# FACTORS INFLUENCING THE UTILIZATION OF ANTENATAL CARE SERVICES AMONG WOMEN OF REPRODUCTIVE AGE (15 – 49 YEARS) IN GAROWE, PUNTLAND STATE OF SOMALIA.

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## DECLARATION

**Declaration by Candidate:**

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

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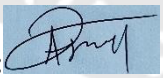
**Signature:**  **Date: 16-07-2024**

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## DEFINITION OF TERMS

**ANC Utilization:** refers to the extent to which pregnant women access and receive healthcare services during pregnancy which is defined by number of Antenatal visits.

**ANC visits:** are scheduled healthcare appointments during pregnancy where pregnant women receive medical check-ups, screenings, and counselling.

**Low Uptake:** refers to ANC utilization of less than four visits during pregnancy.

**High Uptake:** Refers to ANC utilization of ≥4 visits

**Early initiation of ANC:** is critical for identifying and addressing potential risks and complications early in pregnancy. The World Health Organization (WHO) recommends the first ANC visit to occur within the first trimester.

**The first trimester visit:** is an ANC appointment that typically occurs early in pregnancy, within the first 12 weeks.

## LIST OF ABBREVIATIONS

**ANC:** Antenatal Care

**FANC:** Focussed Antenatal Care

**KDHS:** Kenya Demographic and Health Survey

**MOH:** Ministry of Health

**NHIS:** National Health Insurance Scheme

**PNC:** Postnatal Care

**SPSS:** Statistical Package in Social Science

**TBA:** Traditional Birth Attendant

**WHO:** World Health Organization

## ABSTRACT

**Background**: Approximately one thousand women die daily worldwide from pregnancy complications. In Somalia, only 6% of women aged 15-49 receive the recommended four antenatal care (ANC) visits, with 29% attending their first visit before the fourth month of pregnancy. Limited studies have focused on the burden of antenatal care uptake in Garowe, Puntland, Somalia.

**Broad Objective:** This study aimed to determine the factors influencing ANC utilization among reproductive-aged women in Garowe, Puntland, Somalia. The objectives include establishing demographic, economic, health facility, and cultural factors affecting ANC utilization.

**Methods:** A mixed methods approach was used, involving cluster sampling of 384 women with children under 12 months and purposive sampling of eight healthcare providers and four administrative leaders. Data was collected through structured questionnaires and key informant interviews. Data was analysed using descriptive and inferential statistics with SPSS version 28. Demographic and clinical characteristics were analysed descriptively, while ANC uptake was calculated as a proportion. Logistic analysis was used to obtain factors influencing ANC utilization. Thematic analysis was used for qualitative data.

**Findings:** The response rate was 100%. The average age of respondents was 30.2 years, with 50.8% aged less than 35 years. Most respondents (84.6%) were married, 35.7% had no formal education, and 61.2% were housewives. Low ANC uptake was observed in 56.8% of respondents. Factors associated with low ANC utilization included lack of insurance, use of public transport, and cultural norms discouraging ANC attendance.

**Conclusion and Recommendations:** ANC utilization was low, with 56.8% having less than four ANC visits. It is recommended to work with community leaders, healthcare workers, and local organizations to raise awareness about the importance of ANC and conduct educational sessions to inform women and their families about the benefits of regular prenatal care.

# CHAPTER 1: INTRODUCTION

## 1.1. Background

The World Health Organization in 2020 estimated that around 830 women die annually from preventable diseases and delivery related complications (Poudel, 2020). Among these, close to 99% of maternal deaths occur in developing countries (WHO, 2021). When compared to nations that are more developed, this demonstrates that low- and middle-income countries have a higher risk of death over the course of a lifetime owing to issues related to pregnancy or childbirth. Prenatal care is essential for identifying any issues in a timely manner and preventing them from occurring during pregnancy. Women receive dietary guidance, information about warning signs that indicate probable issues during pregnancy, and more resources to assist them in preparing for a healthy delivery during their visits to the ANC (Belay et al., 2022).

The motherhood initiative has integrated four key pillars which are aimed promoting better pregnancy outcomes and improve early postpartum timeline (Adedokun & Yaya, 2020). Services of antenatal care that are of a high-quality increase not only the health of babies but also the chances of survival for moms. Antenatal care also provides women with the opportunity to connect with their healthcare practitioner, which increases the likelihood that they will make use of a skilled birth attendant during the duration of their labour and delivery (Dousing et al., n.d.). This measure is intended to reduce the likelihood of experiencing any adverse health effects during pregnancy.

Utilization of ANC varies across different parts of the world as well as associated factors. In Pakistan, 86.6% of married women attended ANC (Ali et al., 2020). In

Ghana, 87% of mothers attended at least one antenatal care visit while 77.1% attended four or more visits. ANC knowledge was found to be significantly associated with ANC attendance. In Ethiopia, 65% of women of child bearing age utilized ANC services.

Even though there has been a decrease in maternal mortality around the world, the number of deaths continues to be unacceptable, particularly in nations with low incomes. This is especially true in countries where the birth rate is low. The majority of deaths and disabilities that occur in women of reproductive age are the consequence of difficulties that arise during pregnancy and childbirth. These complications encompass a wide range of circumstances (Ahinkorah et al., 2022) The majority of these deaths associated with pregnancy are preventable through the utilization of straightforward and inexpensive maternal care services such as prenatal care (ANC), trained delivery attendants, and postnatal care. Through the screening of high-risk mothers for problems and the facilitation of a fast identification and care of life-threatening obstetric diseases, ANC can lower the maternal mortality rate (MMR) (Alamneh et al., 2020).

This is accomplished. ANC stands for "antenatal care," which refers to the medical attention that expectant mothers receive from trained medical experts during their pregnancies. In a pregnancy that did not present any complications, the World Health Organization (WHO) suggested going in for a total of at least four check-ups, with the first one occurring no later than 14 weeks into the pregnancy (Tessema & Minyihun, 2021).

Despite this, the World Health Organization (WHO) raised the recommended number of ANC visits from four to at least eight in 2016 (Yaya & Ghose, 2019). This was done since there was an elevated risk of fatal mortality associated with a reduced number of

ANC visits. Although there has been a significant increase in the utilization of ANC in poor countries, only a small percentage of pregnant women attend a total of four ANC appointments, with 72% beginning their first visit after the 12-week mark of their pregnancy (Ahinkorah et al., 2022). For instance, in a study carried out in Kenya, 62.7 percent of women reported having at least four ANC visits (Mutai & Otieno, 2021). In Somalia, on the other hand, the usage rate is much lower, with just 28 percent of pregnant women making their first visit during the fourth month of their pregnancy (Elmi et al., 2021). As a result, the World Health Organization stresses how important it is to direct attention toward mothers who start the ANC late or with fewer visits than usual.

In the country of Somalia Access to health care services is progressing in Somalia, which is a positive development. On the other hand, the country has encountered difficulties in boosting the consumption of health care, and the percentage of women who give birth with the assistance of experienced attendants is the lowest in all of Sub-Saharan Africa (Mouhoumed & Mehmet, 2021). Somalia has one of the highest maternal mortality rates at 692 per 100,000 live births ranked sixth globally. In addition, according to UNICEF, the chance of a woman in Somalia dying from complications related to childbirth is one in seven throughout the course of her lifetime. The maternal mortality rate in this country is extremely high and is among the highest in the world. In comparison, one in 2,100 women in the United States dies after childbirth; this is a difference in maternal mortality rates of 300 times (Miikkulainen et al., 2023).

Antenatal care utilization in the Somali community has not been fully investigated with most of the studies conducted focusing on hospital hospital-based settings. However, with the existing cultural and religious barriers, not every pregnant woman gets to visit

a health facility resulting in a lower prevalence of women attending ANC visits. A recent study that was based on data from the Somali Demographic and Health survey (SDHS) found that six percent of women between the ages of 15 and 49 had visited the ANC at least four times. It is estimated that twenty-nine percent of women will contact their first prenatal care provider prior to the fourth month of their pregnancy. Four percent of urban women made their first visit to the ANC department in or after the eighth month of their pregnancy, which is much higher than the three percent and one percent of women who live in rural and nomadic areas, respectively. This indicates that urban women are more likely to defer ANC until the final trimester (Puntland Ministry of Health, 2020). However, factors influencing the utilization of ANC services in the region have not been investigated. The magnitude of ANC uptake in Garowe has not been documented which prompts the need to understand the underlying ANC and associated factors within the community.

### 1.2. Statement of the Problem

There is a significant deal of concern regarding the unsatisfactorily slow progress that has been made toward the fifth Sustainable Development Goal, which is to "Improve Maternal Health." As a consequence of this, there is an urgent requirement to address the variables that lead to maternal mortality, one of which is a failure to attend antenatal care services. This health need is especially pressing in nations in sub-Saharan Africa since, in comparison to wealthy countries, maternal death rates in those countries are disproportionately high. It is especially more important for pregnant women who have either fled their nations or been expelled from them during or around the time that they are expecting a child.

In order to broaden access to antenatal care of a high standard, various strategies have been developed on a global scale. In the future, Somalia plans to implement the tactics that have been developed on a worldwide scale. Previous research has demonstrated that there are obstacles that prevent conformity with both national and international strategies when it comes to the establishment of ANC services (Elmi et al., 2021). The findings from a study done in Hargeisa revealed that ANC uptake was 20 percent (Becker et al., 2015). According to a report published by the Ministry of Health in 2015, this is one of the factors that likely contributes to the high maternal mortality rate in Somalia, which now stands at 732 deaths per 100,000 live births. According to the World Health Organization's recommendations, it has been observed that six percent of women in Puntland who are of reproductive age have attended at least eight antenatal care appointments (Puntland Ministry of Health, 2020) Factors influencing ANC utilization have not been fully investigated in Puntland. This study seeks to provide information regarding the level of utilization of ANC services as well as factors influencing ANC utilization.

## 1.3. Objectives

### *1.3.1. Broad Objective*

To Determine factors influencing utilization of Antenatal Care services among women 15 -49 years in Garowe, Puntland, Somalia.

### *1.3.2. Specific Objectives*

1) To describe demographic factors influencing antenatal care utilization among women aged 15–49 years in Garowe, Nugaal, Somalia.

2) To describe economic factors influencing antenatal care utilization among women aged 15–49 years in Garowe, Nugaal, Somalia.
3) To Determine Health Facility factors influencing antenatal care utilization among women aged 15–49 years in Garowe, Nugaal, Somalia.
4) To determine cultural factors influencing antenatal care utilization among women aged 15–49 years in Garowe, Nugaal, Somalia.

### 1.4. Research Questions

1) What are the demographic factors influencing antenatal care utilization among women aged 15–49 years in Garowe, Nugaal, Somalia?
2) What are the economic factors influencing antenatal care utilization among women aged 15–49 years in Garowe, Nugaal, Somalia?
3) What are the health facility factors influencing antenatal care utilization among women aged 15–49 years in Garowe, Nugaal, Somalia?
4) What are the cultural factors influencing antenatal care utilization among women aged 15–49 years in Garowe, Nugaal, Somalia?

### 1.5. Study Hypothesis

**Ho1: Socio-economic factors were not significantly associated with antenatal care utilization among women 15 -49 years in Garowe, Nugaal, Somalia.**

**Ho2:** Health facility factors were not significantly associated with antenatal care utilization among women 15 -49 years in Garowe, Nugaal, Somalia.

**Ho3:** Cultural factors were not significantly associated with antenatal care utilization among women 15 -49 years in Garowe, Nugaal, Somalia.

## 1.6. Justification of the Study

The SDHS has shown that there is a low level of utilization of ANC services in Puntland. This is a major risk to the wellbeing of expectant mothers because of the high risk involved. It is possible that pregnant women will be able to make use of antenatal care services if they are provided in an acceptable manner. This will result in a reduction in the number of cases of maternal mortality and morbidity, stillbirths, and early neonatal deaths that occur within the community. Detection of high-risk pregnancies at an early stage through the provision of appropriate prenatal care and the availability of a mechanism to provide prompt access to referral facilities are both necessary for the reduction of maternal mortality. In order to accomplish this, it is necessary for women to possess sufficient knowledge regarding the care that is associated with pregnancy and to be able to understand the significance of antenatal care and the use of services.

## 1.7. Significance of the Study

The findings of this study were beneficial in the process of informing the formulation of policies as well as establishing appropriate programs and services to increase antenatal care visits for the people living within community context in Garowe, Nugaal. The early detection of high-risk pregnancies through appropriate prenatal care and the availability of a mechanism to ensure prompt access to referral facilities are both required for the reduction of maternal mortality. Maternal mortality can be reduced by these two measures. In order for this to happen, it is necessary for women to have sufficient knowledge regarding care throughout pregnancy, as well as the ability to understand the significance of antenatal care and how to make use of it. In a related vein, there is a need to have a better understanding of the factors that influence the

utilization of antenatal care in order to place a greater emphasis on these aspects during planning. Generation of these findings helps in building more robust structures to improve health needs within the community.

### 1.8. Assumptions of Study

The study participants accurately recalled their ANC profile to ensure that the findings are reliable and accurate. Another assumption is that the respondents were honest in their responses.

# CHAPTER 2: LITERATURE REVIEW

## 2.1. Prenatal Care and ANC Utilization

During pregnancy, it is advised that women get routine medical and nursing care. This is referred to as pregnancy care. The purpose of this type of preventive care is to give regular check-ups that enable medical professionals to identify, prevent, and manage potential health problems that may occur during pregnancy. It is a form of preventative care (Peahl et al., 2020). Prenatal care is provided according to the traditional paradigm, which is utilized in many industrialized countries. This model is based on a frequent number of visits, which can range anywhere from seven to 10 consultations. In Kenya, antenatal care (ANC) services have traditionally consisted of a pre-clinic session. During this session, nurses engage in socialization with pregnant women by delivering health discourses and holding an interactive session of question-and-answer sessions. After that, clinical consultations took place in environments that were either open spaces, clinic areas that were partitioned, or consulting rooms, depending on the facilities that were available in the centre. Appointments at the antenatal clinic were scheduled on a monthly basis up until 28 weeks, then every two weeks up until 36 weeks, and finally once a week until birth (Rowe et al., 2020).

