the lowest ANC uptake rates. The chi-square test did not reveal a statistically significant association between education level and ANC uptake ($\chi^2 = 23.781$, $df = 21$, $p = 0.304$).

These findings align with research conducted by Escañuela Sánchez et al. (2022), which found that higher education levels do not necessarily correlate with increased ANC uptake, as other factors such as accessibility, healthcare costs, and cultural beliefs play a role. While education enhances awareness of the importance of ANC services, financial constraints and long distances to health facilities remain major barriers, particularly for women in rural areas. In contrast, several studies have examined the factors influencing the utilization of eight or more antenatal care (ANC) contacts among women in Sub-Saharan Africa. Tessema et al. (2022) found that maternal education was a significant predictor of completing at least eight ANC visits, emphasizing the need to prioritize women's education to meet WHO recommendations. Similarly, Sui et al. (2021) highlighted that higher educational attainment improved the likelihood of completing eight ANC visits in Nigeria and recommended expanding maternal education and access to care services. Echoing these findings, Ekholuenetale et al. (2020) reported that women with secondary education or higher were more likely to meet the eight-visit ANC benchmark compared to those with no formal education. Also, studies in high-income countries suggest that women with higher education are more likely to complete the recommended ANC uptake due to greater health literacy and access to medical insurance (Comfort, 2022).

Overall, the findings highlight the influence of demographic characteristics on ANC uptake. While age showed a significant association with ANC uptake, relationship status and education level did not exhibit statistically significant relationships. The results suggest that younger women and those with some levels of formal education are more likely to attend ANC uptake, which aligns with previous studies on maternal healthcare utilization. However, structural factors such as healthcare accessibility, financial constraints, and cultural beliefs continue to play a crucial role in determining ANC uptake across different demographic groups.

4.6 Community health Promoters role

The role of community health promoters in promoting ANC uptake among pregnant women in Changamwe Sub-County was assessed based on respondents' opinions of their engagement in maternal healthcare. Table 4.4 presents the summarized findings of this assessment.

Table 4.4:

Role of Community health promoters in ANC uptake

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Awareness of ANC importance due to CHPS	48.9	27.8	0.5	19.7	3.0
CHPS visits reminded ANC uptake	20.8	66.2	0.5	10.3	1.9
CHPS referred to a health facility for ANC	25.9	59.2	0.8	13.0	1.1
CHPS visited home during pregnancy	25.4	60.5	0.0	11.1	3.0

According to the study, 27.8% of respondents disagreed, while nearly half (48.9%) strongly disagreed that CHPs were the reason they learnt about the significance of ANC. Just 19.7% of respondents agreed, and just 3.0% strongly agreed. This implies that CHPs had little influence over respondents' knowledge of ANC (Arteaga, et al., 2019).

Most respondents (66.2%) disagreed that CHPS visits reminded them to attend ANC, with 20.8% strongly disagreeing. Only 10.3% agreed that CHPS visits were a reminder. This suggests that CHPs had little direct influence on maintaining continuous ANC uptake (WHO, 2021).

Most respondents (59.2%) disputed that a CHP referred them to a health facility for ANC, with 25.9% strongly disagreeing. Only 13.0 percent agreed, with 1.1% strongly agreeing. This shows that official healthcare referrals from CHPs were not widespread in the study environment.

According to the survey, 60.5% of respondents disapproved and 25.4% strongly disagreed with having a CHP visit their house during pregnancy. Only 11.1% agreed, with 3.0% strongly agreeing. These data suggest that CHPs made fewer home visits, which could affect the level of personalised maternal healthcare support (Chivers et al., 2020).

Table 4.5:*Bivariate Analysis of CHPs' role and ANC uptake*

CHPs Role Statement	Response Category	1 contact	2 contact	3 contact	4 contact	5 contact	6 contact	7 contact	8 contact	Total (N=369)	χ^2	df	p-value
A CHPs referred me to a health facility for ANC.	Strongly Disagree	2	2	7	15	24	14	6	26	96	28.739	28	0.426
	Disagree	0	7	13	33	53	31	28	53	218			
	Neutral	0	0	0	0	2	0	0	1	3			
	Agree	0	1	0	6	9	3	11	18	48			
	Strongly Agree	0	0	0	1	2	0	0	1	4			
A CHPs regularly discussed antenatal care with me.	Strongly Disagree	1	1	7	14	26	12	7	24	92	30.226	35	0.698
	Disagree	1	8	13	30	45	30	26	52	205			
	Neutral	0	0	0	1	1	0	0	1	3			
	Agree	0	1	0	10	15	5	12	21	64			
	Strongly Agree	0	0	0	0	3	0	0	1	4			
A CHPs visited my home at least once during pregnancy.	Strongly Disagree	1	2	9	17	24	11	7	23	94	18.595	21	0.611
	Disagree	1	7	11	28	55	30	33	59	224			
	Agree	0	1	0	7	7	6	5	15	41			
	Strongly Agree	0	0	0	3	4	1	0	2	10			
	Strongly Disagree	2	2	11	30	42	25	19	50	181			
I became aware of the importance of	Strongly Disagree	2	2	11	30	42	25	19	50	181	91.032	28	0.000
	Disagree												

ANC due to a CHPs.													
	Disagree	0	5	7	14	29	12	12	24	103			
	Neutral	0	2	0	0	0	0	0	0	2			
	Agree	0	1	2	8	15	9	14	23	72			
	Strongly	0	0	0	3	4	2	0	2	11			
	Agree												
Visits by CHPs reminded me to attend ANC.	Strongly	1	1	5	13	22	10	5	20	77	22.875	35	0.943
	Disagree												
	Disagree	1	8	15	32	60	34	34	60	244			
	Neutral	0	0	0	1	0	0	0	1	2			
	Agree	0	1	0	8	5	4	5	15	38			
	Strongly	0	0	0	1	3	0	1	2	7			
	Agree												

The results indicate that most direct roles of Community health promoters, such as referring pregnant women to health facilities, conducting home visits, and providing reminders, did not significantly influence ANC uptake. The chi-square test results for CHPs referrals ($p = 0.426$), discussions about ANC ($p = 0.698$), and home visits ($p = 0.611$) all showed p-values greater than 0.05, indicating no statistically significant association with the number of ANC contacts attendances. These findings suggest that while CHPs play a supportive role in maternal healthcare, their direct actions may not be the primary drivers of ANC uptake.

However, the findings revealed a significant relationship between awareness of ANC importance due to CHPs and ANC uptake ($p = 0.000$). This suggests that CHPs are more effective in influencing ANC uptake through health education rather than direct service interventions. Women who acknowledged learning about the importance of ANC from CHPs were more likely to attend multiple ANC contacts, reinforcing the idea that knowledge and awareness play a crucial role in health-seeking behaviour.

Several studies have supported these findings. For instance, research by Zulu and Perry (2021), found that CHPs main contribution to maternal healthcare is through health education rather than direct interventions. Similarly, a study by Ademuyiwa, et al., (2020) in Tanzania found that community-based education programs led by CHPs resulted in a 30% increase in ANC uptake, aligning with this study's results that awareness creation significantly influenced ANC uptake.

However, the findings regarding CHPs referrals and reminders not being significant contrast with some previous studies. For instance, research by Apanga, and Kumbeni, (2021). in Bangladesh showed that CHP referrals contributed to increased ANC uptake, but only when combined with financial incentives and transportation support. This highlights that referrals alone may not be effective unless structural barriers such as transport costs and cultural beliefs are addressed.

The role of CHPs' home visits in influencing ANC uptake has also been debated. According to Guenther et al. (2019), home visits by CHPs are moderately effective in urban areas but less impactful in rural settings due to logistical challenges and socio-cultural factors. Similarly, a Kenyan study by the Adulo et al., (2023) found that only 25% of women recalled receiving a home visit from a CHP during pregnancy, suggesting that home visits were not widely implemented or remembered, which may explain their lack of significance in this study.

These findings highlight the critical role of CHPs in health education rather than direct service delivery. Policymakers and program designers should focus on enhancing CHP-led educational programs to improve maternal healthcare outcomes. Additionally, the lack of significance of CHPs' referrals and reminders suggests that structural barriers such as transportation, financial constraints, and cultural norms need to be addressed to make these interventions more effective. Future studies should explore the effectiveness of CHP interventions when combined with financial and logistical support programs to encourage ANC uptake.

In conclusion, this study found that CHPs led awareness on ANC significantly influenced ANC uptake, while direct interventions such as referrals, reminders, and home visits had no significant effect. These findings emphasize the importance of community health education as a key strategy for improving maternal health outcomes. Future maternal health programs should prioritize awareness campaigns and health literacy initiatives, while also addressing external barriers to ANC uptake.

4.7 Quality of the Eight ANC Uptake

The quality of prenatal care (ANC) services was evaluated using a variety of factors, including blood pressure monitoring, foetal heart rate checks, healthcare practitioner conduct, service convenience, privacy, and commodity availability.

The results are summarised in Table 4.6 below.

Table 4.6:

Quality of Eight ANC Uptake

Indicator	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Blood pressure (BP) Checks Conducted	1.6	0	0.3	49.2	48.9
Weight monitored Consistently	1.1	0	0.5	46.2	52.2
Fetal Heart Rate Monitored Regularly	1.1	0	0.3	48.6	50.0
Treated with dignity and Respect	0	0.8	1.4	51.9	43.0
Convenient operating hours	1.9	0	3.2	49.7	41.9
Privacy respected	0.3	0	0.5	52.4	46.2
Missed ANC due to Stock-outs	30.5	57.0	3.2	6.2	2.7
Overall positive experience	0.3	0.8	2.7	51.6	41.6

The data show that the overall quality of ANC services was high, with a large majority of respondents agreeing or strongly agreeing that critical features of care were addressed. Almost all respondents said that their blood pressure (98.1%) and weight (98.4%) were consistently measured. Regular monitoring is crucial for detecting pregnancy-related problems, including preeclampsia (Ohaja et al., 2020).