## 2.2. Prevalence of Antenatal Care Uptake

The magnitude of ANC varies significantly across different settings. A cross-sectional study applying a mixed methods approach in Kenya investigating uptake of focused ANC revealed that the majority of women, 73.3%, started going to ANC in their second semester, and just 24.63 % of women went to all four FANC appointments recommended by (WHO, 2021).

A cross-sectional study investigating the uptake of ANC in Ethiopia established that 35.5% of pregnant mothers have used ANC services at least four times while the findings also revealed that 64.5 percent have used ANC less than three times during their periods of pregnant (Fenta et al., 2021). These findings illustrate that the uptake of ANC in the community is slow which prompts the need to understand the magnitude in the local context in Somalia while also identifying determinants and knowledge levels among women in the community.

Another study conducted in Western, Kenya based on secondary data from KDHS established that approximately 53 percent of women attended at least four ANC visits in their previous pregnancy, 97 percent of women asserted that they had attended at least one ANC visits while 43.5 percent of the women attended between 1 – 3 ANC visits which are perceived to be inadequate based on WHO recommendation (Ikamari, 2020). A cross-sectional study design utilizing mixed methods approach was conducted in Mandera, Kenya established that 83 percent of the women had utilized ANC although 60.3% attained the recommended visits (Adow et al., 2020).

The uptake of ANC across communities in Somalia varies significantly which prompts the need to focus more on community-based studies which are essential in depicting the actual situation within the community context. Despite the fact that there has been a reduction in the rate of maternal mortality all across the world, the number of fatalities continues to be unacceptable, particularly in countries with poor incomes. More specifically, this is the case in nations where the birth rate is quite low. The majority of deaths and impairments that occur in women of reproductive age are the result of complications that arise during pregnancy and childbirth. These complications make up the majority of the incidents. These complexities involve a vast variety of different things that could happen (Umer et al., 2020).

According to these findings, increasing community awareness of antenatal care, engaging female health workers, and developing recommendations that are culturally tailored could all contribute to an increase in the utilization of skilled delivery. It is crucial for male partners to be involved in all aspects of maternal health in a society that is patriarchal. This is necessary in order to enhance the utilization of maternal health care and to reduce the rate of maternal death.

In Borama, Somalia, a population-based study was conducted to investigate the uptake of antenatal care (ANC). The findings revealed that although a considerable number of women utilized ANC during their pregnancies, only 31.1% of them initiated their first visit within the first trimester, and 48.3 percent received fewer than the recommended four visits (Mouhoumed & Mehmet, 2021).

### 2.3. Socio-Economic Factors Associated with ANC Uptake

Socio-economic factors play a fundamental role in determining ANC uptake among women within a community context. Despite the fact that there has been a reduction in the rate of maternal mortality all across the world, the number of fatalities continues to be unacceptable, particularly in countries with poor incomes. More specifically, this is the case in nations where the birth rate is quite low. The majority of deaths and impairments that occur in women of reproductive age are the result of complications that arise during pregnancy and childbirth. These complications make up the majority of the incidents. These complexities involve a vast variety of different things that could happen (Okedo-Alex et al., 2019).

Utilization of antenatal therapy (ANC) in sub-Saharan Africa is influenced by a wide range of predisposing, enabling, and need variables. The promotion of female education and empowerment, the improvement of geographical access, and the

increased execution of ANC policies with active community participation are all things that should be accomplished through intersectoral collaboration.

A study in Kenya found that unmarried women who began having children before the age of 20 had fewer prenatal visits compared to their married counterparts who started having children at a more advanced age. This finding highlights a significant disparity in prenatal care access and utilization among different demographic groups. Young, unmarried women may face unique socio-economic challenges and stigmas that hinder their ability to seek regular prenatal care. These challenges could include financial constraints, lack of support from partners or families, and limited access to healthcare services. In contrast, married women who start having children later might have more stable socio-economic conditions, better support systems, and a greater awareness of the importance of prenatal care, leading to more frequent visits. The reduced number of prenatal visits among young, unmarried women can have critical implications for both maternal and child health, potentially leading to higher risks of complications during pregnancy and childbirth. These findings underscore the need for targeted interventions to improve access to prenatal care for young, unmarried women in Kenya, addressing the barriers they face and ensuring they receive the necessary support and resources for healthy pregnancies (Mutai & Otieno, 2021).

Due to the fact that the majority of pregnant women have financial constraints, it is possible that they will not be able to afford the maternity costs that are levied. In Zimbabwe, the government makes an effort to provide assistance to pregnant women who are legitimately unable to pay for their prenatal care by facilitating their referral to social welfare. As a result of the lengthy and aggravating procedure of receiving state aid for pregnant women who are truly unable to pay for it, many moms choose not to participate in social welfare programs. It is possible that some pregnant women

will choose to use the services of traditional birth attendants (TBAs) since they are less expensive and can be paid in kind (Mutowo et al., 2021).

A cross-sectional study conducted in Ethiopia investigating ANC uptake revealed that rich women, women with access to mass media, women who have had complications during pregnancy, women with secondary education or higher, women whose husbands have secondary education or higher, married women, women over the age of 30, and women living in rural areas are all factors that are significantly associated with ANC service uptake (Fenta et al., 2021).

These findings illustrate the need for intensive health education is required for pregnant women to have better ANC service uptake and follow-up adherence. Adow et al. (2020) conducted a cross-sectional study investigating the uptake of ANC in Mandera, Kenya. The findings revealed that ANC uptake was significantly associated with age, level of education, monthly income, gravida, parity, and the presence of complications during pregnancy.

Multiple studies have found that a woman's socioeconomic level is a significant factor in determining whether or not she utilizes the delivery services offered by a medical facility. According to the findings of a study conducted in rural India, receiving antenatal care services during one's first pregnancy is significantly more prevalent than receiving such treatments during one's subsequent deliveries. This analogy assumed that the majority of women were likely to either leave their employment or retire during the course of their successive babies, thereby weakening their economic muscles. Concerning the age of the mother at the time of delivery, a different study conducted in rural Somalia found that hospital births were more likely in relatively younger age

groups among women who were economically better off than their contemporaries (Thakkar et al., 2023).

In contrast, only 58 percent of women over the age of 35 gave birth in a medical facility, according to a study that was conducted in Kathmandu, Nepal. The study focused on women between the ages of 20 and 34. According to the findings of the same study, approximately 79 percent of women who were pregnant for the first time and 70 percent of women who were pregnant for the second time gave birth in a medical facility, whereas only 50 percent of women who were pregnant for the fourth time or higher-order pregnancy did so. According to the findings of the study, low-income women are more likely to provide home-based services than wealthy women do. Thus, Nepal, a greater proportion of women with higher income levels received at least three prenatal check-ups and gave birth at a medical facility (Khanal et al., 2023).

Duodu et al. (2022). conducted research on expectant mothers in Ghana and found that women from households in the highest income quintile were 18 percentage points more likely to demand institutional maternal services than women from households in the lowest wealth quintile, for whom attendance at these maternal services was not a priority. The research was based on the findings of a survey of expectant mothers in Ghana. Exposure to modern caregivers is another significant factor that is connected with attending antenatal care centres and selecting a location for the delivery. According to the findings of the same study conducted in Ghana, women who had an income or came from families with working members were more likely to have access to antenatal care services (Anaba et al., 2022).

## 2.4. Health Facility Factors Associated with ANC Uptake

With regard to the consumption of mental health care services, the physical accessibility of these services is the most significant characteristic that is associated with their utilization (Abbas & Walker, 1986). In addition, a number of additional research came to the conclusion that the physical proximity of health care facilities, particularly in developing countries, plays a significant impact in the consumption of these services.

Research by Wanjira et al. (2011) showed that the majority of maternal deaths take place during the labour and delivery process as well as the immediate postpartum period. It is possible that the majority of maternal deaths might be avoided if women had access to high-quality maternal health care, which would include antenatal care, expert support during delivery, and postoperative care (Wilmoth et al., 2012) This is because the majority of maternal deaths are caused by obstetric problems that can be avoided beforehand.

Adow et al. (2020) in a study conducted in Mandera established that contextual factors that influenced ANC were; time taken to reach health facilities, source of maternal information, and local discouragements. ANC uptake was also found to be substantially associated with the distance to health care facilities, according to the findings of the study moreover. It was found that respondents who travelled less than thirty minutes to receive ANC service were more likely to use ANC than those who travelled longer distances to access the program.

A cross-sectional study conducted in Benin assessing the effect of distance from health facilities and access to ANC among pregnant women, it was found that the amount of time it took for a woman to reach the nearest health centre had a negative impact on

the probability that she would receive effective maternal healthcare. According to the estimates, for every kilometre that separates a woman and the nearest medical facility in a direct line, the odds of her receiving at least one antenatal care decrease by 0.042, the odds of her delivering her baby with the assistance of skilled birth attendants decrease by 0.092, and the odds of her delivering her baby in a facility decrease by 0.118. The unfavourable effects of travel duration and altitude of women's domicile on healthcare utilization was another finding that was supported by our research (Tanou et al., 2021).

A survey study conducted in India, revealed that the availability of sub-centres, dispensaries, and the population hospital bed ratio were significant positive predictors for the utilization of Antenatal Care (ANC) services. This was observed after controlling for socioeconomic factors (Creanga et al., 2020).

In order to boost the usage of MCH services, districts that are underperforming in terms of the availability of MCH services and the number of people who use those services require an increase in the number of health facilities and human resources that are available.

A study assessing the delivery of prenatal care in Malawi based on the Malawi Demographic Health survey established that in a rural setting in Malawi, 95 percent of women had ANC facilities within 10km of their residence. Around twenty-five percent of the women who reside within five kilometres of a clinic-level facility get access to ANC at one of those clinic-level institutions. Only approximately 3% of rural women who had given birth in the previous five years prior to before the survey obtained maternal PNC within the first 24 hours after giving birth, and only about 16% of rural women received maternal PNC during the first week after giving birth. When it comes

to PNC in neonates, approximately 26% of new-borns had it within the first week, whereas just 3% of new-borns had it within the first 24 hours. The vast majority of PNC took place in medical settings (94% for women and 95% for neonates). It was found that having a health centre that provided PNC within 5 kilometres of a woman who gave birth at home was favourably associated with both maternal and new-born PNC. It was found that having a health centre that provided PNC within 5 kilometres was positively associated with maternal PNC and having a health centre that provided PNC between 5 kilometres and 10 kilometres was positively associated with both maternal and new-born PNC, for women who gave birth in medical facilities. It was found that having a clinic-level facility that provided PNC did not have a significant positive influence on maternal or neonatal PNC, and this was true regardless of the location of the delivery or the distance (Kim et al., 2019).

### 2.5. Facilitators and Barriers of Antenatal Care Utilization Among Reproductive Women

There is a significant impact that culture has on the availability of prenatal care for women who are expecting within the community. As a result of the fact that the majority of African nations adhere to rigid beliefs that are ingrained in their care environment, it is of the utmost importance to enhance efficiency and alter strategy. The findings of a study that was carried out in Mandera by (Adow et al., 2020).

A study conducted in Mandera; Kenya established that the majority of respondents who said they had not made use of ANC Long distances to medical facilities were cited as a factor for non-participation by 22 patients (43.1%). The same number of respondents did not perceive a need for ANC uptake and nine of them (17.6%) mentioned the cost of transportation to the facility. Approximately six (11.8%) of the events were attended

by TBAs in addition to other women. Two individuals (3.9%) cited male health attendants as the cause for non-uptake, while three individuals (5.9%), cited other reasons (Adow et al., 2020).

A qualitative study conducted in Tanzania investigating community factors in the implementation of community-based interventions to improve antenatal care revealed that the preparedness of the community to accept the interventions and the efficiency of the local administrative processes were two of the most important aspects that played a role in the execution of the community-based treatments. The involvement of stakeholders and the assistance of the local health system were also essential components in the process of enhancing antenatal care services. However, the implementation of the interventions was hindered by a number of several factors, including the physical environment, the bullying of intervention implementers, and issues connected to families (Joseph & Maluka, 2021).

A qualitative study conducted in Ghana assessing socio-cultural factors that influence ANC uptake revealed that residents of remote communities are aware of the advantages of ANC and expert delivery, as well as the possible dangers associated with home births. However, pregnant women in the Volta Region continue to face a variety of barriers that prohibit them from accessing maternal health care services. These roadblocks are caused by societal and economic restraints, the fact that women may still not have a voice in the decision-making process, and the low participation of men in general (Barbi et al., 2021).

In the survey, we asked about age, education level, whether or not respondents used the internet, whether or not they were married, whether or not they were employed, and what they thought the impact of antenatal care services was during pregnancy. There

were also questions about their familiarity with ultrasounds, the implications of engaging in sexual activity or other forms of exercise during pregnancy, the benefits of breastfeeding, and the dangers of giving birth too soon. A statistical analysis, carried out with SPSS, was performed on the data that were gathered. The research was carried out on a total of 205 pregnant women, of which 115 (56.1% of the sample) believed that the most significant advantage of ultrasonography was its ability to detect fatal abnormalities, and 75 (36.6% of the sample) believed that exercising regularly was safe to do while pregnant. 116 out of 205 respondents, or 56.6%, were under the impression that having sexual relations while pregnant was detrimental to the health of the foetus, while the remaining 63 respondents were unsure.

The primary purpose of this study was to determine participants' knowledge and attitudes regarding pregnancy and the significance of antenatal care. Of the participants, 143 (62%) admitted that they had never sought antenatal care, despite being aware of its significance and having the financial means to pay for it. They stated that the primary reason they avoided going to these establishments was because the people who worked there were unfriendly and allegedly mistreated customers. The majority of those who responded stated that they had never been through something similar themselves but that they knew others who did. The low level of relevant information among Emirati women was corroborated by this finding. In order to dispel inaccurate ideas that generate an impression that leads to a negative attitude toward these essential services that are offered, it is essential to have effective educational classes that focus on educating women about issues linked to pregnancy and prenatal care. These sessions should be held in order to educate women about these issues. It is for this reason that it is essential to have informative sessions that are successful and that concentrate on

educating women about difficulties that are associated with pregnancy and antenatal care (Finlayson & Downe, 2013).

### 2.6. Identification of the Knowledge Gap

One of the fundamental challenges influencing ANC utilization in Somalia is the array of socio-economic determinants that impact access to healthcare services. Poverty, lack of education, and limited economic opportunities contribute to barriers preventing women from seeking timely and adequate ANC. Somalia's complex socio-economic landscape necessitates a thorough examination of economic disparities, educational levels, and the availability of resources. Understanding how these determinants intersect and create obstacles to ANC utilization is crucial for developing targeted interventions that address the root causes.

Cultural factors play a pivotal role in shaping healthcare-seeking behaviours in Somalia. Deeply rooted cultural beliefs, traditional practices, and societal norms can influence women's decisions regarding ANC utilization. Understanding these cultural dynamics is essential for developing interventions that respect local traditions while promoting maternal health. The problem statement involves navigating the delicate balance between cultural sensitivity and the need for evidence-based healthcare practices. Bridging this gap requires research that delves into the intricacies of cultural influences and identifies ways to integrate culturally appropriate ANC services.

Geographical challenges pose a significant barrier to ANC utilization in Somalia, especially in rural and remote areas. Limited access to healthcare facilities, coupled with inadequate transportation infrastructure, results in delayed or restricted access to ANC services for many women. To address this challenge, a comprehensive understanding of the geographical landscape is necessary. Research must explore how

distance and transportation barriers impact ANC utilization, and interventions should focus on improving access through innovative solutions such as mobile clinics or community-based ANC services.

The overall weaknesses in Somalia's health system contribute to the problem of ANC underutilization. Issues such as inadequate infrastructure, understaffed healthcare facilities, and a lack of essential resources hinder the quality and accessibility of ANC services. Addressing this aspect of the problem statement requires a critical examination of the health system's strengths and weaknesses. Research must identify key areas for improvement, advocating for increased investments in healthcare infrastructure, workforce training, and resource allocation to enhance the delivery of ANC services.

Limited education and awareness about the importance of ANC contribute to its underutilization in Somalia. Women may lack information about the benefits of early and regular ANC visits, leading to delayed or sporadic care-seeking behaviours during pregnancy. Bridging this gap involves targeted educational campaigns that raise awareness about the significance of ANC. These campaigns should be tailored to the local context, employing culturally sensitive approaches and utilizing accessible communication channels to disseminate information effectively.

Community engagement is crucial for the success of maternal healthcare initiatives. The problem statement identifies an inadequate level of community engagement as a factor influencing ANC utilization negatively. Lack of involvement and awareness at the community level can impede the acceptance and uptake of ANC services.

Effective interventions should include strategies to engage communities actively. This may involve partnerships with community leaders, local influencers, and grassroots

organizations to promote ANC awareness and encourage community members to support and prioritize maternal health.

The problem statement surrounding factors influencing the utilization of Antenatal Care services among women aged 15-49 years in Somalia is complex and multifaceted. Socio-economic determinants, cultural influences, geographical challenges, weaknesses in the health system, education and awareness gaps, security concerns, inadequate community engagement, and data collection challenges collectively contribute to the underutilization of ANC services. Recognizing and addressing these factors require a collaborative and multidimensional approach involving healthcare providers, policymakers, community leaders, and international organizations. By navigating these challenges and implementing targeted interventions, Somalia can make significant strides toward improving maternal healthcare outcomes and ensuring that every woman receives the essential care needed for a healthy pregnancy and childbirth.

## 2.7. Theoretical Framework

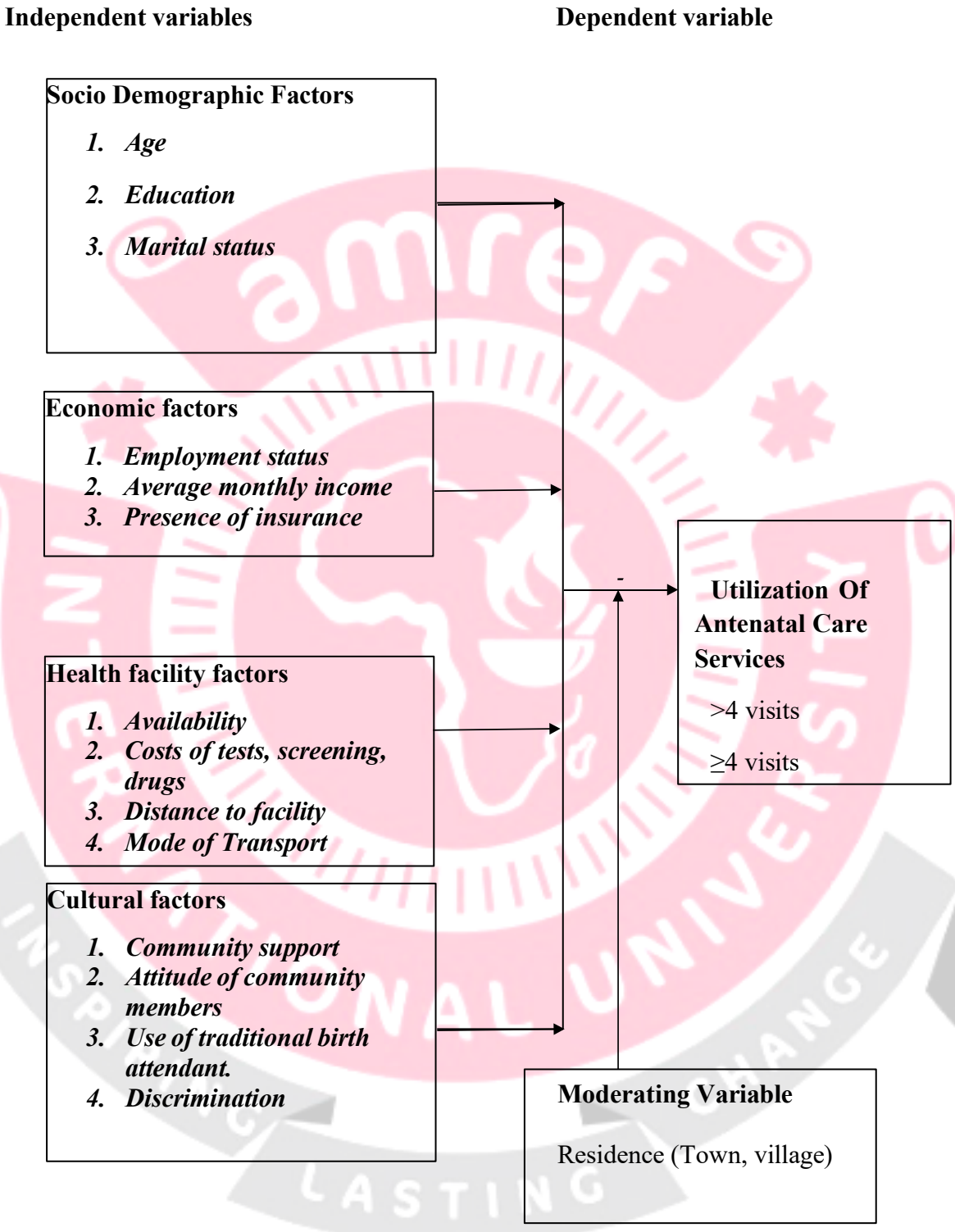
This study utilized the theory of planned behaviour. The Theory of Planned Behaviour (TPB) is a psychological theory that explains human behaviour based on three key determinants: attitude, subjective norm, and perceived behavioural control. Developed by Icek Ajzen in 1985 as an extension of the Theory of Reasoned Action by Ajzen and Fishbein, TPB provides a framework for understanding how individuals come to decide to engage in a particular behaviour. This theory highlights how individual behaviour is directly influenced by their intention to perform that behaviour, which is in turn influenced by attitudes towards the behaviour, subjective norms, and perceived behavioural control. Using TPB, researchers can assess how a woman's positive

attitudes towards ANC (e.g., recognizing its importance for the health of the baby and herself), the influence of significant others (subjective norms), and her perceived control over her ability to attend appointments (e.g., availability of transport, financial resources) affect her ANC utilization.

### 2.8. Conceptual Framework

The study sought to investigate factors influencing ANC utilization among women of reproductive age in Garowe. The factors were categorized into socio-demographic factors, economic factors, health facility related factors and cultural factors. Place of residence was considered as a moderating variable to the utilization of ANC care. The dependent/outcome variable was ANC utilization which was categorized into >4 visits and ≥4 visits.

### *2.8.1. Conceptual Framework*




3.

Figure 1: Conceptual framework

Source (Author, 2023)

# CHAPTER 3: METHODOLOGY

This section presents the key data collection approaches that guided the study. It covers key research aspects such as research design, study setting, target population, sampling, data management and ethical consideration

## 3.1. Research Design

This was a mixed methods study design utilizing concurrent equal status mixed methods approach, triangulating qualitative and quantitative. The study investigated the prevalence of ANC uptake in Garowe region, Puntland, Somalia. The study also determined factors associated with ANC uptake. Qualitative approach was utilized in understanding knowledge and cultural factors that influence ANC uptake among women within reproductive age who gave birth in the past 12 months. This research design was appropriate because the study sought to investigate factors influencing utilisation of ANC while also qualitatively investigating barriers and facilitators. These findings were compared to make meaningful understanding of the study objectives. This was done as presented in Figure 2.

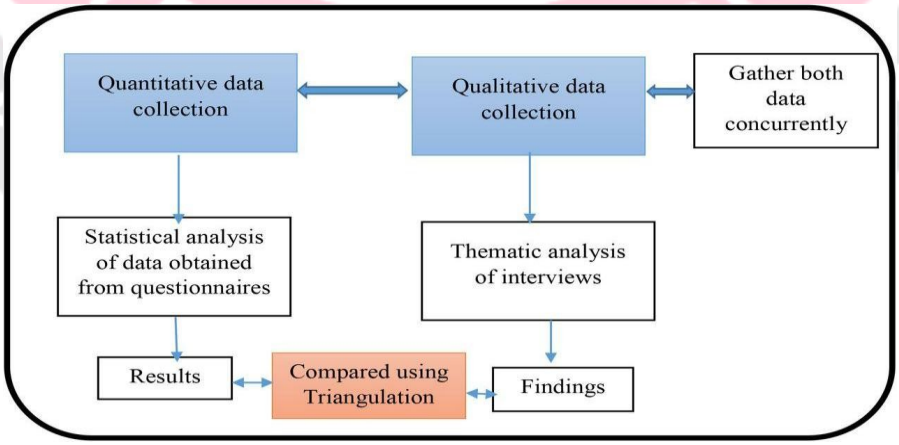



Figure 2: Triangulation

### 3.2. Study Setting

This study was conducted in Garowe, Puntland in Somalia. Garowe is located in the Nugaal Valley, which is surrounded on the north, west, and south by gently climbing high plateaus that often reach elevations of between 500 and 1,000 meters (1,600 and 3,300 feet) above sea level. Garowe itself is situated at an elevation of 1,600 feet above sea level. The city of Garowe is found in the middle of the Puntland area in the north-western part of Somalia. Gillab is located to the east, Qalqalooc is located to the northeast, Libaax Seexay is located to the north, Geida Debabo is located to the northwest, Bixin is located to the west, Lugo is located to the southwest, Salaxley is located to the south, and War Weytan is located to the southeast. Qardho, Galkayo, and Erigavo are the three main cities in the region immediately around Garowe. The population within the region is approximately 385,000 whereas in rural areas 185,000 and 250,000. Garowe is classified into eight groups which include 1da August, Hantiwadaag, Hilaac, Hodan, Horseed, Israac, Waaberi, and Wadajir.

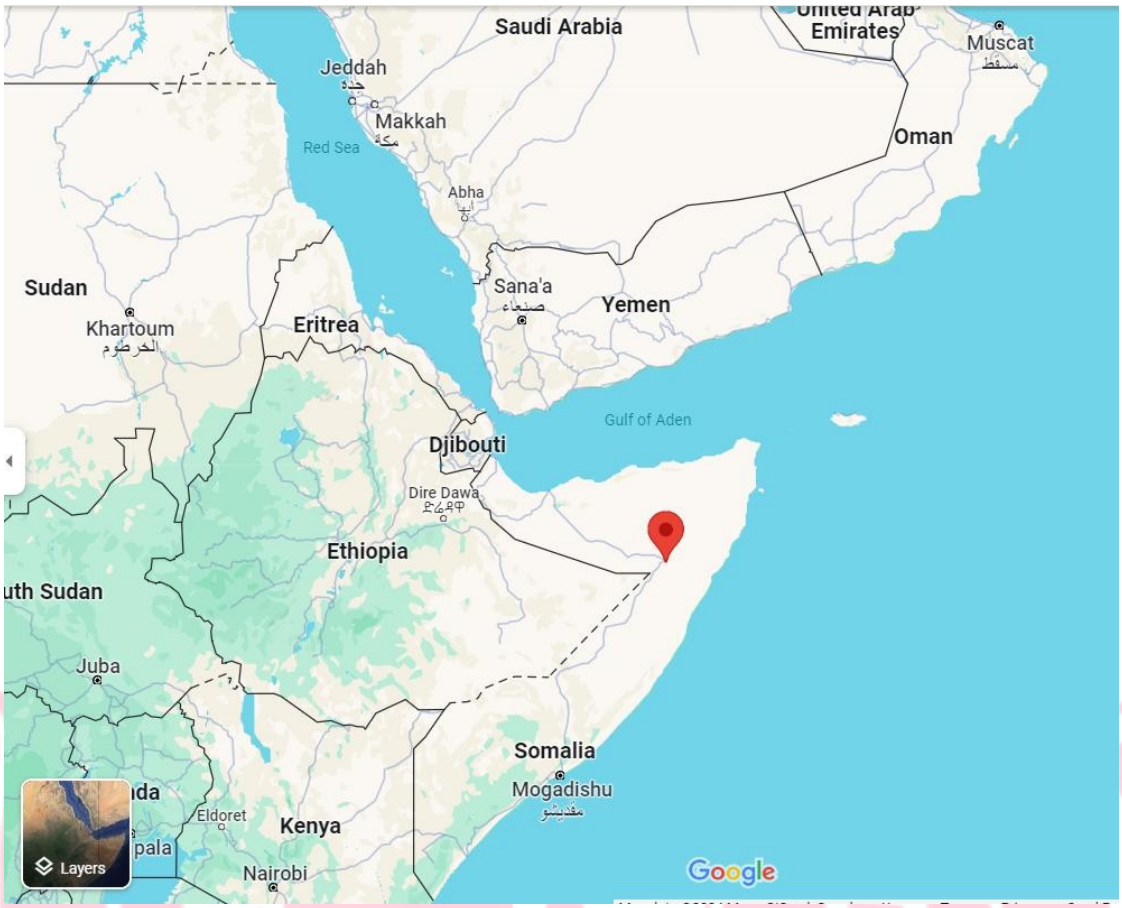



Figure 3: Garowe region, Somalia

### 3.3. Study Population

The study population was women of reproductive age (15 – 49 years) who have given birth in the last year. The study also included health administrative leaders in each of the eight regions. The total number of women who gave birth within the last 12 months was 2,940. The distribution across the regions is as follows (Table 1).