A total of 98.6% of respondents acknowledged that foetal heart rate monitoring was done regularly, which is necessary for tracking foetal well-being (UNICEF, 2021). Furthermore, most responders (94.9%) reported being handled with dignity and respect. Positive interactions with healthcare personnel increase maternal satisfaction and promote continuous use of ANC services (Tiyare et al.,

2025).

Majority of respondents (91.6%) found the operating hours convenient, and 98.6% felt their privacy was protected, which is critical for providing comfortable and accessible healthcare Ministry of health [MOH Kenya], 2021). While 87.5% did not believe that stock-outs prevented them from attending ANC, 8.9% reported missing uptake due to a lack of needed supplies, which could have a significant influence on maternal and foetal outcomes (Khatri, 2022).

Overall experience majority of respondents (93.2%) reported favourable experiences with ANC services, indicating overall satisfaction with the services obtained. These findings emphasise the benefits of ANC service delivery, notably in terms of monitoring, provider behaviour, and accessibility. However, resolving stock-outs of important commodities remains a critical area for improvement to offer continuous care for all pregnant women.

Table 4.7:*Association between Quality Indicators of ANC Services and Number of ANC Uptake Attended*

Quality Indicator	Response Category	1 contact	2 contact	3 contact	4 contact	5 contact	6 contact	7 contact	8+ contact	Total	Chi-Square Value	df	p-value
Consistent Blood Pressure (BP) Checks	Strongly Disagree	0	0	0	1	0	0	0	5	6			
	Disagree	0	0	0	0	0	0	0	0	0	203.880	21	0.000
	Neutral	1	0	0	0	0	0	0	0	1			
	Agree	1	1	10	26	48	25	26	44	181			
	Strongly Agree	0	9	10	28	42	23	19	50	181			
Consistent Weight Monitoring	Strongly Disagree	0	0	0	1	0	0	0	3	4			
	Disagree	0	0	0	0	0	0	0	0	0	106.497	21	0.000
	Neutral	1	0	0	0	1	0	0	0	2			
	Agree	1	1	9	23	45	24	23	44	170			
	Strongly Agree	0	9	11	31	44	24	22	52	193			

Regular Fetal Heart Rate Monitoring	Strongly Disagree	0	0	0	1	0	0	0	3	4			
	Disagree	0	0	0	0	0	0	0	0	0	199.111	21	0.000
	Neutral	1	0	0	0	0	0	0	0	1			
	Agree	1	1	10	24	47	24	26	46	179			
	Strongly Agree	0	9	10	30	43	24	19	50	185			
Treatment with Dignity and Respect	Strongly Disagree	0	0	1	0	1	1	0	0	3			
	Disagree	0	0	1	0	1	1	0	0	3	61.108	28	0.000
	Neutral	1	0	1	0	1	1	0	1	5			
	Agree	1	1	9	27	46	26	27	54	191			
	Strongly Agree	0	9	8	28	38	19	17	40	159			
Privacy Respected During Uptake	Strongly Disagree	0	0	0	0	1	0	0	0	1			
	Disagree	0	0	0	0	1	0	0	0	1	112.920	28	0.000
	Neutral	1	0	0	0	0	1	0	0	2			
	Agree	1	1	11	28	43	26	28	55	193			
	Strongly Agree	0	9	9	27	45	21	16	44	171			

The findings presented in the table illustrate the relationship between the number of ANC uptake and various quality indicators of ANC services. The results indicate significant associations, with p-values less than 0.05 in most cases, suggesting that the quality of ANC services improves with increased number of ANC contacts. For instance, blood pressure monitoring, an essential aspect of maternal health surveillance, was reported to be consistently conducted among women who attended five or more ANC contacts ($\chi^2 = 203.880$, $p < 0.001$). Similarly, weight monitoring was significantly associated with frequent ANC contacts ($\chi^2 = 106.497$, $p < 0.001$), implying that women who had lower uptake had a lower likelihood of having their weight regularly assessed, a key indicator in tracking maternal and foetal well-being. These findings highlight the importance of adherence to recommended ANC schedules to ensure that expectant mothers receive comprehensive maternal health assessments.

Foetal heart rate monitoring, a critical measure in determining foetal health, also demonstrated a significant association with the number of ANC uptake ($\chi^2 = 199.111$, $p < 0.001$). Women who attended more prenatal contacts were more likely to report that their foetal heart rate was regularly monitored. This result is consistent with findings from studies such as that of Al-Mamu et al., (2025), which reported that inadequate foetal heart rate monitoring was common among women who attended fewer ANC contacts due to limited engagement with healthcare providers. Similarly, the experience of respectful and dignified treatment was reported more frequently among women who attended six or more ANC contacts ($\chi^2 = 61.108$, $p < 0.001$). These results align with Mwenebanda et al. (2024) who found that negative provider attitudes and disrespectful maternal care were key deterrents to ANC uptake among pregnant women. Laisser et al. (2022), conducted a study on the tipping point of antenatal engagement in Tanzania and Zambia the study found out care provision acted as both a facilitator and a barrier to antenatal care, specifically in relation to the behaviour of healthcare providers.

Disrespectful care from health care providers which include unfriendly attitudes, unfair treatment and poor language used by health care professionals' hostile approach. Such experiences deter women from seeking future care. However, positive experiences of care treated by friendly, approachable staff and respectful care were recognized as a facilitator of antenatal services.

Privacy during ANC consultations was another key quality indicator that showed a significant association with the frequency of ANC uptake ($\chi^2 = 112.920$, $p < 0.001$). Women who attended more ANC contacts were more likely to report that their privacy was respected, whereas those with fewer ANC contacts cited confidentiality concerns. This finding is consistent with Ali et al. (2025), who reported that privacy concerns were a major factor affecting ANC service utilization. The WHO (2021) underscores the need for confidentiality and respect in maternal healthcare, as it encourages women to seek medical care without fear of stigma or discrimination.

The findings align with several studies conducted Boah et al. (2022); Islam and Al-Balushi (2021), emphasizing the critical role of ANC contacts frequency in determining the quality of care received. Mebratie (2024) found that women who received comprehensive ANC services, including blood pressure and weight checks, had significantly lower pregnancy complications. Additionally, distance to healthcare facilities and negative provider attitudes. The present study similarly found that women with fewer ANC contacts were more likely to report issues related to privacy, dignity, and inadequate service provision, suggesting that addressing these barriers could improve ANC uptake and service quality.

Overall, the study's findings reinforce the importance of frequent ANC uptake in ensuring high-quality maternal healthcare services. The strong association between ANC contacts frequency and quality indicators suggests that women who attend more ANC visits receive

better care, including regular monitoring of vital health parameters and more respectful treatment. Addressing barriers such as provider attitudes, privacy concerns, and healthcare accessibility could significantly enhance ANC service utilization and quality. By improving these factors, Kenya can strengthen its maternal healthcare system, ultimately reducing maternal and neonatal complications and promoting better health outcomes.

4.9 Health Need-Related Factors

Table 4.8:

Health Need-Related Factors

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Pregnancy complications caused me to delay my ANC.	21.9	75.1	1.6	1.4	0
I felt that attending ANC was crucial due to my complications.	3.8	62.4	14.1	15.9	3.5
ANC visits provided me with important health information about pregnancy.	0.3	0.3	0.5	54.1	44.6
ANC helped prevent complications for me and the baby.	0.5	0.5	0.5	51.1	47.3
Emotional readiness for pregnancy motivated me to have timely ANC care.	0.3	2.4	3.5	83.2	10.3

Majority of respondents (75.1%) disagreed that pregnancy complications caused delays in ANC attendance, while 21.9% strongly disagreed indicating that for most women, complications were not a barrier to timely ANC. However, 15.9% agreed and 3.5% strongly agreed that complications made ANC crucial, suggesting that health needs influenced some women's motivation to attend. ANC was widely viewed as valuable, with 54.1% agreeing and 44.6% strongly agreeing that the visits provided important health information, and 51.1%

agreeing and 47.3% strongly agreeing that ANC helped prevent complications for both mother and baby. Emotional readiness also played a critical role, with 83.2% agreeing and 10.3% strongly agreeing that it motivated them to seek timely care. These findings underscore the dual importance of health awareness and psychological preparedness in ensuring optimal ANC uptake.

Table 4.9:*Bivariate Analysis of Health Need-Related Factors and ANC contacts*

Health Need-Related Statement	Response	1 contact	2 contact	3 contact	4 contact	5 contact	6 contact	7 contact	8 contact	Total	Chi-Square Value	df	Sig. (2-sided)
Pregnancy complications caused me to delay my ANC	Agree	0	0	0	1	2	0	1	1	5	50.639	21	0.000
	Disagree	0	10	14	46	61	40	37	69	277			
	Neutral	1	0	1	1	2	1	0	0	6			
	Strongly disagree	1	0	5	7	25	7	7	29	81			
I felt attending ANC was crucial due to complications	Agree	0	1	4	8	13	7	5	21	59	27.422	35	0.816
	Disagree	1	6	11	35	62	35	31	49	230			
	Neutral	1	3	3	7	12	4	6	16	52			
	Strongly agree	0	0	1	2	0	1	3	6	13			
	Strongly disagree	0	0	1	3	3	1	0	6	14			
ANC visits provided important health information	Agree	1	1	11	30	49	26	29	52	199	127.256	42	0.000
	Disagree	0	0	0	0	0	0	1	0	1			
	Neutral	1	0	0	0	1	0	0	0	2			
	Strongly agree	0	0	1	0	3	1	1	4	10			

ANC helped prevent complications	Strongly Agree	0	9	8	24	37	20	14	43	155			
	Strongly disagree	0	0	0	1	0	0	0	0	1			
	Agree	1	1	9	29	47	23	28	51	189	124.479	28	0.000
	Disagree	0	0	1	0	0	1	0	0	2			
	Neutral	1	0	0	0	1	0	0	0	2			
Emotional readiness motivated timely ANC	Strongly agree	0	9	9	25	42	24	17	48	174			
	Strongly disagree	0	0	1	1	0	0	0	0	2			
	Agree	1	4	14	48	74	42	41	83	307	86.520	35	0.000
	Disagree	0	1	1	1	2	1	1	2	9			
	Neutral	1	4	1	3	2	0	1	1	13			
	Strongly agree	0	1	3	3	11	5	2	13	38			
	Strongly disagree	0	0	0	0	1	0	0	0	1			

The bivariate analysis results indicate that several health need-related factors significantly influence ANC uptake. Notably, the perception that ANC helps prevent complications for both the mother and the baby showed a strong association with visit frequency ($\chi^2 = 124.479, p = .000$), suggesting that pregnant women who believe in the preventive benefits of ANC are more likely to adhere to recommended visits.