The study focused on women of reproductive age, particularly starting from 15 years old, because reproductive health research often encompasses the age range at which women are biologically capable of conceiving and bearing children. This range, typically 15-49 years, is used to capture a comprehensive picture of reproductive health behaviours and outcomes, including the utilization of antenatal care (ANC) services.

While it is not ideal for 15-year-olds to become pregnant due to the associated health risks and social implications, pregnancies in this age group do occur, especially in regions with high rates of adolescent pregnancies.

Table 1: Distribution of women who gave birth in Garowe region in last 12 months

| **Sub-Region** | **Total number** |
|---|---|
| 1da August | 301 |
| Hantiwadaag | 418 |
| Hilaac | 371 |
| Hodan | 311 |
| Horseed | 389 |
| Israac | 352 |
| Waaberi | 431 |
| Wadajir | 367 |
| **Total** | 2940 |

### *3.3.1. Inclusion Criteria*

i. Women of child-bearing age in Garowe-Nugaal, Puntland.

ii. Women who have given birth in the last one year. This was aimed at helping assess all aspects of ANC and any support or barrier that arose. Similarly, Childbirth is a significant life event which increases the accuracy of recall.

iii. Women who consent to participate in the study.

### *3.3.2. Exclusion Criteria*

i. Women who decline to participate in the study or are not mentally capable of responding to study questions.

## 3.4. Sample Size Determination

### *3.4.1. Quantitative Data*

The sample size was calculated using Fisher's formula

The sample size was calculated using Fisher's formula (Kholmatova et al., 2016). The formula is as shown:

(n= (Z2pq)/d2).

Where

n = sample population,

z = standard normal at 95% (1.96)

p = is the population with the characteristic

q = is the population without characteristics,

d= is the margin of error

According to a study conducted in Borama, Somaliland, 51.7% of patients attended at least four ANC visits.

n =$1.96^2$*0.517*0.483/ ($0.05^2$)

= Sample size =195.

0.95929/0.0025

= 384

### *3.4.2. Qualitative Sample Size*

The sample size for the qualitative arm of the study was determined by saturation where a total of 12 key in depth interviews were included to attain saturation. According to Boddy (2016). a sample of between 5 – 20 interviews are appropriate to attain saturation.

## 3.5. Sampling Technique

### *3.5.1. Sampling for Quantitative Data*

A cluster sampling technique was utilized in selecting study participants. Garowe was grouped into eight groups where the participants were randomly selected. Cluster sampling was efficient in this case considering that this is a community-based study where the whole Garowe region was taken into consideration. The number of women who had given birth in the last 24 months in each sub-region were documented from the sub-region office which showed that there was a total of 2, 940.

The sample size was calculated per region as a representative of the total women who gave birth in relation to total sample size obtained as follows:

Table 2: Sample distribution per region in Garowe

| Sub-Region | Total number | Sample size |
|---|---|---|
| 1da August | 301 | =(301/2940)*384 =39 |
| Hantiwadaag | 418 | 55 |
| Hilaac | 371 | 48 |
| Hodan | 311 | 41 |
| Horseed | 389 | 51 |
| Israac | 352 | 46 |
| Waaberi | 431 | 56 |
| Wadajir | 367 | 48 |
| **Total** | 2940 | 384 |

### *3.5.2. Qualitative Sampling*

A purposive sampling technique was used to sample health administrative leaders in each of the eight regions in Garowe. The specific characteristics that were considered in the sampling were health administrative leaders in each of the sub-regions in Garowe.

## 3.6. Data Collection

### *3.6.1. Data Collection Tools*

A structured questionnaire and Key informant interviews (KII) were used in data collection. A structured questionnaire was developed based on the study objectives. Section A included information about household and caregiver characteristics, section B included socio-economic factors, section C information on ANC utilization and Section D included information on cultural factors. The in-depth interviews included information on greater understanding of ANC utilization within Garowe.

### *3.6.2. Recruitment of Research Assistants*

The researcher recruited two research assistants who were stationed at each of the household surveys. The research assistants had a minimum diploma certificate in nursing as well as experience in data collection in a paediatric environment.

### *3.6.3. Consenting Process*

The researcher with the help of two research assistants engaged community elders in each of the regions of study. Community elders were engaged because they have information about households in their areas of jurisdiction. The households of individuals who met the inclusion criteria were identified and targeted. Verbal informed consent was administered to the study participants and only those who consent were recruited. In case the household head declined to consent, the researcher randomly chose another household.

### *3.6.4. Quantitative Data Collection*

The data collection processes began after approval from the Amref International University Ethics committee and permission from Garowe administration to conduct the study within its borders. A structured questionnaire was used to collect relevant information. The questionnaires were administered electronically using Google forms.

### *3.6.5. Collection Of Qualitative Data*

Health administrative leaders were purposely identified in each of the study regions. Before the interviews, the researcher booked an appointment with each of the leaders to secure a date for data collection. The researcher engaged them and conducted interviews. The interviews were recorded using a sound recorder. The interviews were

conducted in Somali language and translated into English. The interviews were conducted at a secure and private room in the nearest health facility where a high level of privacy and confidentiality was maintained. The interviews took approximately 20 minutes. The researcher also took notes during the interviews which helped in developing themes. The recorded data were transcribed verbatim to effectively understand the context in each case.

### 3.7. Variables in the Study and Measurement

Our dependent variable was ANC utilization. The respondents were asked whether they attended ANC services with a skilled health provider during the last pregnancy and if yes, to indicate the number of ANC attended. This was then categorized into <4 or ≥4 visits. Even though the WHO now recommends eight visits, four ANC visits were the guideline in the local Somali context in 2022 and 2023 when the women who took part in this study attended ANC and gave birth.

Our independent variables included individual, cultural, and health facility factors, which is consistent with variable selection in previous studies (Odusina et al., 2021).

The individual factors include age, marital status, employment status, education level, household income, and having health insurance. The respondents were asked about their age which was obtained as a continuous variable and categorized into three groups including ≤24 years, 25 – 35 years, and above 35 years. Marital status was categorized as married, divorced, and widowed. Education level was categorized as no education, primary education, secondary education, and tertiary education. Employment status was categorized into employed, housewife, self-employed, and unemployed. Monthly household income was also estimated as a continuous variable and categorized into less than $300 or ≥$300. Ownership of health insurance was also assessed using a Yes or

No response. Means of transport to the health facility were investigated with categories including personal vehicle, public transportation, and walking.

The cultural factors included women discouraging ANC attendance in the community, people discriminating against ANC attendance, ANC is for privileged and used traditional birth attendants previously. These factors were nominal variables.

The health system factors included knowledge on ANC, waiting time for ANC services, duration of receiving ANC services, distance to facility, time taken to a health facility and means of transport. These were categorical variables.

## 3.8. Data Quality Control

Following data collection, the data was reviewed every week to ensure completeness. A Qualified statistician was employed to clean and analyse data.

### *3.8.1. Pre-test*

A pre-test was conducted to review the study tool. This included 10% of the study sample size which included 39 respondents. All the issues raised during the pre-test were reviewed and the tool edited prior to actual data collection.

## 3.9. Data Management

### *3.9.1. Data Entry and Cleaning*

When all of the information had been gathered through the use of a structured questionnaire that has been posted into Google Forms. It was a data entry clerk who was responsible for entering the data. Each of the questionnaires was serialized to guarantee that it is filled correctly and that it can also be tracked back to its original

source. When everything was finished, the data was checked by an experienced statistician to make sure there were no mistakes and that there was no information that was missing. Corrections were made to the first questionnaire in order to provide a simple analysis based on the objectives that were specified. For the purpose of data analysis, version 28 of a statistical package designed for social sciences was utilized.

### *3.9.2. Data Storage*

Filled consent forms were stored in a lockable cabinet only accessible to the Principal Investigator. Backup of soft data was stored in google drive and protected in a password-protected computer. The data will be stored for five years after which the hardcopy papers will be shredded into pieces. The soft copy data were stored in the repository.

### *3.9.3. Data Analysis*

Data were analysed using both qualitative and quantitative analysis approaches.

#### 3.9.3.1. Quantitative Data Analysis.

A Statistical package for social sciences (SPSS version 28) was used for the quantitative data analysis. The level of significance was assessed at $P<0.05$. Descriptive data were analysed using frequencies and percentages and mean (SD). The prevalence of ANC utilization was analysed as a proportion of the total sample size and expressed as a percentage. Binary logistic regression was used to identify independent factors associated with ANC utilization. Multivariable logistic regression was conducted to control for possible confounding variables.

### 3.9.3.2. Qualitative Data Analysis.

In accordance with the objectives of the study, the transcribed data and the notes that were documented were promptly organized and filed away. To ensure that there is no confusion throughout the data analysis, this was done. In order to make sense of the data in accordance with each of the objectives that were described by Kiger and Varpio (2020), thematic analysis was utilized. A notebook that serves as the study log was used by the researcher to make notes on non-verbal indicators that were observed during the interviews. In order to prevent any accidental loss of the interview recordings, each participant was assigned a one-of-a-kind code that was determined by the position they held and the date of the interview. The transcripts were read and re-read to obtain a general understanding of the results. During this process, key phrases, concepts, and ideas were highlighted and coded. These codes were then grouped into broader themes that captured the essence of the participants' experiences and perspectives. The identified themes were reviewed and refined to ensure they accurately reflect the data and are distinct from one another. Finally, the themes are analysed in the context of the research questions, and a narrative is developed to explain how these themes contribute to the study's findings. Version 11 of NVivo was utilized. Verbatim quotes were used to enhance the themes developed for accuracy.

## 3.10. Ethical Consideration

The researcher sought approval from the State department in Somalia with reference number: MOH/PL/DGO/0168/2022 which evaluated the protection of human subjects and the level of research integrity. Permission was also sought from the Garowe region administration. Confidentiality and anonymity were observed when collecting, storing, processing data, and in handling the results. Respondents who were aged 16 years were

considered as emancipated minors hence were able to make informed decisions and hence consented to participate in the study.

## 3.11. Study Strengths and Limitations

### *3.11.1. Strengths of the Study*

The study delves into significant areas in maternal and neonatal care in resource limited settings hence providing literature for policy implementation.

### *3.11.2. Limitations of the Study*

The assessment of ANC utilization was based on the participant's ability to recall. Thus, this was subjective hence it might not be accurate. However, the study limits inclusion to >12 months after delivery to limit memory loss.

# CHAPTER 4: RESULTS

## 4.1 Introduction

The present study sought to identify factors associated with the utilization of antenatal care services among women of reproductive age in Garowe, Puntland, Somalia. A total of 384 women of reproductive age (15 – 49 years) who gave birth in the last one year were recruited into the study. The study also included health administrative leaders in each of the eight regions. All questionnaires were fully filled and returned for analysis representing a 100% response rate.

### *4.1.1. Demographic Factors of Among Reproductive Women in Garowe, Puntland, Somalia*

Participants' average age was 30.2 years with a range of 16 to 48 years. Half (50.8%; 195) of the respondents were less than 35 years. Majority of the respondents (84.6%; 325) were married and 5.7% (137) had no formal education as shown in Table 3.

Table 3: Demographic and socio-economic factors of among reproductive women in Garowe, Puntland, Somalia

| Characteristics | Frequency | Percent |
|---|---|---|
| **Age (Mean, range)** | 30.2(16 - 48) | |
| Less or equal to 24 years | 73 | 19.0 |
| Less than 35 years | 195 | 50.8 |
| 35 years and above | 116 | 30.2 |
| **Marital status** | | |
| Divorced | 53 | 13.8 |
| Married | 325 | 84.6 |
| Windowed | 6 | 1.6 |
| **Highest education level** | | |
| No formal education | 137 | 35.7 |
| Primary | 98 | 25.5 |
| Secondary | 82 | 21.4 |
| Tertiary | 67 | 17.4 |
| **Number of children in household (Mean, range)** | 5(1 - 15) | |
| Less than 4 | 162 | 42.2 |
| 4 and above | 222 | 57.8 |

## 4.2. Utilization of Antenatal Care Among Women of Reproductive Age in Garowe, Nugaal, Somalia

### *4.2.1. Knowledge of ANC Services Among Women of Reproductive Age in Garowe, Nugaal, Somalia*

More than half of the respondents, 55.2% (212) knew about ANC from their family members, 27.9% (107) knew from healthcare providers while 10.9% (42) from friends as shown in Figure 4.

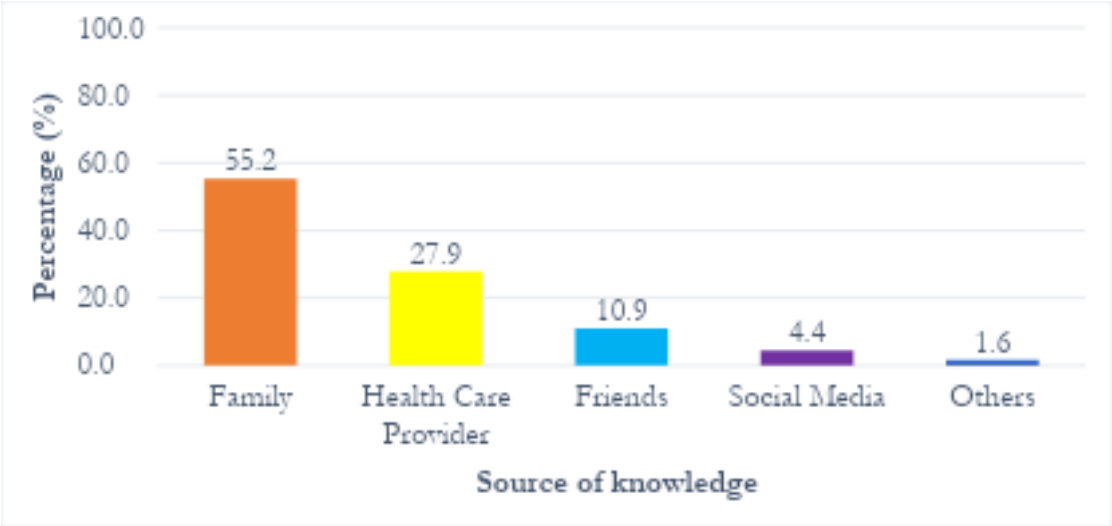



Figure 4: Knowledge of ANC services

### *4.2.2. ANC Utilization Among Women of Reproductive Age in Garowe, Nugaal, Somalia*

The findings established that the majority 56.8% (218) of the respondents had low ANC utilization while 43.2% (166) had high ANC utilization as shown in Figure 5.

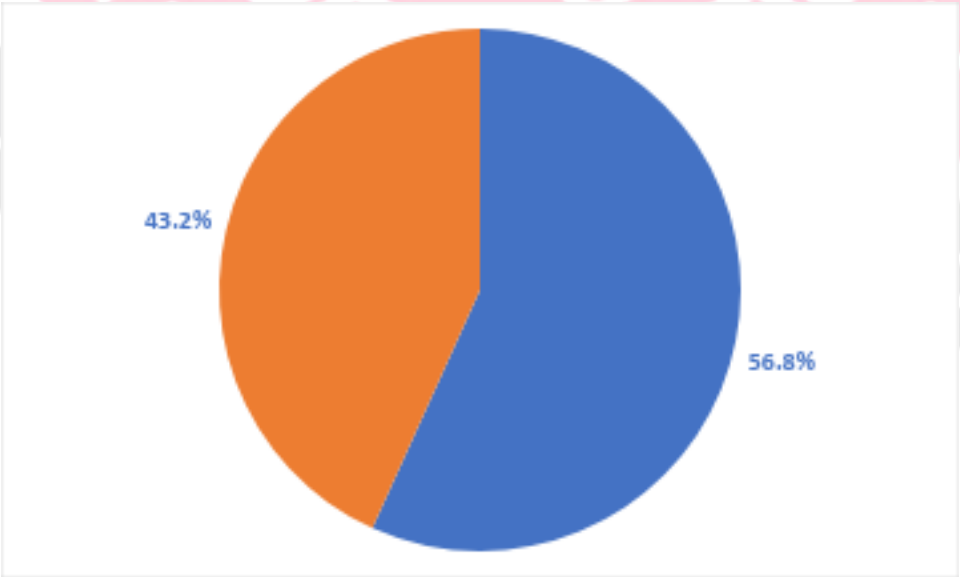



Figure 5: ANC utilization among Reproductive women in Garowe, Nugaal, Somalia

### *4.2.3. Time During Pregnancy Respondents Sought ANC Services for the First Time (n =333)*

The findings showed that 45.3% (151) of the respondents attended their first ANC in their first trimester, 39.9% (132) attended their first ANC in the second trimester while 14.7% (50) attended their first ANC in their third trimester as shown in Figure 6.

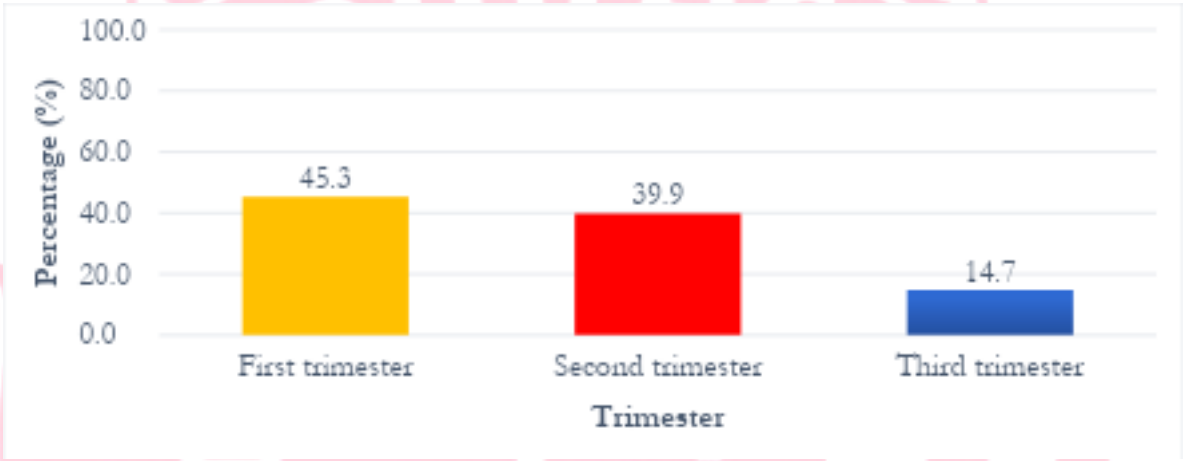



Figure 6: Time during pregnancy respondents sought ANC services for the first time

### *4.2.4. Number of ANC Visits in the Last Pregnancy (n =333)*

The study also investigated the number of ANC visits among those who had attended ANC as shown in Figure 7. The findings revealed that 37.2% (124) attended four visits, 33% (110) attended three ANC visits with 12.6% (42) of the respondents attending five visits or more.

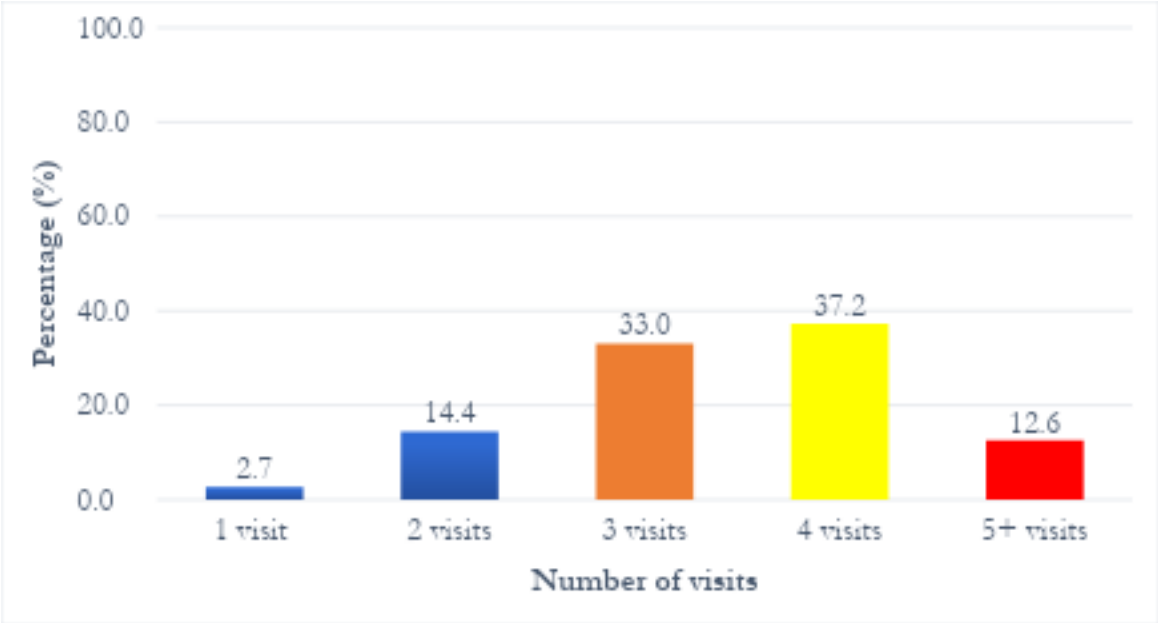



Figure 7: Number of ANC visits in the last pregnancy (n =333)

### *4.2.5. Place of Delivery of Previous Pregnancy*

The findings showed that 46.1% (56) had delivered in health facilities, 40.1% (154) while 12.5% (48) delivered at home as shown in Figure 8.

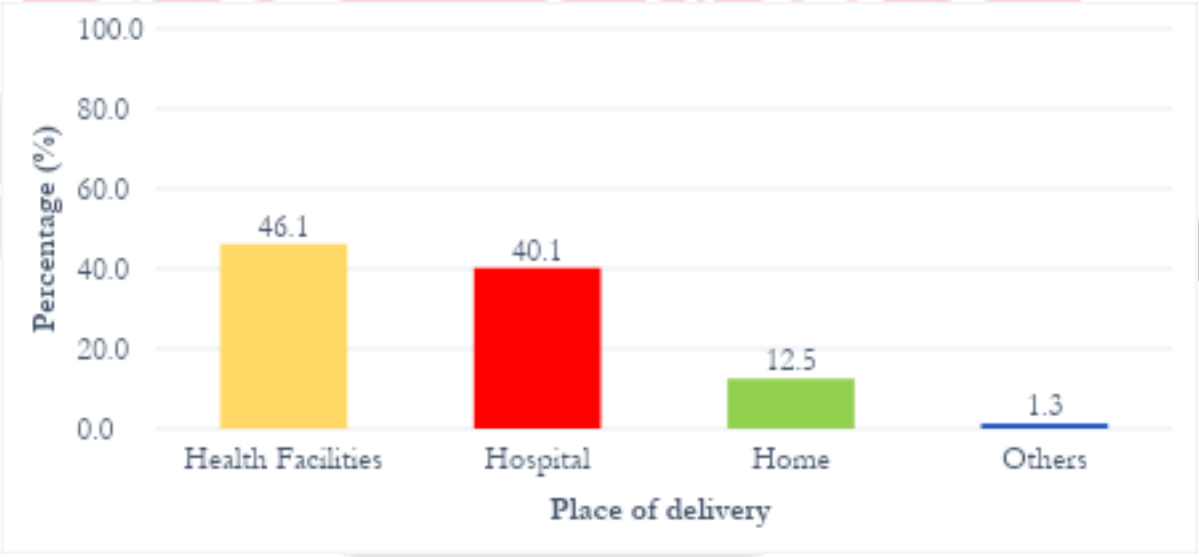



***Figure 8 :Place of previous pregnancy***

### *4.2.6. Qualitative Analysis on the Utilization of ANC*

Most of the study participants stated that there was low utilization of ANC services among pregnant mothers in the Garowe region. One of the participants stated that, "*The utilization is low because we mostly see mothers have their first ANC visit at around six months*" **KII 2.**

Another one noted that, "*As I deal with complicated cases that should have been managed during the ANC period, this highlights that the utilization of ANC is poor."* **KII 5.**

However, some of the participants stated that the level of ANC utilization was higher as compared to other areas within the region. One of them stated that, "*The utilization of ANC is high in Garowe when you compare it to other facilities that are based in the rural areas. I believe that the community has a better understanding of the benefits of ANC*." **KII 8.**

## 4.3. Demographic Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia

Bivariable analysis was done using logistic regression where the findings revealed that those who were separated/divorced were three times likely to have low ANC utilization compared to those who were married, Odds Ratio [COR] =3.06, 95%CI: 1.59 – 5.89, p =0.001. Those who had primary level education (OR =0.16, 95%CI: 0.08 – 0.31, p<0.001), secondary education level (OR =0.16, 95%CI: 0.08 – 0.33, p<0.001) and those with tertiary level education (OR =0.18, 95%CI: 0.09 – 0.36, p<0.001) were less likely to have low ANC compared to those without formal education as shown in Table 4.

*Table 4: Unadjusted regression model showing the demographic related factors associated with antenatal care utilization among women of reproductive age in Garowe, Nugaal, Somalia*

| Demographic factors | <4 visits n (%) | ≥4 visits | OR (95%CI) | P-value |
|---|---|---|---|---|
| **Age** | | | | |
| Less or equal to 24 years | 37(17.0) | 36(21.7) | Ref | |
| Less than 35 years | 120(55.0) | 75(45.2) | 1.08(0.60 - 1.94) | 0.799 |
| 35 years and above | 61(28.0) | 55(33.1) | 0.69(0.44 - 1.10) | 0.122 |
| **Number of children in household** | | | | |
| Less than 4 | 85(39.0) | 77(46.4) | Ref | |
| 4 and above | 133(61.0) | 89(53.6) | 1.35(0.90 - 2.04) | 0.146 |
| **Marital status** | | | | |
| Married | 173(79.4) | 153(92.2) | Ref | |
| Separated/divorced | 45(20.6) | 13(7.8) | 3.06(1.59 - 5.89) | **0.001** |
| **Highest level of education** | | | | |
| No formal education | 89(40.8) | 48(28.9) | Ref | |
| Primary | 63(28.9) | 35(21.1) | 0.16(0.08 - 0.31) | **<0.001** |
| Secondary | 51(23.4) | 31(18.7) | 0.16(0.08 - 0.33) | **<0.001** |
| Tertiary | 15(6.9) | 52(31.3) | 0.18(0.09 - 0.36) | **<0.001** |

**COR:** Crude Odds Ratio, **CI:** Confidence interval

## 4.4. Economic Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia

### *4.4.1. Economic Factors Among Women Aged 15–49 years in Garowe, Nugaal, Somalia*

Majority, 61.2% (235) of the respondents were housewives, the average monthly income was 343.5 with a range of between 0 to 2,000 and 66.7% (256) used public transport on their way to health facilities as shown in Table 5.