Similarly, the belief that ANC provides important health information about pregnancy was significantly associated with ANC attendance ($\chi^2 = 127.256, p = .000$), emphasizing the role of awareness and knowledge in shaping maternal healthcare-seeking behaviors. Women who recognized ANC as a critical source of maternal health knowledge were more likely to complete the recommended eight visits.

Emotional readiness for pregnancy also emerged as a significant determinant of ANC adherence ($\chi^2 = 86.520, p = .000$). Those who felt psychologically prepared for their pregnancy tended to start and maintain ANC schedules more consistently, highlighting the importance of emotional and mental preparedness in maternal health decision-making.

One intriguing finding is that pregnancy complications caused delays in ANC attendance, and this was statistically significant ($\chi^2 = 50.639, p = .000$). This suggests that complications can sometimes act as a barrier to timely ANC initiation, particularly when not accompanied by proper support or awareness. However, the perception that ANC was crucial due to pregnancy complications did not significantly influence attendance ($\chi^2 = 27.422, p = .816$). This indicates that while actual complications can lead to delays, simply recognizing their importance may not be enough to motivate consistent attendance, unless combined with other facilitating factors such as access and support.

The findings also highlight how women's belief in ANC's ability to prevent complications and deliver essential health information plays a crucial role in motivating uptake. These results are consistent with Chivers et al., (2020), who found that 85% of Ethiopian women who believed

ANC prevents complications completed ANC. Laisser et al. (2022), conducted a study on the tipping point of antenatal engagement in Tanzania and Zambia. The study showed that most women and partners knew that engagement in routine antenatal care was associated with positive outcomes for them and their babies. The belief that attending antenatal care would improve the health of mother and baby was a strong motivator for some women. The study advocated for the use of positive women's narratives, and active community engagement to strengthen uptake of ANC.

Study carried in in Sub Sahara Africa women who wanted pregnancy were more likely to use ANC than their counterparts, This may be because women who have desired pregnancy may have emotional readiness that emerges from favorable actions, either from their spouses, close relatives (Tessema et al., 2022). Moreover, although emotional readiness positively influenced ANC utilization, the dual nature of pregnancy complications presents a complex interaction. Some women may delay ANC due to discomfort or uncertainty, while others may respond by increasing uptake once they perceive a risk, a dynamic also observed in previous studies (Tessema et al., 2021; Adulo, et al., 2023).

In summary, the analysis underscores the importance of perceived health benefits, emotional readiness, and timely response to complications in ANC utilization. Interventions aimed at increasing ANC uptake should therefore focus on educating women about the benefits of early and regular ANC, strengthening emotional support structures, and addressing the barriers that complications may introduce.

4.10 Pregnant Women's Status in the Household

Table 4.10:

Pregnant Women's Status in the Household

Statement	Agree (%)	Strongly Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Total (%)
I had access to reliable maternal health information.	53.2	43.2	2.2	0.8	0.3	100.0
I received encouragement from my family to attend ANC.	80.5	13.8	3.0	1.9	0.5	100.0
My partner played an active role in ensuring I attended ANC.	33.8	55.1	6.8	3.8	0.5	100.0
Traditional expectations affected my ability to prioritize ANC.	4.9	1.4	3.8	71.6	18.4	100.0
I was empowered to make my own healthcare decisions during pregnancy.	50.5	44.6	2.2	1.9	0.5	100.0

The data on pregnant women's position in the family demonstrate significant influences on ANC uptake. Access to trustworthy maternal health information was rather high, with 53.2% agreeing and 43.2% strongly agreeing that it was available to them. This shows that healthcare systems and community outreach programs have successfully disseminated critical maternal health information, allowing women to make educated decisions about ANC use (WHO, 2020). Family support appeared as an important component, with 80.5% of respondents agreeing and 13.8% strongly agreeing that their family encouraged them to uptake ANC services. This suggests that household members actively participate in ensuring pregnant women prioritise

maternal healthcare, emphasising the significance of family involvement in enhancing maternal health outcomes (Mane et al., 2024). Similarly, male partner involvement had a significant impact, with 55.1% strongly agreeing and 33.8% agreeing that their husbands took an active role in ensuring they attended ANC. This is consistent with earlier research emphasising the benefits of male participation in maternal healthcare decisions, as supportive partners can improve access to health services and enhance adherence to ANC schedules (Tamene et al., 2025).

Traditional expectations did not significantly reduce ANC uptake, with 71.6% of respondents disagreeing that cultural norms influenced their ability to prioritise ANC. This shows a shift in society norms towards higher acceptability of maternal healthcare, which is consistent with current community efforts to raise maternal health awareness. Furthermore, the majority of respondents (50.5% agreed, 44.6% strongly agreed) reported feeling empowered to make their own healthcare decisions during pregnancy, demonstrating that women's autonomy in maternal health matters is widely supported. This empowerment is critical in facilitating timely and appropriate ANC uptake because decision-making autonomy allows women to seek care without undue restrictions (Deresa Dinagde et al., 2024).

In summary, the data show that access to maternal health information, family support, and partner involvement all have a significant impact on ANC uptake. Furthermore, cultural expectations appear to have little influence, with most women feeling empowered to make their own healthcare decisions. These findings highlight the importance of continuous efforts to develop family and partner support systems, as well as community-based programs that increase maternal health awareness and decision-making autonomy.

The relationship between pregnant women's household status and their attendance at antenatal care (ANC) services is crucial for understanding maternal health-seeking behaviors. A bivariate analysis was conducted to examine the association between household factors such as access to reliable maternal health information, family encouragement, partner involvement, empowerment in healthcare decisions,

and traditional expectations with the number of ANC contacts attended. The results are summarized in Table 4.11.

Table 4.11:

Association between Household Factors and Number of ANC contacts Attended

Household Factor	Chi-Square Value	Degrees of Freedom (df)	p- value
Access to Reliable Maternal Health Information	208.136	35	0.000
Encouragement from Family to Attend ANC	54.451	35	0.019
Empowerment to Make Healthcare Decisions	61.581	35	0.004
Partner Played Active Role in ANC uptake	26.001	28	0.573
Traditional Expectations Affected ANC Prioritization	44.591	28	0.024

The findings from the bivariate analysis reveal several key household factors that significantly influence ANC uptake. Notably, access to reliable maternal health information was found to have a strong and highly significant association with the number of ANC contacts ($p = 0.000$). This underscores the critical role of information dissemination in shaping maternal health behaviors. Pregnant women who receive timely and accurate maternal health information are better equipped to understand the benefits of ANC and make informed healthcare decisions. Ahinkorah et al. (2022) conducted study confirmed that access to health information is one of the strongest predictors of ANC uptake. A study conducted in Kenya found that women who had exposure to maternal health education were more likely to attend ANC uptake and seek skilled birth attendance (Lawrence, 2020).

Family support also plays a significant role in ANC uptake. The results indicate that encouragement from family members was significantly associated with a higher number of ANC uptake ($p = 0.019$). This finding aligns with previous research showing that familial

support, particularly from mothers-in-law and extended family, positively influences ANC uptake by reducing logistical barriers and encouraging women to prioritize their health (Alfayez et al., 2023). Women who receive support from family members, whether through financial assistance, childcare support, or emotional encouragement, tend to have higher adherence to ANC schedules (Gebrekirstos et al., 2021).

Similarly, women's empowerment in healthcare decision-making was significantly associated with ANC uptake ($p = 0.004$). This suggests that when women have autonomy in making healthcare choices, they are more likely to engage with ANC services. These results are consistent with findings from a study in Nigeria indicated women who had decision-making power in their households were twice as likely to receive adequate ANC compared to those whose healthcare decisions were made by their husbands or family members (Obasohan et al., 2019). The ability to make independent healthcare decisions often reflects broader socio-economic factors, such as education and financial independence, which further enhance ANC utilization (Imo, 2020).

However, the role of male partners in ANC uptake did not show a statistically significant association ($p = 0.573$). This finding challenges the assumption that male involvement is always a strong predictor of ANC utilization. While partner support is often cited as an essential component of maternal healthcare, other factors such as women's autonomy, household structure, and cultural dynamics may have a more direct impact. Some studies suggest that male partners may delay financial support and not actively participate in ANC uptake, which could explain the lack of statistical significance in this study. A study by Warri and George (2020), found out lack of trust made some husbands not believe their wives when their wives told them they were pregnant. This made the husbands reluctant to provide money for early initiation of antenatal care also, the lack of knowledge of the ideal booking time by husbands contributed to them providing less support to their wives to initiate antenatal care early.

Furthermore, logistical barriers such as work commitments and restrictive cultural norms may limit male involvement in ANC, as found in a study conducted in Kenya (Makau, 2023).

Traditional expectations and cultural norms were found to have a statistically significant association with ANC uptake ($p = 0.024$). This suggests that cultural beliefs and societal expectations can influence maternal health-seeking behaviors. In some communities, pregnancy is considered a private or exclusively female matter, discouraging women from openly seeking ANC services (Laisser et al., 2022). Additionally, traditional beliefs about the safety of hospital-based deliveries and reliance on traditional birth attendants may lead to lower ANC uptake (Ohaja, et al., 2020). Addressing these cultural barriers requires targeted community interventions that promote positive maternal health behaviors while respecting cultural values.