*Table 5: Economic factors among women aged 15–49 years in Garowe, Nugaal, Somalia.*

| Economic factors | Frequency | Percent |
|---|---|---|
| **Employment status** | | |
| Employed | 39 | 10.2 |
| Housewife | 235 | 61.2 |
| Self-employed | 81 | 21.1 |
| Unemployed | 29 | 7.6 |
| **Monthly income () (Mean, range)** | 343.5(0 -2000) | |
| Less than 300 | 171 | 44.5 |
| 300 or more | 213 | 55.5 |
| **Presence of health insurance** | | |
| Yes | 147 | 38.3 |
| No | 237 | 61.7 |
| **Means of transport to the health facility** | | |
| Personal vehicle | 53 | 13.8 |
| Public transportation | 256 | 66.7 |
| Walking | 75 | 19.5 |

### *4.4.2. Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia*

The findings revealed that those who were unemployed were 1.5 times more likely to have low ANC uptake compared to those who were employed, (OR =1.53, 95%CI:1.1 – 2.33, p=0.005). Women who did not have any insurance were 10 times likely to have low ANC utilization compared to those with insurance, (OR = 9.61, 95%CI: 5.96 – 15.50, p<0.001) as shown in Table 6.

*Table 6: Economic related factors associated with antenatal care utilization among women of reproductive age in Garowe, Nugaal, Somalia*

| Economic factors | <4 visits n (%) | ≥4 visits | OR (95%CI) | P-value |
|---|---|---|---|---|
| **Employment status** | | | | |
| Employed | 67(30.7) | 67(40.4) | Ref | |
| Unemployed | 151(69.3) | 99(59.6) | 1.53(1.1 - 2.33) | **0.005** |
| **Monthly income** | | | | |
| Less than 300 | 98(45.0) | 73(44.0) | 1.04(0.69 - 1.56) | 0.917 |
| 300 or more | 120(55.0) | 93(56.0) | Ref | |
| **Presence of insurance** | | | | |
| Yes | 8(3.7) | 139(83.7) | Ref | |
| No | 210(96.3) | 27(16.3) | 9.61(5.96 - 15.50) | **<0.001** |

**COR:** Crude Odds Ratio, **CI:** Confidence interval

## 4.5. Health Facility Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia

### *4.5.1. Health System Factors Among Women Aged 15–49 years in Garowe, Nugaal, Somalia*

Most of the respondents (81.3%; 312) had antenatal care facilities close to their homes, and 91.7% (352) had knowledge about the services offered during ANC. About 75% (288) of the respondents had a waiting time of less than 30 minutes to receive ANC services as shown in Table 7.

*Table 7: Health system factors among women of reproductive age in Garowe, Nugaal, Somalia*

| Health system factors | Frequency | Percent |
|---|---|---|
| **Knowledge of ANC services offered** | | |
| No | 32 | 8.3 |
| Yes | 352 | 91.7 |
| **Waiting time for ANC services** | | |
| Less than 30 minutes | 288 | 75 |
| 30 minutes to 1 hour | 88 | 22.9 |
| More than 1 hour | 8 | 2.1 |
| **Approximate distance to health facility** | | |
| 1 – 5 KM | 169 | 44 |
| 6 – 10 KM | 2 | 0.5 |
| Less than 1 KM | 213 | 55.5 |
| **Time taken to health facility** | | |
| 30 – 1 hour | 150 | 39.1 |
| Less than 30 minutes | 226 | 58.9 |
| More than 1 hour | 8 | 2.1 |
| **Person who influenced ANC utilization** | | |
| Family | 37 | 9.6 |
| Friends | 12 | 3.1 |
| Health Provider | 4 | 1 |
| Respondent/self | 265 | 69 |
| Spouse | 66 | 17.2 |

### 4.6. Health System Related Factors Associated with Antenatal Care Utilization Among Women of Reproductive age in Garowe, Nugaal, Somalia

The findings showed that those who were using public transport (OR =4.46, 95%CI: 2.06 – 9.65, p<0.001) and those who were walking (OR =3.30, 95%CI: 1.81 – 6.05, p<0.001) were likely to have low ANC utilization as shown in Table 8.

***Table 8: Unadjusted regression model showing health system related factors associated with antenatal care utilization among women of reproductive age in Garowe, Nugaal, Somalia***

| Health factors | <4 visits n (%) | ≥4 visits | OR (95%CI) | P-value |
|---|---|---|---|---|
| **Knowledge on ANC** | | | | |
| No | 23(10.6) | 10(6.0) | 1.84(0.85 - 3.98) | 0.142 |
| Yes | 195(89.4) | 156(94.0) | Ref | |
| **Waiting time for ANC services** | | | | |
| 30 minutes to 1 hour | 51(23.4) | 45(27.1) | 0.82(0.52 - 1.31) | 0.408 |
| Less than 30 minutes | 167(76.6) | 121(72.9) | Ref | |
| **Duration of receiving ANC services** | | | | |
| Less than 15 minutes | 116(53.2) | 103(62.0) | Ref | |
| 15 - 25 minutes | 92(42.2) | 59(35.5) | 2.22(0.68 - 7.29) | 0.189 |
| More than 25 minutes | 10(4.6) | 4(2.4) | 1.60(0.48 - 5.35) | 0.443 |
| **Approximate distance to facility** | | | | |
| Less than 1km | 124(56.9) | 89(53.6) | 1.14(0.76 - 1.71) | 0.536 |
| More than 5km | 94(43.1) | 77(46.4) | Ref | |
| **Time taken to a health facility** | | | | |
| Less than 30 minutes | 124(56.9) | 102(61.4) | Ref | |
| 30 - 60 minutes | 91(41.7) | 59(35.5) | 1.32(0.18 - 4.29) | 0.431 |
| More than 60 minutes | 3(1.4) | 5(3.0) | 1.63(0.33 - 3.35) | 0.633 |
| **Means of transport to health facility** | | | | |
| Personal vehicle | 24(11.0) | 29(17.5) | Ref | |
| Public transport | 135(61.9) | 121(72.9) | 4.46(2.06 - 9.65) | **<0.001** |
| Walking | 59(27.1) | 16(9.6) | 3.30(1.81 - 6.05) | **<0.001** |

**COR:** Crude Odds Ratio, **CI:** Confidence interval

### *4.6.1. Qualitative Analysis of Health System Factors*

Some of the participants cited that timing within which ANC services was a barrier based on the time the services start and end. One of the participants asserted that, "*The clinic opening hours are not convenient because they are open from 7 till 13:30 which are limited. The opening hours of the health facilities and the chance/opportunity that*

*the mother has to come to the health facilities do not match. Also, the poor attitudes of health workers are one of the biggest barriers as health workers' salaries are not consistent and are project based. Therefore, when they are experiencing a gap, this will lead to poor attitudes as they are not motivated. The high drop-out rate observed in ANC at public health facilities is linked to their poor attitude and quality of care. Also, public health facilities are prone to stock outs, when the mother arrives at the health centre and she does not get the services she needed, that will discourage her to visit the health facility once again."* **KII 4.**

Further, "*One of the biggest barriers is the poor attitudes of the health workers. For example, even within our health facility, the community prefers certain health workers. This is because they may give preferential treatment to people that they know even when there is a queue, or some may be busy using their phone or filling the register instead of giving the patient their full attention*." **KII 5.**

Another participant stated that, "*some health professionals don't respect patients, for example if the health professional tells the mother to take medicines without explaining its benefits and the distance to the MCH from their homes may be far*." **KII 7.**

## 4.7. Cultural Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia.

### *4.7.1. Cultural Factors Among Reproductive Women in Garowe, Puntland, Somalia*

The findings showed that 21.4% (82) of respondents agreed that women within their area discourage others from attending health facility during pregnancy, 33.1% (127) of the respondents stated that ANC is for those who are privileged while 42.2%% (162)

of the respondents had sought the services of traditional birth attendants as shown in Table 9.

***Table 9: Cultural factors among reproductive women in Garowe, Puntland, Somalia***

| Cultural factors | Frequency | Percent |
|---|---|---|
| **Women discourage ANC attendance** | | |
| Yes | 82 | 21.4 |
| No | 302 | 78.6 |
| **People discriminate against ANC attendance** | | |
| Yes | 23 | 6.0 |
| No | 361 | 94.0 |
| **ANC is for privileged** | | |
| Yes | 127 | 33.1 |
| No | 257 | 66.9 |
| **Used Traditional birth attendant previously** | | |
| Yes | 162 | 42.2 |
| No | 222 | 57.8 |

### *4.7.2. Cultural Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia*

The results showed that those who asserted that women discourage ANC attendance were five times likely to have low ANC utilization, (OR =4.92, 95%CI:2.65 – 9.13, p<0.001). Those who had used traditional birth attendants before were 19 times likely to have low ANC utilization, OR =19.01, 95%CI: 10.56 – 34.22, p<0.001 as shown in 10.

*Table 10: Cultural factors associated with antenatal care utilization among women aged 15–49 years in Garowe, Nugaal, Somalia*

| Cultural factors | <4 visits n (%) | ≥4visits n (%) | OR (95%CI) | P-value |
|---|---|---|---|---|
| **Women discourage ANC attendance** | | | | |
| Yes | 68(31.2) | 14(8.4) | 4.92(2.65 - 9.13) | **<0.001** |
| No | 150(68.8) | 152(91.6) | Ref | |
| **People discriminate against ANC attendance** | | | | |
| Yes | 12(5.5) | 11(6.6) | 0.82(0.35 - 1.91) | 0.669 |
| No | 206(94.5) | 155(93.4) | Ref | |
| **ANC is for privileged** | | | | |
| Yes | 72(33.0) | 55(33.1) | 1.0(0.65 - 1.53) | 0.534 |
| No | 146(67.0) | 111(66.9) | Ref | |
| **Used Traditional birth attendant previously** | | | | |
| Yes | 146(67.0) | 16(9.6) | 19.01(10.56 - 34.22) | **<0.001** |
| No | 72(33.0) | 150(90.4) | Ref | |

### *4.7.3. Qualitative Analysis of Barriers to ANC Utilization*

Analysis of the qualitative data reveals several barriers hindering ANC use in the Garowe region. These barriers are discussed under the following themes:

**Mistrust in the Health System**

Mistrust in the health system was found to be a major barrier to attending ANC services in the Garowe region. One of the participants stated that, "*There are health workers who do not provide the best services for patients and even when they receive good service, the health facility might be out of stock of medicines."* **KII 8.**

In addition, "*the community believes that the MCH has expired medication, unskilled health workers, they will be forced to undergo a caesarean section, and some are even scared of getting IVs*" **KII 4.**

Another participant noted that, "*there is a mistrust of the health system, and the community believes that it is better to stay at home like the previous generation*." **KII 7.**

Another participant stated that, "*One of the biggest barriers is the poor attitudes of the health workers. For example, even within our health facility, the community prefers certain health workers. This is because they may give preferential treatment to people that they know even when there is a queue, or some may be busy using their phone or filling the register instead of giving the patient their full attention*." **KII 5.**

**Lack of Support**

The findings also showed that another barrier to ANC is lack of support from family members especially the husband. One of the participants stated that, "*There are a lot of barriers that prevent women from seeking the service, for example in rural areas getting the service is challenging for the pregnant women because there is no transportation, paved roads and other services that could help them to get to the health facilities. Also, if the health professionals are unfriendly, it will result in the mothers not returning back to the health facilities*." **KII 1.**

Another one noted that, "*Lack of spousal support as a minority of men support their wives to access ANC services through financial support for their taxi or childcare. The majority around 70% do not provide support which is one of the reasons that mothers do not seek ANC services they need*." **KII 2.**

A study participant stated that, "*few husbands who have knowledge of the benefits of ANC support their wives. The majority lack awareness and do not support, usually if their wife is experiencing no problems nor complications, then no support is needed because she is well*." **KII 3.**

"*The culture influences ANC utilization, for example, the traditional birth attendants spread these cultural beliefs to the community that IVs and medications will lead to miscarriage or will take the drugs to the private clinics to double check. This will stop the community from accessing the free services at the MCH as we are in competition*" **KII 5.**

**Cultural Norms**

Culture was also identified as a major impediment to ANC utilization within the region. Majority of the community members are skeptical of the quality of care which negatively influences the utilization of ANC. One of the participants asserted that, "*When it comes to our culture, it influences the ANC greatly. For example, if the mother is anemic, some families don't accept blood transfusion because they believe it is dirty blood which can cause disease. Mother cannot make decisions for herself as father must be informed first*" **KII 5.**

Another one stated that, "*Cultural norms and beliefs often discourage women from seeking ANC early, leading to delayed care and missed opportunities for early interventions*." **KII 6.**

Similarly, another one noted that, "*Yes, because the mother-in-law and grandmothers will say we never used to attend ANC so you do not have to. There is also a big fear that the mothers will be asked to undergo a Caesarean section due to complications*." **KII 4.**

However, one of the healthcare providers asserted that most of the underlying gaps in care are not mainly due to cultural barriers but more of personal beliefs. "*No, there is no cultural beliefs whatsoever that prevent women from utilization, it's personal beliefs rather than cultural. Some women think only elderly women visit health facilities or*

*those who are sick. Since public health facilities do not have ultrasounds, women prefer to go to private health facilities instead. It is more about which facilities provide the most comprehensive service*." **KII 4.**

### *4.7.4. Facilitators to ANC Utilization*

**Creation of Mass Media Campaign**

Most of the participants stated that there is need for creation of awareness campaigns to help improve the focus and commitment to ANC uptake