Several studies have examined the role of household factors in influencing ANC uptake, with varying findings across different contexts. A national survey in Kenya found that male partner attendance at ANC was positively associated with increased maternal health service utilization and infant immunization rates (Odeny et al., 2019). However, the variability in findings across different regions suggests that the impact of partner involvement may be context specific. In urban areas, male involvement in ANC is often higher due to better awareness and reduced cultural restrictions, whereas in rural settings, societal norms may limit men's participation (Nesane & Mulaudzi, 2024).

A study conducted in Uganda found that the presence of supportive family members, particularly the mother-in-law, significantly influenced ANC uptake (Comfort et al., 2020). This is like findings in Nigeria, where intergenerational household structures contributed to increased ANC utilization, as older family members often ensured that younger women adhered to recommended ANC uptake (Amare. et al., 2023).

Furthermore, a qualitative study on barriers and facilitators to antenatal care services utilisation in Somaliland highlighted that financial constraints, lack of education, and transportation challenges were among the leading barriers to ANC uptake. This suggests that while household support is crucial, broader socio-economic factors also play a significant role in determining ANC adherence (Abdiwali et al., 2024).

Additionally, research in Tanzania emphasized the role of community-based interventions in improving ANC uptake. The study found that women who participated in community health education programs were 30% more likely to attend at least four ANC contacts compared to those who did not receive such education (Onyeajam et al., 2018). This supports the finding in the current study that access to reliable maternal health information is a key determinant of ANC utilization.

In contrast, a study in Uganda found that while women with decision-making power had higher ANC uptake, those who faced domestic violence or lacked social support were less likely to complete the recommended number of ANC contacts (Bhutada et al., 2024). This underscores the complexity of household dynamics, where empowerment alone may not be sufficient if other socio-cultural barriers persist.

4.11 Correlation Analysis

Correlation analysis was conducted to examine the relationships between the uptake of eight antenatal care (ANC) contacts among expectant mothers and key influencing factors, including Community health promoters' role, Pregnant Women's Status in the Household, Health Need-Related Factors, and Quality of the Eight ANC Uptake. The results are presented in Table 4.12.

Table 4.12:*Correlation Matrix*

Variables	Eight Contacts ANC among Prenatal Mothers	Community Health Promoters' Role	Pregnant Women's Status in the Household	Health Need- Related Factors	Quality of the Eight ANC Uptake
Eight Contacts ANC among Prenatal Mothers	1	-0.003	0.771**	0.842**	0.786**
Community health promoters' role	-0.003	1	0.017	0.009	-0.037
Pregnant Women's Status in the household	0.771**	0.017	1	0.639**	0.591**
Health need-Related factors	0.842**	0.009	0.639**	1	0.648**
Quality of the Eight ANC Uptake	0.786**	-0.037	0.591**	0.648**	1

Note: ** $p < 0.01$ (two-tailed), significant correlations marked with **

The results indicate a strong positive correlation between eight contacts ANC uptake and Health need-related Factors ($r = 0.842$, $p < 0.01$). This suggests that maternal health needs, such as pregnancy complications or the perceived benefits of ANC, significantly influence ANC uptake. Pregnant women who experience complications or recognize the importance of ANC are more likely to complete the recommended eight contacts. This finding aligns with global research emphasizing the role of perceived health risks in motivating ANC uptake (United Nations Children's Fund [UNICEF], 2022; World Health Organization [WHO], 2021)

A strong positive correlation was also observed between eight contacts ANC uptake and the Quality of the Eight ANC Uptake ($r = 0.786$, $p < 0.01$). This implies that when ANC services are of higher quality, providing essential maternal health services such as blood pressure monitoring, fetal heart rate checks, and respectful care, pregnant women are more likely to adhere to all eight contacts. These findings are supported by studies emphasizing the importance of quality ANC in increasing maternal healthcare utilization (Asiimwe et al., 2024). Additionally, Eight Contacts ANC uptake was strongly associated with Pregnant Women's Status in the Household ($r = 0.771$, $p < 0.01$). This suggests that family support, particularly from spouses, as well as decision-making autonomy, significantly impact ANC uptake. Pregnant women who receive encouragement from their families and have greater autonomy in healthcare decisions tend to access maternal healthcare services more consistently (MOH Kenya, 2021).

However, the Community health promoters' role showed no significant correlation with Eight Contacts ANC uptake ($r = -0.003$, $p = 0.956$). This suggests that in the study area, CHPs had little or no influence on maternal health-seeking behavior. This contradicts global recommendations that emphasize the importance of community health promoters in increasing ANC uptake (WHO, 2021). The lack of a significant relationship could indicate gaps in CHPS engagement, ineffective health education strategies, or limited outreach efforts. Consequently, necessitating further evaluation of CHPs' roles in promoting ANC uptake.

Furthermore, a study by Kawayo (2023) reveals that CHPs face a range of challenges that hinder their effectiveness and motivation. These include inconsistent incentives, inadequate supplies, negative community perceptions, and increased workload. In addition, insufficient training, the absence of standardized reporting tools, and difficulties in maintaining confidentiality during home visits especially when other family members are present further constrain their performance. Moreover, logistical barriers such as transportation issues, delayed

or low stipend payments, and the lack of opportunities for career advancement contribute to reduced job satisfaction and morale. Notably, the limited formal recognition of CHPs within the health system exacerbates feelings of undervaluation. Compounding these issues are safety concerns, particularly among young female CHPs, who often face verbal abuse, physical threats, and fear of disease transmission. As a result, despite their crucial role in addressing both health and social issues within communities, the support they receive remains insufficient. This lack of systemic support not only affects CHPS motivation and retention but also potentially limits their effectiveness in promoting ANC uptake and improving maternal health outcomes. These results highlight the importance of addressing household-level support systems, improving ANC service quality, and ensuring pregnant women recognize the benefits of ANC to increase uptake. Meanwhile, interventions targeting CHPS effectiveness should be reviewed and improved to align with global best practices.

4.12 Regression Analysis

A multiple regression analysis was conducted to determine the extent to which Community health promoters' Role, Pregnant Women's Status in the Household, Health Need-Related Factors, and Quality of the Eight ANC Uptake predict adherence to the eight ANC contacts among expectant mothers. The results are summarized in Tables 4.13, 4.14, and 4.15.

Table 4.13:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.925a	.856	.854	.884

Note: a Predictors: (Constant), Quality of the Eight ANC Uptake, Community health promoters' role, Pregnant Women's Status in the Household, Health Need-Related Factors.

The model explains 85.4% (Adjusted $R^2 = .854$) of the variance in ANC uptake, indicating a strong relationship between the independent variables and ANC uptake. This suggests that the

included factors account for a significant portion of the variation in the number of ANC uptake completed by expectant mothers.

Table 4.14

ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1693.037	4	423.259	541.236	.000
Residual	285.439	365	0.782		
Total	1978.476	369			

Note: b Predictors: (Constant), Quality of the Eight ANC Uptake, Community health promoters ' Role, Pregnant Women's Status in the Household, Health Need-Related Factors.

The ANOVA results ($F = 541.236$, $p < 0.001$) confirm that the model is statistically significant, meaning the independent variables collectively contribute to explaining ANC uptake.

Table 4.15

Regression Coefficients

Predictor Variables	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
(Constant)	-4.827	.228		-21.152	.000
Community health promoters' Role	-0.103	.030	-0.122	-0.011	.191
Pregnant Women's Status in the Household	0.559	.051	0.299	11.009	.000
Health Need-Related Factors	0.881	.057	0.442	15.372	.000
Quality of the Eight ANC Uptake	0.685	.058	0.323	11.770	.000

The regression analysis reveals that Pregnant Women's Status in the Household ($B = .559$, $p < 0.001$), Health Need-Related Factors ($B = .881$, $p < 0.001$), and Quality of the Eight ANC contacts ($B = .685$, $p < 0.001$) are significant predictors of ANC uptake. This means that pregnant women who receive strong household support, have greater health-related needs, and perceive high-quality ANC services are more likely to attend the recommended eight ANC contacts. These findings align with research indicating that spousal support and maternal autonomy significantly influence ANC adherence (WHO, 2022; UNICEF, 2021).

The Community health promoters' role was not a significant predictor ($B = -0.103$, $p = 0.191$). This aligns with the correlation results, indicating that CHPs did not have a notable impact on ANC uptake. The negative coefficient suggests that even when CHPs were present, their role did not contribute significantly to improving ANC uptake. This finding suggests that CHPs in Changamwe may not be effectively engaged in maternal health promotion, or their impact is limited by systemic challenges such as insufficient resources or ineffective outreach strategies (MOH Kenya, 2021).

Overall, these findings emphasize the need to strengthen household support systems, improve the quality of ANC services, and address maternal health needs to enhance ANC uptake. Meanwhile, efforts should be made to reassess and improve CHPs effectiveness in promoting ANC uptake.

4.13 Qualitative Analysis of Key Informant Interviews (KIIs)

Overall, these findings emphasize the need to strengthen household support systems, improve the quality of ANC services, and address maternal health needs to enhance ANC uptake. Meanwhile, efforts should be made to reassess and improve CHPs effectiveness in promoting ANC uptake. The Key Informant Interviews (KIIs) yielded rich, contextual insights into the factors influencing antenatal care (ANC) uptake among pregnant women in Changamwe Sub-

County. All four targeted Maternal and Child Health/Family Planning (MCH/FP) nurse managers participated, representing a 100% response rate.

Thematic analysis revealed four primary domains corresponding to the study objectives:

- (1) The role of Community Health Promoters (CHPs).
- (2) The influence of ANC service quality.
- (3) The impact of health-need-related factors and
- (4) The effect of household status on ANC uptake.

4.13.1 The role of Community Health Promoters (CHPs);

Evaluate How Community Health Promoters Affect ANC Uptake Among Pregnant Women in Changamwe Sub-County Community Health Promoters (CHPs) were identified as central figures in increasing ANC awareness and attendance. Respondents emphasized that CHPs act as vital links between the community and health facilities.