A participant stated that, "*in my opinion, the possible solutions to promote antenatal care utilization are to create a mass media campaign on ANC to increase the public's awareness. Then health workers must be provided with kits (e.g., BP measurement device) and go into the community and conduct house visits which will motivate the mother to come to the HF as she is being cared for. Lastly, to ensure that comprehensive ANC services are provided at the HFs such as full stock of medicines, trained health workers and lab equipment*" **KII 1.**

In addition, "*increased awareness of the benefits of ANC, well-trained health workers and improved transportation services."* **KII 3.**

Further, another one stated that, "*increase the awareness and provide transportation for women in rural and nomadic areas and provide gifts to incentivize the mother to come back to the health facility*." **KII 6.**

**Capacity Building in Health Facilities**

Capacity building in health facilities within the region was also considered as a key approach where commitment to ANC can be undertaken. One of the participants

asserted that, "*free and high quality of care of health services, well-trained health workers and a regular supply of medicines*." **KII 2.**

Additionally, Participant 4 also noted that, "*the health facility needs to become a centre point for the mothers, the referral systems must be strengthened, lab/diagnostic equipment must be found within the health facilities and increase the number of campaigns and advocacy for ANC services*." **KII 4.**

"*Improved accessibility and availability of ANC services in rural and underserved areas have encouraged pregnant women to seek regular check-ups during pregnancy*." **KII 8.**

**Encourage Familial Support**

Families play a fundamental role in influencing the utilization of ANC. Spouses have a greater influence on the ability of women to attend ANC. One of the respondents noted that, "*Engagement of male partners in ANC has been a significant facilitator, as their support and involvement promote women's decision-making in seeking healthcare*." **KII 3.**

Another one noted that, "*Community support systems, such as women's groups and peer support networks, have been instrumental in promoting ANC utilization by providing encouragement and reducing social isolation*." **KII 10.**

### 4.8. Multivariable Analysis of Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia

Variables that were significant from bivariate analysis ($p<0.05$) were subjected to multivariable analysis as shown in Table 11. The findings established that lack of insurance, (adjusted odds ratio (aOR)= 6.07, 95%CI: 3.41 – 10.80, $p<0.00$), those who

used public transport (aOR = 3.68, 95%CI: 1.31 – 10.32, p =0.013), walking to facility (aOR =4.0, 95%CI: 1.80 – 8.77, p =0.001), those who agreed that women discourage ANC attendance (aOR = 3.72, 95%CI: 1.63 – 8.49, p =0.002) and those who had used TBAs (aOR =13.13, 95%CI: 6.81 – 25.29, p<0.001 were likely to have a low ANC utilization.

*Table 11: Multivariable analysis of factors associated with antenatal care utilization among women aged 15–49 years in Garowe, Nugaal, Somalia*

| | aOR(95%CI) | p value |
|---|---|---|
| **Marital status** | | |
| Married | Ref | |
| Separated/divorced | 1.82(0.70 - 4.72) | 0.221 |
| Highest level of education | | |
| No formal education | Ref | |
| Primary | 0.31(0.11 - 2.11) | 0.451 |
| Secondary | 0.12(0.08 - 4.33) | 0.331 |
| Tertiary | 0.18(0.09 - 0.36) | 0.291 |
| **Employment status** | | |
| Employed | Ref | |
| Unemployed | 1.10(0.59 - 2.05) | 0.754 |
| **Presence of insurance** | | |
| Yes | Ref | |
| No | 6.07(3.41 - 10.80) | **<0.001** |
| **Means of transport to health facility** | | |
| Personal vehicle | Ref | |
| Public transport | 3.68(1.31 - 10.32) | **0.013** |
| Walking | 4.0(1.80 - 8.77) | **0.001** |
| **Women discourage ANC attendance** | | |
| Yes | 3.72(1.63 - 8.49) | **0.002** |
| No | Ref | |
| **Used Traditional birth attendant previously** | | |
| Yes | 13.13(6.81 - 25.29) | **<0.001** |
| No | Ref | |

# CHAPTER 5: DISCUSSIONS

This chapter provides a detailed discussion of the results in relation to previous literature on antenatal care services utilization and underlying barriers and facilitators.

## 5.1 Utilization of ANC Among Women Aged 15–49 years in Garowe, Nugaal, Somalia.

ANC utilization in Somalia is one of the fundamental health issues in Somalia that has been under-reported prompting a greater commitment to understand the current level of commitment and focus. The findings from the current study revealed that more than two thirds of the respondents had at least one ANC visit with slightly more than a third attending four visits and twelve percent attending more than four visits. These findings align with those from a study conducted in Mandera, Kenya, which revealed that 83 percent of the women had utilized ANC although 60.3% attained the recommended visits (Adow et al., 2020).

These findings, however, were lower compared to those from a study conducted in Western Kenya which revealed that 97% of the women had attended at least one ANC visit (Ikamari, 2020). These present findings were also inconsistent with a study in Pastoral Somali Community in Ethiopia which found that 27% attended ANC (Umer et al., 2020).

Further, a population-based study in Borama, Somali region found that among those who had attended ANC approximately 31 percent of them had started during their first trimester and almost half of them attended less than the required four ANC visits (Mouhoumed & Mehmet, 2021).

The difference and improved ANC utilization in Somalia based on the present findings is mainly based on improved healthcare awareness. ANC is a vital aspect of maternal healthcare, as it ensures the well-being of both mother and child during pregnancy. The rise in ANC utilization in Somalia can be attributed to a combination of factors, ranging from improved healthcare infrastructure to awareness campaigns and the dedication of healthcare professionals.

The present study showed that almost half of the respondents had attended the maximum of recommended ANC visits. These findings are also comparable to those from a study in Ethiopia which found that less than half of the respondents had attended at least four ANC visits with two thirds had used ANC less than three times during their pregnancy period (Fenta et al., 2021).

The increasing ANC utilization in Somalia is a promising sign of progress in maternal healthcare. Improved healthcare infrastructure, awareness campaigns, community outreach programs, skilled healthcare professionals, government initiatives, and partnerships with international organizations have all played vital roles in this positive development. However, it is crucial to continue these efforts and implement evidence-based strategies to sustain and further improve maternal and child health outcomes in the country. By prioritizing maternal health and ensuring equitable access to ANC services, Somalia can continue its journey towards a healthier and more prosperous future for its mothers and children.

The findings from this study have highlighted the need to improve on ANC utilization among women with reproductive age. ANC utilization has been associated with many benefits. Antenatal care (ANC) is a crucial component of maternal healthcare, aimed

at ensuring the well-being of both the mother and the unborn child (Mwebesa et al., 2022).

The utilization of ANC services among women aged 15–49 years has shown numerous advantages, contributing to improved maternal and child health outcomes. ANC provides a platform for the early detection and management of complications during pregnancy. Regular check-ups enable healthcare professionals to identify potential issues such as gestational diabetes, hypertension, or infections promptly. Early detection allows for timely interventions, reducing the risk of complications and ensuring appropriate medical care (Kota et al., 2023). This proactive approach significantly contributes to positive maternal and fatal outcomes.

ANC visits offer an opportunity for healthcare providers to educate pregnant women about healthy behaviours, nutrition, and lifestyle choices. This education empowers women to make informed decisions that positively impact their well-being and that of their unborn child. By promoting healthy behaviours, ANC contributes to the prevention of complications and fosters a supportive environment for a healthy pregnancy.

The continuous utilization of ANC services is associated with a significant reduction in maternal mortality rates. Regular monitoring of maternal health allows for the timely identification and management of conditions that could lead to severe complications or fatalities. ANC facilitates access to skilled healthcare professionals, reducing the likelihood of unattended births and ensuring that complications are addressed promptly (Sserwanja et al., 2021).

ANC visits involve discussions on birth preparedness and complication readiness. Women are educated on signs of labour, potential complications, and the importance of having a skilled birth attendant (Sserwanja et al., 2021).

This preparation enhances the likelihood of a safe and successful delivery, reducing the risk of emergency situations and ensuring that women are well-equipped to handle any unexpected challenges. ANC provides emotional and psychological support to pregnant women. The opportunity to discuss concerns, fears, and expectations with healthcare providers can alleviate anxiety and stress associated with pregnancy. Improved psychological well-being positively influences overall maternal health, potentially reducing the risk of complications related to stress and mental health issues.

ANC visits often incorporate discussions about family planning, providing an opportunity for women to make informed choices regarding their reproductive health. The integration of family planning services into ANC contributes to improved spacing of pregnancies, allowing women to recover adequately between pregnancies and promoting the overall health of both mothers and infants.

ANC utilization not only benefits individual women but also plays a role in community health. Women attending ANC become advocates for maternal health within their communities, sharing knowledge and encouraging others to seek healthcare during pregnancy. Increased community awareness contributes to a positive societal shift, emphasizing the importance of ANC and maternal health as a collective responsibility.

The utilization of ANC among women aged 15–49 years emerges as a cornerstone in promoting maternal and child health. Through early detection of complications, the promotion of healthy behaviours, and the reduction of maternal mortality rates, ANC plays a pivotal role in ensuring safe pregnancies and positive birth outcomes (Yaya &

Ghose, 2019). Continuous ANC utilization not only benefits individual women but also contributes to community awareness, creating a ripple effect of improved maternal and child health practices. As we strive for comprehensive healthcare, prioritizing and enhancing ANC services remains integral to fostering a healthier future for mothers and their children.

### 5.2 Demographic Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia

The present findings established that those who were divorced/ separated were more likely to have low ANC utilization. These findings align with those from Pell et al. (2013) who affirmed that patients who were married were more likely to utilize ANC. Another cross-sectional study in Nakuru, Kenya established that there was significant association between marital status and ANC utilization although in their study, there was 3.64 times increase in the likelihood of FANC for women who were separated from their partners Similarly, another study in Ethiopia showed higher association of marital status with utilization of ANC (Belay et al., 2022). Married women often benefit from shared economic resources and financial stability within a household. This financial security can reduce barriers to accessing ANC services, such as transportation costs, medical fees, and the cost of prescribed medications. A study done in Rwanda also revealed that poor ANC utilization was higher among single women compared to those who were married (Rurangirwa et al., 2017).

Marital status can be a significant determinant of ANC utilization, but it is important to recognize that individual circumstances and cultural contexts also play crucial roles.

Antenatal care (ANC) is a critical component of maternal healthcare, aimed at ensuring the well-being of both the mother and the unborn child. While ANC is widely

recognized as beneficial, research suggests that women who are divorced or separated are more likely to have low ANC utilization. There are varied factors that could explain this relationship. This includes economic constraints, lack of social support, psychological stress, limited access to information, stigma and discrimination and logistical challenges.

Women who are divorced or separated often face economic challenges, as they may be the sole providers for themselves and their children. Economic constraints can hinder their ability to access healthcare services, including ANC. Addressing economic barriers by providing financial assistance or subsidized healthcare services can positively impact ANC utilization among divorced or separated women, ensuring that financial constraints do not compromise maternal and fatal health.

Divorced or separated women may experience a lack of social support, which is crucial during pregnancy. The absence of a partner or extended family support system can result in feelings of isolation, making it less likely for these women to seek ANC. Implementing support programs, such as community groups or counselling services, can help alleviate feelings of isolation and encourage divorced or separated women to engage in ANC, fostering a sense of community and well-being (Amjad et al., 2018).

The emotional toll of divorce or separation can contribute to increased stress levels among women, potentially leading to neglect of their own health, including ANC attendance. Integrating mental health support within ANC services can address psychological stressors, ensuring that women receive holistic care that addresses both physical and mental well-being.

Divorced or separated women may have limited access to information about the importance of ANC and the available services. Lack of awareness about the benefits of

ANC can result in delayed or inadequate prenatal care. Launching targeted educational campaigns to disseminate information about the significance of ANC and its positive impact on maternal and child health can bridge the knowledge gap and encourage these women to prioritize their health during pregnancy (Atuhaire et al., 2020).

Juggling responsibilities as single parents or managing the aftermath of a divorce can present logistical challenges, making it difficult for women to attend ANC appointments regularly. Implementing flexible ANC schedules, providing childcare support during appointments, and establishing mobile ANC clinics can address logistical challenges, making it easier for divorced or separated women to access the care they need.

Societal stigma surrounding divorce or separation may contribute to feelings of shame or embarrassment, deterring women from seeking healthcare, including ANC. Creating a supportive and non-judgmental healthcare environment is crucial. Healthcare providers should be trained to offer compassionate care, recognizing and addressing any stigma or discrimination that may act as a barrier to ANC utilization.

While the benefits of ANC are well-established, it is crucial to recognize and address the challenges that divorced or separated women face in utilizing these services. By understanding the economic, social, and psychological factors that contribute to low ANC utilization among this demographic, we can implement targeted interventions to ensure that every woman, regardless of marital status, has access to comprehensive maternal healthcare. By addressing these challenges, we can contribute to a more inclusive and effective healthcare system that prioritizes the well-being of all pregnant women, fostering healthier outcomes for both mothers and their children (Sserwanja et al., 2021).

Addressing barriers to ANC utilization for all women, regardless of marital status, is essential to ensure improved maternal and child health outcomes. Healthcare systems and policymakers must work towards creating inclusive and accessible ANC services that consider and accommodate the diverse needs of women from various marital statuses (Sarker et al., 2018). By doing so, countries can promote equitable healthcare access and enhance maternal and child health overall.

The emotional, financial, and social support provided within a marital relationship can remove some of the barriers that unmarried or single pregnant women may face when seeking ANC services. Recognizing the positive association between marital status and ANC utilization, healthcare systems and policymakers should consider the diverse needs of pregnant women, providing additional support and resources for those who may lack the advantages of marriage. By ensuring that all expectant mothers have access to comprehensive ANC services, we can promote healthier pregnancies and better maternal and child health outcomes for all.