KII-1 stated,

“CHPs are very important in educating pregnant women and encouraging them to attend ANC services.” Similarly, KII-2 added, *“They bridge the gap between health facilities and households by providing information and reminders about ANC uptake.”*

These findings align with Dada et al. (2021), who demonstrated that CHPs improve maternal health outcomes through sustained community engagement and health education. CHPs’ door-to-door visits, education sessions, and reminder systems were credited with promoting early ANC initiation and continued attendance. However, informants also highlighted limitations related to training inconsistencies and insufficient supervision. KII-3 remarked,

“Some CHPs lack adequate training and knowledge, which reduces their effectiveness.”

This observation points to the need for regular capacity-building programs and standardized

training to enhance performance consistency.

Home visits emerged as a particularly effective CHP strategy. KII-1 noted,

“Home visits are a crucial strategy to ensure that expectant mothers receive ANC information in the comfort of their homes.”

KII-2 emphasized that

“Personalized engagement during home visits addresses specific concerns and encourages uptake.”

These findings are consistent with Dada et al. (2021), who reported that regular home visits lead to improved maternal healthcare utilization. Nonetheless, gaps remain in implementation.

KII-4 cautioned,

“Home visits are not done as often as they should be.”

This indicates a need for structured visit schedules and increased CHP staffing to expand outreach coverage.

The referral system was also discussed as an essential component of community-based ANC promotion. KII-2 explained,

“Households are visited, health education is done, and referrals are provided for ANC services when necessary.”

Yet, KII-3 pointed out barriers such as transportation costs:

“Some women don’t follow through with referrals due to lack of transport or financial constraints.”

This mirrors findings from Dada et al. (2021), who emphasized that weak referral systems and financial barriers hinder maternal care utilization.

4.13.2 Assess How Quality ANC Services Influence ANC Uptake Among Pregnant Women in Chagamwe Sub-County

Quality of care and service experience emerged as major determinants of ANC attendance and completion. Respondents consistently indicated that women's perceptions of staff attitudes, facility conditions, and service efficiency influenced their willingness to continue ANC visits.

KII-1 observed,

“Some women are discouraged from attending ANC due to rude or unsupportive staff.”

Similarly, KII-4 highlighted that

“Women prefer facilities where they receive individualized attention and wait times are manageable.”

These perspectives are supported by Namusonge (2025) who found that respectful maternity care significantly increases ANC utilization rates. Service accessibility and infrastructure were also central concerns. KII-3 described ANC services as

“accessible but overcrowded,”

while KII-2 cited

“insufficient staff and inadequate infrastructure.”

KII-4 recommended

“recruiting more healthcare workers,”

and KII-1 emphasized the importance of

“well-ventilated, adequately equipped ANC rooms.”

These concerns align with WHO (2020) recommendations, which highlight adequate staffing and infrastructure as prerequisites for quality maternal health service delivery.

The availability of essential ANC commodities was another frequently cited issue. KII-2 stated,

“Erratic supply of ANC commodities makes care expensive and inaccessible for some women.”

This resonates with UNICEF (2021) findings that robust supply chains are critical for consistent service provision. Shortages of supplements, diagnostic tools, and essential drugs negatively affect both the perceived and actual quality of care, discouraging repeat visits.

4.13.3 Investigate How Health Need–Related Factors Influence ANC Uptake Among Pregnant Women in Changamwe Sub-County

Pregnancy-related health conditions and women’s perceived needs significantly influenced ANC utilization. KII participants reported that conditions such as anemia, hypertension, and morning sickness prompted some women to seek ANC services, while others delayed care due to misconceptions or fear.

KII-4 mentioned,

“Many women suffer from dizziness and anemia but delay seeking care.”

Similarly, KII-3 added,

“Fear of ultrasound scans due to myths is common.”

These findings underscore the persistence of cultural misconceptions surrounding medical technologies, which can delay or reduce ANC attendance. Singh et al. (2019) advocate for culturally sensitive, evidence-based health education campaigns to address such myths and promote timely healthcare-seeking behaviors.

Unintended pregnancies were also reported as a major barrier to consistent ANC attendance.

KII-1 noted,

“Some women with unintended pregnancies do not disclose early, leading to late ANC initiation.”

This pattern echoes findings by Tolossa et al. (2020), who documented lower ANC uptake among women with unplanned pregnancies due to emotional distress and limited partner

support. Counseling and confidential reproductive health services are therefore essential to encourage early ANC initiation in such cases.

4.13.4 Examine How the Household Status of Pregnant Women Influences the Uptake of Eight ANC Contacts in Changamwe Sub-County

Household dynamics, economic capacity, and gender relations were consistently reported as influential factors shaping ANC uptake. Supportive family environments were seen as facilitators of full ANC adherence. KII-2 explained,

“Women with supportive families start ANC early and complete all visits.”

Conversely, entrenched gender norms limited women’s autonomy in some households. KII-4 noted,

“Some women must get permission from their husbands before seeking care.”

This finding aligns with Lusambili et al. (2021) and Imo (2022), who observed that women’s autonomy and decision-making power are critical predictors of ANC utilization and facility delivery. Financial dependence also emerged as a barrier. Informants linked low ANC attendance to poverty and the inability to afford transport or basic needs. These results are consistent with Dahab and Sakellariou (2020), who identified transportation, economic hardship, and lack of family support as key barriers to maternal healthcare access.

The qualitative findings reinforce the importance of CHPs, home visits, and family support in enhancing ANC uptake. However, gaps in training, infrastructure, referral systems, and commodity availability pose persistent challenges. Addressing health worker attitudes, cultural myths, and gender-related barriers is essential for improving maternal health service utilization in Changamwe Sub-County. Future programs should invest in capacity building, inclusive education strategies, and community-driven healthcare models to increase ANC coverage and quality.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter provides an in-depth summary of the study findings based on the research objectives. It highlights key conclusions drawn from the study and provides recommendations for improving ANC uptake among pregnant women in Changamwe Sub-County. The chapter also suggests areas for further research to enhance maternal health outcomes.

5.2 Summary

The study was conducted to investigate the determinants influencing the uptake of eight antenatal care (ANC) contacts among prenatal mothers in Changamwe Sub-County, Mombasa County. The research was motivated by persistently low ANC uptake rates in the region, which remained below 15% between 2020 and 2023, despite the World Health Organization's recommendation for eight ANC contacts to improve maternal and neonatal outcomes. This concern was compounded by fluctuating maternal mortality rates and rising incidences of fresh and macerated stillbirths.

The primary objective of the study was to identify key factors that influence the completion of the eight recommended ANC contacts. The study focused on four main areas: the role of community health promoters, the quality of ANC services, health need-related factors, and the household status of the pregnant woman.

The research employed a mixed-methods approach, combining quantitative and qualitative data collection techniques. A total of 370 postnatal mothers were sampled from public health facilities, alongside 4 maternal child health nurse managers who participated as key informants. Structured questionnaires and interview guides were used for data collection. Quantitative data were analyzed using descriptive statistics, chi-square tests, correlation, and multiple regression analysis, while thematic analysis was employed for qualitative responses.

5.2.1 Demographic Characteristics and Maternal Healthcare Decisions

The study established that the majority of respondents (65.4%) were aged between 25 and 35 years, a critical reproductive age bracket. Additionally, 37.6% were 25 years and below, suggesting a substantial proportion of young mothers who may require targeted maternal health education. Higher education levels were associated with better maternal healthcare-seeking behavior, as 83.2% of respondents had attained a certificate qualification. Education is a crucial determinant of ANC uptake, as previous studies indicate that women with higher education levels are more likely to seek maternal healthcare services (UNICEF, 2021). Furthermore, marital status was a significant factor, with 85.7% of respondents being married, underscoring the role of spousal support in influencing ANC uptake.

5.2.2 ANC uptake Trends and Influencing Factors

The findings revealed that the average number of ANC uptake was 5.82, below WHO-recommended eight contacts for optimal maternal care. Early ANC initiation remains a challenge, as only 24.3% of respondents began ANC uptake before 12 weeks, contrary to WHO guidelines that emphasize early initiation for better maternal and neonatal outcomes (WHO, 2021). The late initiation of ANC suggests the need for intensified awareness campaigns to emphasize the importance of starting ANC uptake within the first trimester.

5.2.3 Role of Community Health Promoters

The role of Community Health Promoters (CHPs) in promoting antenatal care (ANC) uptake in Changamwe was found to be limited and largely ineffective, according to the findings of this study. Statistical analysis revealed no meaningful relationship between CHPs' involvement and ANC attendance. Specifically, the correlation coefficient was nearly zero ($r = -0.003$, $p = 0.956$), indicating no significant association between the two variables. Further regression analysis confirmed that CHPs were not a significant predictor of ANC uptake ($B = -0.103$, $p = 0.191$). These results suggest that CHPs in the study area are not significantly influencing

maternal health-seeking behaviors.

The perceptions of the respondents further reinforce this conclusion. Nearly half of the respondents (48.9%) strongly disagreed that CHPs helped improve their knowledge of ANC, while a total of 66.2% disagreed that CHPs' visits served as effective reminders for attending ANC appointments. These figures highlight a disconnect between CHPs and the communities they serve, raising concerns about the effectiveness of their engagement strategies and outreach methods.

Several factors may contribute to the limited impact of CHPs. Inadequate training is a possible reason, as CHPs may not possess the necessary skills or up-to-date knowledge to effectively educate and motivate women on the importance of ANC. Furthermore, many CHPs operate under difficult conditions, such as a lack of logistical support, limited supervision, and high caseloads, all of which can compromise the quality and consistency of their services. The lack of structured integration with health facilities may also hinder their ability to make effective referrals or provide follow-up care. Additionally, some community members may not fully understand or trust the role of CHPs, further limiting their influence.

The study also noted that home visits by CHPs were rare, with 60.5% of respondents disagreeing and 25.4% strongly disagreeing that they had received any such visits during pregnancy. This lack of personalized interaction reduces the opportunity for CHPs to build rapport, address individual concerns, and provide tailored health education all of which are vital components of effective maternal health support.

Given these findings, there is a clear need to strengthen the CHPs program in Chagamwe. This could include revising training programs to focus on communication skills, behavior change strategies, and evidence-based maternal health practices. Enhanced support and supervision structures, coupled with adequate logistical resources, would enable CHPs to conduct regular follow-ups and home visits. Moreover, improving collaboration between CHPs

and healthcare facilities could establish stronger referral systems and increase community trust in the services offered.

5.2.4 Quality of ANC Services

The study revealed that the quality of antenatal care (ANC) services plays a critical role in influencing ANC uptake among expectant mothers in Changamwe. A strong positive correlation was observed between quality of care and ANC attendance ($r = 0.786$, $p < 0.01$), indicating that as the perceived quality of services increases, so does the likelihood of women attending ANC visits. Regression analysis further confirmed the significance of quality as a key predictor of ANC uptake ($B = 0.685$, $p < 0.001$), underscoring the central role that service standards play in maternal health-seeking behavior.

Several indicators from the study highlighted the high quality of ANC services provided. Nearly all respondents reported receiving essential components of ANC during their visits. Specifically, 98.1% of women had their blood pressure monitored, 98.6% had fetal heart rate checks, and 98.4% underwent weight monitoring. These clinical assessments are vital in identifying and managing pregnancy-related complications early, thereby contributing to positive maternal and fetal outcomes. The consistency in the provision of these services suggests a well-established protocol in ANC delivery within the study setting.

Equally important was the finding that 94.9% of respondents felt they were treated with dignity and respect by healthcare providers. This aspect of care is crucial, as it directly influences a woman's decision to return for future visits and to recommend the services to others. Respectful maternity care fosters trust in the healthcare system and encourages women to fully engage with the services offered. Positive interpersonal relationships between healthcare workers and clients enhance satisfaction and adherence to recommended ANC schedules.

Despite these strengths, the study also identified a notable gap in service continuity caused by supply chain challenges. About 8.9% of respondents reported missing ANC appointments due

to the unavailability of essential supplies. These stock-outs not only disrupt service delivery but can also erode confidence in the health system. Women who encounter such barriers may delay or avoid subsequent visits, potentially compromising both maternal and neonatal health. This finding highlights the need for more robust supply chain management practices to ensure consistent availability of necessary medical commodities, such as iron supplements, vaccines, diagnostic tools, and clean delivery kits.

The quality of ANC services in Changamwe appears to be a significant enabler of ANC uptake, largely driven by the provision of comprehensive clinical care and respectful treatment of patients. However, the sustainability of this quality is contingent upon addressing systemic weaknesses such as supply shortages. Efforts to improve service delivery should therefore not only focus on maintaining high clinical standards and professional conduct but also on reinforcing logistical and operational support systems. By doing so, healthcare facilities can ensure that high-quality care remains accessible and reliable, thereby fostering greater utilization of ANC services and contributing to improved maternal health outcomes.

5.2.5 Health Need-Related Factors

The findings of the study underscore that health need-related factors are the most influential drivers of antenatal care (ANC) uptake among women in Changamwe. With a strong positive correlation ($r = 0.842$, $p < 0.01$) and the highest regression coefficient among all examined variables ($B = 0.881$, $p < 0.001$), it is evident that perceived health needs significantly shape maternal decisions regarding ANC attendance. This suggests that women's recognition of the value of ANC, particularly in relation to their health and that of their unborn child, is a powerful motivator for engaging with healthcare services during pregnancy.

A key factor contributing to this relationship is the experience or fear of pregnancy-related complications. The study revealed that 15.9% of respondents explicitly linked their decision to attend ANC to previous or current complications during pregnancy. These experiences

appeared to heighten their awareness of the critical role ANC plays in monitoring and managing such conditions. This aligns with global evidence that women are more likely to seek care when they perceive themselves or their pregnancies to be at risk (WHO, 2022). For many women, the threat of complications acts as a wake-up call, prompting them to engage more actively with the healthcare system to safeguard their health and that of their baby.

Additionally, the study found that access to vital health information during ANC visits was another major factor reinforcing service uptake. An overwhelming 96% of respondents reported that ANC helped them obtain essential knowledge related to pregnancy, delivery, and newborn care. Information provided during these visits such as nutrition advice, warning signs of complications, birth preparedness, and postnatal care is often not accessible through informal sources. This educational component not only empowers expectant mothers to make informed decisions but also fosters a greater sense of control and preparedness throughout the pregnancy journey.

Another compelling motivator was the perception that ANC plays a preventive role in pregnancy outcomes. Nearly all respondents (98.4%) believed that ANC helps to prevent complications, underscoring the preventive value of regular health checkups during pregnancy. This preventive awareness, coupled with health education from skilled providers, reinforces consistent ANC attendance as part of responsible maternal health practices.

Emotional preparedness also emerged as a significant health need-related determinant, with 93.5% of respondents citing it as important for timely ANC uptake. Emotional readiness encompasses mental and psychological adjustment to the realities of pregnancy, including the willingness to seek support, learn about the maternal experience, and actively participate in safeguarding the baby's health. When women feel emotionally supported and mentally prepared, they are more likely to take proactive steps in managing their pregnancy including attending ANC.

In conclusion, health need-related factors not only serve as a trigger for initial ANC visits but also reinforce sustained engagement with maternal healthcare services. The interplay between perceived risk, desire for health education, and emotional readiness creates a strong internal drive for women to prioritize ANC. These findings highlight the importance of personalized communication strategies by healthcare providers that emphasize the preventive and informational benefits of ANC. Moreover, integrating psychosocial support into routine ANC services could further strengthen emotional preparedness and ultimately improve maternal health outcomes

5.2.6 Pregnant Women's Status in the Household

The study highlights household support as a critical determinant of antenatal care (ANC) uptake, with a strong positive correlation ($r = 0.771$, $p < 0.01$) and a significant regression coefficient ($B = 0.559$, $p < 0.001$). These results emphasize that the social environment in which a pregnant woman lives especially the level of encouragement and informational support from her family plays a significant role in shaping her decisions about seeking ANC services.

One of the most notable findings was that 97.2% of respondents reported receiving encouragement from family members, particularly spouses, to attend ANC appointments. This level of familial engagement points to the influential role of interpersonal relationships in maternal health behavior. When spouses, parents, or in-laws actively support a pregnant woman, she is more likely to prioritize her health, feel valued, and be motivated to seek timely and consistent care. Spousal support, in particular, is well-documented in global health research as a key facilitator of ANC attendance, especially in contexts where male partners often control financial resources or influence healthcare decisions (Boah, et al., 2022; WHO, 2021).

In addition to emotional encouragement, access to reliable maternal health information within the household also played a central role. An impressive 96.4% of respondents indicated that they had access to accurate maternal health information at home, which likely enhanced their

understanding of the importance of ANC and contributed to informed decision-making. This access may have come from educated family members, community-based sources, or exposure to health messaging through media platforms. The presence of such information in the household environment not only supports the woman directly but also empowers other family members to participate in informed discussions and decisions regarding maternal care.

Household support also extends beyond emotional and informational assistance to practical aspects such as helping with domestic chores, providing transportation to health facilities, or arranging time off from work or other obligations. These forms of support can reduce the logistical and psychological burdens associated with seeking care, especially for women who might otherwise face barriers such as distance, cost, or childcare responsibilities.

Moreover, the positive influence of household support is crucial in challenging traditional norms or misconceptions that may hinder ANC attendance. In communities where there may be stigma around pregnancy disclosure or skepticism toward formal healthcare systems, strong backing from family members can help women overcome social pressure and access life-saving services confidently.

The findings confirm that household support is not merely a supplementary factor but a cornerstone of effective maternal healthcare uptake. Encouragement, access to accurate health information, and practical assistance from family members create an enabling environment for pregnant women to seek care. These dynamics call for greater involvement of families especially male partners in maternal health interventions, including community education campaigns and policy initiatives that promote inclusive family-centered care. By strengthening the household's role in maternal health, healthcare systems can significantly enhance ANC utilization and, ultimately, improve pregnancy outcomes.

5.3 Conclusion

5.3.1 Evaluate How Community Health Promoters Affect ANC Uptake Among Pregnant Women in Changamwe Sub-County

The study concludes that the contribution of Community Health Promoters (CHPs) to antenatal care (ANC) uptake in Changamwe Sub-County remains limited and largely ineffective. Quantitative findings indicated no significant statistical relationship between CHP involvement and ANC attendance ($r = -0.003$, $p = 0.956$), while qualitative insights confirmed that most expectant mothers had minimal interaction with CHPs. Nearly half of respondents (48.9%) strongly disagreed that CHPs improved their ANC knowledge, and 66.2% did not view CHP visits as effective reminders for clinic attendance.

The lack of impact can be attributed to several systemic challenges, including insufficient training, lack of logistical support, inadequate supervision, and weak integration between CHPs and formal health facilities. Inconsistent home visits and limited community engagement further undermined the program's effectiveness. These weaknesses suggest that CHPs in Changamwe are underutilized and not strategically positioned to influence maternal health-seeking behaviors.

However, both empirical data and key informant interviews underscore the potential value of CHPs if effectively supported. When adequately trained and supervised, CHPs can bridge the gap between households and health facilities, promote early ANC initiation, and enhance awareness at the grassroots level. To strengthen their contribution, targeted interventions should focus on capacity building, regular home visits, and closer coordination with healthcare providers. Reinforcing these areas could transform CHPs into a critical force for improving ANC uptake and maternal health outcomes across the sub-county.

5.3.2 Assess How Quality ANC Services Influence ANC Uptake Among Pregnant Women in Changamwe Sub-County

The study found that quality of care is a critical determinant of ANC uptake among pregnant women in Changamwe Sub-County. A strong positive correlation ($r = 0.786$, $p < 0.01$) and significant regression results ($B = 0.685$, $p < 0.001$) confirmed that higher perceptions of service quality were associated with greater ANC attendance.

Nearly all respondents received essential ANC components blood pressure checks (98.1%), fetal heart monitoring (98.6%), and weight measurement (98.4%) indicating adherence to standard clinical protocols. Furthermore, 94.9% of women reported being treated with dignity and respect, highlighting the importance of interpersonal care in motivating repeated clinic visits. This supports existing evidence that respectful maternity care and positive provider-client relationships are strong enablers of service utilization.

Despite these achievements, supply chain inconsistencies were identified as a key constraint, with 8.9% of respondents missing ANC appointments due to stock-outs of essential commodities. These disruptions risk eroding public trust and deterring continued attendance.

The study concludes that while the overall quality of ANC services in Changamwe is commendably high, sustaining this level requires addressing systemic gaps particularly in supply chain management, staff workload, and infrastructure. Maintaining consistent quality will not only enhance service satisfaction but also foster long-term community confidence in maternal health services, leading to improved maternal and neonatal outcomes.

5.3.3 Investigate How Health Need–Related Factors Influence ANC Uptake Among Pregnant Women in Changamwe Sub-County

The findings reveal that health need-related factors are the most powerful drivers of ANC uptake in Changamwe, with the strongest correlation ($r = 0.842$, $p < 0.01$) and regression coefficient ($B = 0.881$, $p < 0.001$). Women's perception of ANC as essential for preventing

complications, gaining health knowledge, and ensuring emotional preparedness directly influenced their decision to seek and maintain care.

About 15.9% of women linked ANC attendance to prior or ongoing pregnancy complications, reinforcing the idea that perceived health risks motivate proactive care-seeking. Additionally, 96% of respondents reported that ANC visits provided them with crucial information on pregnancy, delivery, and newborn care knowledge that empowered them to make informed maternal health decisions. Nearly all respondents (98.4%) also believed that ANC prevented complications, indicating high appreciation of its preventive and educational role.

Emotional readiness was another determinant, with 93.5% of women identifying psychological preparedness as central to ANC engagement. This highlights that beyond physical health, psychosocial factors play a vital role in influencing maternal healthcare behavior.

The study concludes that women's perceived health needs and emotional awareness are integral to ANC utilization. Strengthening health education, risk communication, and emotional support within ANC programs will enhance women's understanding of the benefits of regular care and further increase adherence to the WHO-recommended eight visits. Healthcare workers should integrate personalized counseling and psychosocial support as part of routine maternal health services to maximize uptake and satisfaction.

5.3.4 Examine How the Household Status of Pregnant Women Influences the Uptake of Eight ANC Contacts in Chagamwe Sub-County

Household dynamics emerged as a significant determinant of ANC attendance, with a strong positive correlation ($r = 0.771$, $p < 0.01$) and a significant regression coefficient ($B = 0.559$, $p < 0.001$). The study established that family and spousal support, access to maternal health information, and practical assistance substantially influence ANC adherence.

Nearly 97.2% of respondents reported receiving encouragement from their families—particularly spouses to attend ANC, demonstrating that social support within the household is

crucial for consistent engagement. Additionally, 96.4% of women had access to accurate health information at home, enhancing their understanding and decision-making regarding ANC participation. These findings highlight the interconnected nature of emotional, informational, and logistical support in promoting maternal healthcare uptake.

Practical assistance, such as help with transportation and domestic responsibilities, also played a pivotal role in facilitating clinic attendance. The data suggests that where women enjoy autonomy and strong household backing, they are more likely to complete the recommended eight ANC contacts. Conversely, restrictive gender norms and financial dependency were identified as barriers that hinder ANC access.

The conclusion is that the household environment acts as both an enabler and a constraint to ANC utilization. Empowering women through decision-making autonomy and fostering male involvement in reproductive health are vital for sustaining ANC participation. Strengthening family-centered health promotion initiatives particularly those that engage spouses and educate families on their supportive roles will further enhance maternal health outcomes in Changamwe Sub-County

5.4 Recommendations

Based on the findings from the correlation, regression, and qualitative analyses, the following recommendations are proposed to enhance the uptake of the eight antenatal care (ANC) contacts among expectant mothers in Changamwe Sub-County. Each recommendation corresponds to the four specific research objectives.

5.4.1 Evaluate How Community Health Promoters Affect ANC Uptake Among Pregnant Women in Changamwe Sub-County

The study found that Community Health Promoters (CHPs) had little impact on antenatal care (ANC) attendance in Changamwe Sub-County due to inadequate training, weak supervision, poor coordination with health facilities, and limited community engagement. To improve their effectiveness, it is recommended that the County Health Department clearly define and

standardize CHP roles, strengthen their integration with health facilities, and include their data in health information systems. Regular training, proper incentives, and logistical support such as transport and communication tools should be provided. Additionally, community awareness campaigns should be conducted to build trust and increase public understanding of CHPs' importance in promoting maternal health and ANC uptake.

5.4.2 Assess How Quality ANC Services Influence ANC Uptake Among Pregnant Women in Chagamwe Sub-County

The study showed a strong positive link between the quality of antenatal care (ANC) services and ANC uptake, emphasizing the need to maintain and enhance service standards. To improve quality and client satisfaction, the study recommends strengthening supply chain systems to avoid stock-outs, promoting respectful and client-centered maternity care, and addressing issues of overcrowding and understaffing through improved infrastructure and supervision. Regular quality monitoring and feedback mechanisms should be implemented to maintain accountability. Additionally, ANC services should be made more comprehensive by including nutritional counseling, mental health screening, and family planning education to provide holistic care and encourage consistent attendance.

5.4.3 Investigate How Health Need–Related Factors Influence ANC Uptake Among Pregnant Women in Chagamwe Sub-County

Since health need–related factors were the strongest determinants of ANC uptake, the study recommends strategies that enhance women's awareness, motivation, and emotional preparedness for care. Community and facility-based education campaigns should emphasize ANC's preventive and health-promoting benefits, while healthcare providers should offer personalized counseling tailored to women's individual needs and experiences. Integrating psychosocial support into ANC visits can help address emotional barriers to attendance. Expanding health literacy through media, community outreach, and mobile platforms will

further strengthen understanding of ANC's importance. Lastly, reminder systems and community incentives should be introduced to encourage continuity across all eight recommended visits.

5.4.4 Examine How the Household Status of Pregnant Women Influences the Uptake of Eight ANC Contacts in Changamwe Sub-County

Because household support and women's autonomy were strongly linked to ANC uptake, enhancing family engagement is essential for improving maternal care utilization. The study recommends strengthening household and community programs that challenge restrictive gender norms and promote shared decision-making. Encouraging male involvement through couple-focused ANC education can improve partner support, while empowering women economically enhances their ability to make independent health choices. Establishing peer support groups can foster mentorship and knowledge sharing among mothers, and household visits that include family members can promote collective responsibility for maternal and newborn health.

5.5 Areas for Further Research

Future research should evaluate the impact of CHPS training on maternal health promotion. Assessing the effectiveness of training programs can help identify best practices for strengthening CHPs' role in increasing ANC participation. Further study is warranted to explore the underlying factors contributing to the low rate of antenatal care (ANC) initiation before 12 weeks of gestation. Timely initiation of ANC is essential not only for the early detection and management of pregnancy-related complications but also for enabling women to complete the World Health Organization's recommended minimum of eight ANC contacts. Early booking increases the likelihood of receiving comprehensive care throughout pregnancy, including routine screenings, preventive interventions, and health education. Understanding the barriers to early ANC uptake whether they are individual, cultural, economic, or systemic is crucial for

developing targeted strategies that encourage timely engagement with maternal health services and improve maternal and neonatal outcomes.

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APPENDICES

Appendix I: Subject: Informed Consent

Greetings, Respondent

I am Bahati Sophia Swalehe, a Kenya Methodist University MSc HSM student. The project I'm working on is called "Determinants of eight contacts antenatal care uptake among prenatal mothers in changamwe sub-county Mombasa, Kenya."

The study's findings will be applied to enhance the health system in other low-income African nations as well as in the community and nearby counties. Consequently, governments, communities, and individuals will benefit from improved healthcare. This study proposal is essential for bolstering health systems since it will offer fresh perspectives and data, empowering stakeholders to make evidence-based healthcare decisions and policies.

Procedure to be followed: Participation in this study is voluntary, and you have the right to opt-out at any time without facing judgment, punishment, or harassment. Your decision to participate will not be used against you in any manner. You are allowed to ask any questions regarding the study at any time and have the right to refuse to answer any questions or terminate your participation.

Risks and Discomforts: You may feel uneasy about some of the questions since they touch on private subjects. You are free to stop participating at any moment or to decline to answer any questions. It should take about twenty minutes to finish the study.

Benefits: By taking part in this academic study, you could significantly enhance the healthcare systems in your county, the country, and the continent. The knowledge acquired will help academics and governmental organisations better comprehend and improve healthcare systems.

Rewards: There won't be any payment for taking part in this research.

Confidentiality: Your name will not appear on the form, and all interviews will take place in a safe section of the hospital. Every piece of information will be safely stored at the university.

Contact Information: Please get in touch with the supervisors below if you have any questions.

Statement of the Participant: I've read and comprehended the statement above. I had the chance to ask any questions I had about the study, and I'm happy with the responses I received. I willingly agree to take part in this investigation. I have faith that any data gathered for this study will be treated with the highest confidentiality and care. I am aware that there are no consequences if I decide to leave the study at any point. I understand that my involvement won't result in any abuse at work or at home.

Name of participant.....

date.....

Signature.....

Investigator's statement

As the researcher, I have read all of the study's necessary instructions to my volunteers in the simplest language possible, and I have signed off on all of the agreements made for this study.

Name of Interviewer.....

date.....Interviewer.....

signature.....

Appendix II: Questionnaire

The study is on establishing the factors leading to determinants of eight contacts antenatal care uptake among prenatal mothers in Changamwe sub-county Mombasa, Kenya. Please respond to each of the following questions as accurately as possible. Rest assured that the data you submit will be kept completely private and used only for academic purposes.

Section A: Background Information.

1 Kindly indicate your age bracket

- | | | | | | |
|--------------------|--------------------------|-------------|--------------------------|-------------|--------------------------|
| 25 years and below | ☐ | 26-30 years | ☐ | 31-35 years | ☐ |
| 36-40 years | ☐ | 41-45 years | ☐ | 46-50 years | ☐ |
| Above 50 years | ☐ | | | | |

2 Highest level of education

- Certificate ☐ Diploma ☐ Degree ☐ Postgraduate ☐

Section B: Eight contacts ANC uptake among prenatal mothers

(3) How many ANC uptake did you attend during your previous pregnancy?

- (a) Less than 8 ANC contacts ☐
- (b) 8 ANC contacts ☐
- (c) No ANC contacts ☐

(4) At what gestation did you start eight

- contacts ANC care (a) Before 12 weeks ☐
- (b) After 12 weeks ☐

Section C: Community health promoters' roles

5. Using a 1–5 scale, where 1 means strongly disagree, 2 means disagree, and 3 means neutral 4-Agree and 5-Strongly agree: Please select how much you agree with the following statements regarding the roles of community health promoters.

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I was aware of the importance of antenatal care during pregnancy due to information provided by a CHPS.					
A CHPS regularly discusses antenatal care with me.					
A CHPS visited my home at least once during pregnancy to follow up on my antenatal care.					
Home visits by CHPs helped remind me to attend antenatal care appointments.					
A CHPS referred me to a health facility for antenatal care services.					

Section D: Quality of 8 ANC.

5. Please rate your level of agreement with the following statements regarding the satisfaction of eight contacts ANC on a scale of 1 to 5, where 1 denotes strong disagreement, 2 disagreement, 3 neutrality, 4 agreement, and 5 strong agreement.

Quality of Care Aspects	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Antenatal visits included consistent Blood Pressure (BP) checks.					
Fetal Heart Rate Monitoring was regularly conducted.					
My weight was monitored consistently during visits.					
Healthcare providers treated me with dignity and respect					
Operating hours for ANC services were convenient.					
My privacy was respected during ANC uptake.					

I felt discouraged and missed some ANC visits due to stock-outs of commodities.					
The facilities provided an overall positive experience					

Section E: Health need Related Factors

6. Please rate your level of agreement with the following statements about the mother's health-related aspects towards eight contacts ANC on a scale of 1 to 5, where 1 means strongly disagree, 2 means disagree, 3 means neutral, 4 means agree, and 5 means strongly agree.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Pregnant complications caused me to delay my ANC					
I felt that attending ANC was crucial due to my complications.					
ANC uptake provided me with important health information about pregnancy					
ANC helped prevent complications for me and the baby					
I was more confident about my pregnancy after attending ANC.					
Unplanned pregnancy led to missed ANC appointments.					
Emotional readiness for the pregnancy motivated me to have timely ANC care					

Section F: Pregnant women's status in the household

7. Please rate your degree of agreement with the following statements regarding pregnant women's

status in the home on a scale of 1 to 5, where 1 means strongly disagree, 2 means disagree, 3 means neutral, 4 means agree, and 5 means highly agree.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I was well informed of the importance of regular ANC uptake for both my health and my baby's health.					
I had access to reliable sources of information on maternal health.					
I received encouragement from my family to attend ANC uptake regularly.					
My partner plays an active role in ensuring I attend ANC appointments.					
Traditional expectations for women in my community affected my ability to prioritize ANC uptake.					
I was empowered to make my own healthcare decisions during pregnancy, including ANC uptake.					

Thank you for your time and input.

Appendix III: Guide to Interviews

1. Community Health Promoters' Roles:

- ☐ How do you see the role of community health promoters in raising awareness of prenatal care services among pregnant women?
- ☐ In your experience, how helpful are community health promoters' home visits in boosting antenatal care attendance?
- ☐ Can you describe how households and health facilities are referred to for prenatal care? How important do you think this approach is in increasing prenatal care utilisation?

2. Quality of 8 ANC:

- ☐ What do you believe are the most important variables impacting pregnant women's perceptions of existing antenatal care services?
- ☐ How would you rate the organisation of prenatal care services at our facility?
Are there any areas that you believe could be improved?
- ☐ In your perspective, how crucial is the availability of ANC consumables in ensuring that pregnant women receive quality care?

3. Health Need Related Factors:

- ☐ From your interactions with pregnant women, what are the most common health issues they associate with pregnancy?
- ☐ How do pregnant women generally perceive the health benefits of attending antenatal care appointments?

- ☐ Have you noticed any differences in antenatal care attendance patterns between women with intended pregnancies and those with unintended pregnancies?

4. Pregnant Women Status in the Household:

- ☐ How would you describe pregnant women's understanding of the importance of prenatal care?
- ☐ What role do you believe family support plays in pregnant women's decisions to attend prenatal care appointments?
- ☐ In your experience, how do gender roles in households affect pregnant women's access to antenatal care services?

Appendix IV: Introduction Letter



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DIRECTORATE OF POSTGRADUATE STUDIES

Our Ref: KeMU/NACOSTI/HSM/02/2025

January 24, 2025

Commission Secretary
National Commission for Science, Technology and Innovations
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: BAHATI SOPHIA SWALEHE (HSM-3-3018-1/2022)

This is to confirm that the above named is a bona fide student of Kenya Methodist University, in the Department of Health System Management and Medical Education, undertaking a Master's Degree in Health System Management. She is conducting research on; "Determinants of Eight Contacts Antenatal Care Uptake among Prenatal Mothers in Changamwe Sub-County, Mombasa, Kenya".

We confirm that his research proposal has been defended and approved by the University.

In this regard, we are requesting your office to issue a research license to enable him collect data.

Any assistance accorded to her will be highly appreciated.

Yours sincerely,



Dr. Nancy Rintari (PhD)

Director, Board of Postgraduate Studies

Cc: Dean, School of Health Sciences
CoD, Health Systems and Management and Medical Education
Postgraduate Coordinator - HSM
Supervisors

Appendix V: County Permission



**MOMBASA COUNTY GOVERNMENT
DEPARTMENT OF HEALTH SERVICES
OFFICE OF THE COUNTY DIRECTOR OF HEALTH**

Uhuru Na Kazi Building, 5th floor
Email: msachd2013@gmail.com

P. O. BOX 91040 - 80103
MOMBASA

Ref. MSA/CH/ADM.37/VOL.III/58

Date: 4th March 2025

BAHATI SOPHIA SWALEHE
Mombasa County

RE: APPROVAL TO CARRY OUT RESEARCH IN MOMBASA COUNTY

We refer to your request for authorization to carry out research on determinants of eight contacts antenatal care uptake among prenatal mothers in Changamwe Sub-County (PSCH, Chaani, Bokole, Magongo).

This is to inform you that the secretariat for Mombasa Ethics Review Committee has no objection to your request and hereby approves the study to be done in Mombasa County accordingly.

On completion of the study, you are required to disseminate the findings to the County Health Management Team for the recommendations to be considered.

Thank you.

COUNTY DIRECTOR OF HEALTH
P. O. Box 91040 - 80103,
MOMBASA COUNTY.

**DR. MOHAMED HANIF
COUNTY DIRECTOR, CLINICAL SERVICES
DEPARTMENT OF HEALTH SERVICES
MOMBASA COUNTY**

Copy to: Medical Superintendent -PSCH
SCMOH - Changamwe

COUNTY DIRECTOR OF HEALTH
P. O. Box 91040 - 80103,
MOMBASA COUNTY.

**DR. SALMA SWALEH
COUNTY DIRECTOR, PUBLIC HEALTH
DEPARTMENT OF HEALTH SERVICES
MOMBASA COUNTY**

Appendix VI: KEMU Approval



KENYA METHODIST UNIVERSITY

P. O. BOX 267 MERU - 60200, KENYA
TEL: 254-064-30301/31229/30367/31171

FAX: 254-64-30162
EMAIL: info@kemu.ac.ke

Our Ref: KeMU/ISERC/HSM/02/2025

January 24, 2025

BAHATI SOPHIA SWALEHE
HSM-3-3018-1/2022

Dear Bahati,

**SUBJECT: DETERMINANTS OF EIGHT CONTACTS ANTENATAL CARE UPTAKE
AMONG PRENATAL MOTHERS IN CHANGAMWE SUB-COUNTY, MOMBASA, KENYA**

This is to inform you that Kenya Methodist University Institutional Scientific Ethics and Review Committee has reviewed and approved your research proposal. Your application approval number is KeMU/ISERC/HSM/02/2025. The approval period is 24th January, 2025 – 24th January, 2026.

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 Kenya Methodist University Institutional Scientific Ethics and Review Committee.
- 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 KeMU ISERC within 72 hours of notification.
- IV. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KeMU ISERC 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 KeMU ISERC.

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

Yours sincerely,



MR. HERBERT KIBEBE
CHAIR (ISERC)

Appendix VII: NACOSTI



REPUBLIC OF KENYA



NATIONAL COMMISSION
FOR SCIENCE, TECHNOLOGY &
INNOVATION

Ref No: 217434

25/February/2025

Date of Issue:

RESEARCH LICENSE



This is to Certify that Miss.. bahati sophia Swalehe of Kenya Methodist University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Mombasa on the topic: DETERMINANTS OF EIGHT CONTACTS ANTENATAL CARE UPTAKE AMONG PRENATAL MOTHERS IN CHANGAMWE SUB-COUNTY MOMBASA, KENYA for the period ending : 25/February/2026.

License No: NACOSTI/P/25/415795

217434

Applicant Identification Number

Walter M...

Director
General NATIONAL
COMMISSION FOR
SCIENCE, TECH
NOLOG
Y &
INNOVA
TION

Verification QR Code



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