### 5.3 Economic Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia

The current study also established that those who were unemployed were more likely to have low ANC utilization compared to those who were employed. These findings are consistent with those from a systematic review including studies from Africa which established that employment status was a significant factor associated with ANC use (Okedo-Alex et al., 2019). Similarly, Alkaabi M.S. (2014) also affirmed that those who employed were more likely to utilize ANC. Employment status plays a multifaceted role in ANC utilization. Women with stable employment and access to healthcare benefits are more likely to seek and access ANC services due to financial security and

reduced barriers. On the other hand, women in precarious employment situations may face challenges related to financial constraints, work schedule, and social stigma, impacting their ANC utilization (Kota et al., 2023).

Unemployment often brings financial challenges, restricting access to healthcare services, including ANC. The cost associated with transportation, medical tests, and consultations may be perceived as burdensome, discouraging unemployed women from seeking regular prenatal care. Introducing financial assistance programs or subsidizing ANC services can alleviate economic barriers, ensuring that financial constraints do not impede access to essential maternal healthcare.

Unemployment can result in the loss of health insurance or limited access to healthcare facilities. The lack of insurance coverage may deter women from seeking ANC due to concerns about the associated costs. Expanding access to affordable healthcare, including ANC, through public health initiatives or community clinics, can mitigate the impact of unemployment on maternal healthcare access (Aregbeshola & Khan, 2019).

Unemployment is often associated with increased stress levels due to financial insecurity and uncertainty about the future. Elevated stress levels can impact a woman's overall well-being and may contribute to neglect of her own health, including ANC attendance. Integrating mental health support within ANC services can address psychological stressors, offering holistic care that recognizes and manages the emotional challenges associated with unemployment.

Unemployment can lead to a sense of isolation, as individuals may withdraw from social interactions due to feelings of shame or inadequacy. The absence of a support system may contribute to a reluctance to seek healthcare, including ANC. Implementing community-based support networks or partnering with social services to

connect unemployed women with support groups can help create a sense of community, fostering an environment where seeking ANC is encouraged and supported (Tripathi & Singh, 2015).

Unemployment can bring about logistical challenges, such as the lack of reliable transportation or the inability to take time off work for ANC appointments. These challenges may result in irregular attendance or missed appointments. Introducing mobile ANC clinics or telehealth services can address logistical barriers, making it more convenient for unemployed women to access regular prenatal care without the constraints of transportation or time off work.

Unemployment may be associated with lower educational attainment, leading to limited awareness about the importance of ANC. Lack of knowledge about the benefits of ANC and the potential risks associated with inadequate prenatal care can contribute to low utilization. Launching targeted educational campaigns in communities with high unemployment rates can raise awareness about the significance of ANC, emphasizing its positive impact on maternal and fatal health.

Governments and healthcare agencies can play a crucial role in addressing the link between unemployment and low ANC utilization by implementing policy interventions. Policies that focus on providing comprehensive healthcare coverage, especially for pregnant women, can significantly improve access to ANC services. Creating job training and placement programs that not only address unemployment but also consider the overall well-being of individuals, including access to healthcare, can contribute to a more supportive environment for pregnant women (Mwebesa et al., 2022).

Unemployment poses significant challenges to ANC utilization, impacting the well-being of both mothers and their unborn children. Recognizing the intricate relationship between unemployment and low ANC attendance is essential for implementing effective strategies to address these challenges. By considering financial constraints, limited access to healthcare, psychological stress, and educational barriers, among others, we can develop targeted interventions and policy measures that promote inclusivity and prioritize maternal health for unemployed women (Sarker et al., 2018).

Through continuous efforts and a holistic approach, we can bridge the gap in ANC utilization, ensuring that every woman, regardless of employment status, receives the necessary care for a healthy pregnancy and childbirth.

### 5.4 Health Facility Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia

Those who received services within 30 minutes were more likely to utilize ANC. The correlation observed may indicate that delays in service provision could be a barrier to ANC utilization. Quick and efficient services might contribute to improved attendance at ANC appointments. Early detection and management of pregnancy-related issues can significantly improve maternal and fatal health outcomes.

The present study also affirmed that those who walked to health facilities were less likely to utilize ANC. While proximity to health facilities is essential for ANC utilization, the mode of transportation to reach these facilities also plays a significant role in determining whether pregnant women will seek and utilize ANC services. Women who have to walk long distances to reach health facilities may face physical barriers that discourage them from seeking ANC. Walking long distances, especially during pregnancy, can be tiring and physically challenging, making it less likely for

some pregnant women to prioritize ANC visits (Finlayson & Downe, 2013). In addition, pregnant women who walk to health facilities may lack social support from family or community members (Sserwanja et al., 2021).

Positive social support can encourage and motivate pregnant women to seek ANC services. Living far away from healthcare facilities can result in delayed initiation of ANC, potentially hindering the timely detection and management of complications. Regular ANC visits facilitate the identification of risk factors and complications early in pregnancy. Implementing outreach programs, mobile clinics, or telehealth services can help overcome geographical barriers, ensuring that pregnant women receive timely care regardless of their distance from healthcare facilities.

Distance-related challenges often contribute to lower ANC utilization, increasing the risk of maternal mortality. Timely access to healthcare during pregnancy is crucial for preventing and managing complications, thereby reducing maternal mortality rates. Introducing community-based ANC services or establishing satellite clinics in remote areas can contribute to a significant reduction in maternal mortality rates by making comprehensive prenatal care more accessible to women living far from healthcare facilities.

The distance between residences and healthcare facilities can lead to irregular ANC attendance, as women may find it challenging to make the journey regularly. Consistent ANC attendance is vital for monitoring the progress of the pregnancy and ensuring that any emerging issues are addressed promptly. Creating awareness campaigns emphasizing the importance of consistent ANC attendance, coupled with providing transportation support or local ANC services, can encourage women to overcome geographical barriers and prioritize regular prenatal care (Tsegay et al., 2013).

Overcoming geographical barriers requires community engagement and empowerment. Encouraging community involvement in the planning and implementation of ANC services fosters a sense of ownership and responsibility, leading to improved utilization. Establishing community health workers or local advocates who can provide information, support, and assistance in accessing ANC services can bridge the gap between healthcare facilities and women living in remote areas.

Access to ANC significantly contributes to improved pregnancy outcomes. Women who receive regular prenatal care are more likely to have healthier pregnancies, reduced complications, and better birth outcomes. By addressing geographical barriers through innovative solutions, such as mobile clinics or telehealth, we can enhance pregnancy outcomes for women in remote areas, ensuring that they have the same opportunities for positive maternal and fatal health as those living closer to healthcare facilities (Sserwanja et al., 2021).

The benefits of ANC extend beyond maternal health, impacting neonatal outcomes as well. Timely detection and management of maternal complications contribute to a healthier intrauterine environment, reducing the risk of neonatal mortality. Initiatives such as community-based ANC services or the use of telehealth technologies can play a pivotal role in addressing geographical barriers, leading to improved neonatal outcomes for women living far away from healthcare facilities.

Overcoming geographical barriers doesn't always necessitate building new healthcare facilities. Cost-effective solutions, such as mobile clinics or leveraging existing community infrastructure, can be implemented to bring ANC services closer to women in remote areas. By exploring innovative and sustainable approaches, we can create a

healthcare system that maximizes resources and efficiently addresses the needs of women living far away from traditional healthcare facilities (Yaya & Ghose, 2019).

Geographical barriers to ANC utilization pose significant challenges to maternal and fatal health. However, by recognizing the continuous pros associated with overcoming these barriers, we can develop targeted interventions and innovative solutions. Timely detection and management of complications, reductions in maternal and neonatal mortality, promotion of consistent ANC attendance, community empowerment, and cost-effective strategies are among the many benefits of addressing geographical barriers. Through collaborative efforts and a commitment to accessibility, we can ensure that all pregnant women, regardless of their location, have equal access to the essential care they need for a healthy pregnancy and childbirth.

### 5.5 Cultural Factors Associated with Antenatal Care Utilization Among Women Aged 15–49 years in Garowe, Nugaal, Somalia

The present study also established that discouraging ANC among women, and having history of using traditional birth attendants were key cultural factors associated with low ANC utilization. Further assessment established that the key barriers included mistrust in the health system, lack of support, cultural norms, and timing of the ANC services. These findings are comparable to those from (Adow et al., 2020). in Mandera which established those strong cultural beliefs are more likely to have negative implications on ANC attendance especially considering the close-knit nature of the society which prompts the need to create a highly diversified emphasis on change in transforming change. Similarly, the findings from another study in Uganda also echoed similar ideology pertaining the influence of culture on ANC utilization. The findings

from their study showed that unaligned socio-cultural factors and lack of support from husband negatively influenced ANC utilization (Uldbjerg et al., 2020).

Culture plays a significant role in shaping the utilization of ANC services across the globe. Understanding these cultural influences is essential for healthcare providers, policymakers, and organizations working in maternal and child health. To improve ANC utilization, interventions should be culturally sensitive, respecting and incorporating local customs and beliefs while providing essential medical care. By bridging the gap between culture and healthcare, we can enhance the overall maternal and child health outcomes and promote safe pregnancies worldwide.

Similarly, another study done in Western Kenya revealed that culture was an underpinning issue in healthcare which presented a more effective understanding on change and the need to build a more enhanced focus on change. Women are greatly influenced by underlying cultural aspects which play an instrumental role in shaping their roles especially within a traditional setup (Mason et al., 2015).

In overcoming these barriers, there have been key enablers that have been identified which can help improve ANC utilization. Creation of awareness on the importance of ANC is fundamental in helping overcome most of existing barriers. The current study also revealed capacity building and enhancing familial support. A study conducted in Uganda also established similar findings which revealed that enhancing family support and awareness on the importance of ANC is crucial in improving the level of care (Uldbjerg et al., 2020).

Maternal health is deeply intertwined with cultural factors, shaping the perspectives and behaviours of women during pregnancy. Antenatal care (ANC) is a crucial element

of maternal healthcare and understanding the role of cultural factors in its utilization among women aged 15–49 years is essential.

In cultures that embrace and celebrate pregnancy, women may be more inclined to seek ANC as part of a collective acknowledgment of the importance of maternal well-being. Fostering a cultural environment that values and celebrates pregnancy can contribute to increased ANC utilization, ensuring that women feel supported and encouraged to prioritize their health during this crucial period.

Cultures that emphasize community support play a significant role in promoting ANC utilization. Extended families and communities often contribute to a positive environment that encourages pregnant women to seek healthcare. Leveraging community support through culturally sensitive programs and initiatives can enhance ANC utilization by creating a network that supports and promotes the importance of regular prenatal care (Kota et al., 2023).

Many cultures have traditional health practices related to pregnancy. Integrating these practices with modern medical care can create a holistic approach that resonates with women, bridging the gap between cultural beliefs and evidence-based healthcare. Collaborative efforts between healthcare providers and cultural practitioners can ensure that ANC services are culturally competent, accommodating traditional practices while prioritizing the well-being of both mothers and infants.

Culturally tailored health education materials and programs resonate more deeply with women. These initiatives can bridge potential gaps in understanding by aligning healthcare information with cultural beliefs and practices (Kifle et al., 2017).

Developing culturally sensitive educational materials, utilizing local languages, and incorporating cultural symbols can enhance communication and ensure that women receive information in a way that aligns with their cultural background.

Cultures may harbour stigmas or taboos related to pregnancy and healthcare seeking behaviour. Addressing these cultural barriers through open dialogue, education, and community engagement can contribute to increased ANC utilization (Mutowo et al., 2021). Culturally sensitive awareness campaigns that challenge and dispel myths, while respecting cultural norms, can encourage women to overcome stigma and prioritize their maternal health through regular ANC visits.

In cultures where family decisions hold great significance, involving family members in discussions about ANC can positively influence utilization. Joint decision-making processes ensure that the entire family recognizes and values the importance of prenatal care. ANC programs that actively involve partners and family members can create a supportive environment, fostering a collective commitment to maternal health within the cultural framework (Gage et al., 2016).

Cultural factors are influential in shaping the landscape of ANC utilization among women aged 15–49 years. Embracing the continuous pros associated with cultural factors can lead to innovative and effective strategies for promoting ANC within diverse cultural contexts. From celebrating pregnancy to integrating traditional practices, involving cultural authorities, and addressing stigmas, cultural factors play a pivotal role in nurturing maternal health. By recognizing and building upon these cultural strengths, we can create a healthcare landscape that is not only respectful of diverse traditions but also ensures that every woman receives the essential care needed for a healthy pregnancy and childbirth.

# CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

This chapter presents the conclusion, recommendations, and suggestions for further research. The conclusion and recommendations are provided arising from the study. Finally, the chapter provides suggestions for future research.

## 6.1. Conclusion

The utilization of ANC was low with 56.8% of the respondents having less than four ANC visits with 37.2% attending four visits and 12.6% of the respondents attending five visits or more.

Women who were separated/ divorced were more likely to have low ANC utilization while those with any form of formal education were less likely to have low ANC utilization.

Being unemployed and without insurance were associated with low ANC utilization among women with reproductive age.

Those who were using public transport and those who were walking were more likely to have low ANC utilization.

Discouraging ANC among women and having a history of using traditional birth attendants were key cultural factors associated with low ANC utilization. The barriers to ANC utilization included mistrust in the health system and providers, cultural norms, lack of support and timing of ANC services. The facilitators to ANC utilization included creating increased media awareness, encouraging familial support and capacity building to ensure health facilities are well equipped.

## 6.2. Recommendations

Based on the study findings, the following are recommended to improve ANC utilization in the study setting:

i. Raise awareness about the importance of ANC and optimize attendance based on the new WHO guidelines.
ii. The health facilities and respective healthcare providers should conduct health educational sessions to inform women and their families about the benefits of regular prenatal care for both the mother and the baby's health.
iii. Provide specialized training for healthcare providers in ANC services. Support and motivate healthcare workers to deliver quality care to pregnant women.
iv. Integrate ANC with other maternal and child health services, such as family planning, immunization, and postnatal care. This approach can improve overall health outcomes for mothers and children.

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## APPENDICES

### 1. Appendix I: Questionnaire

**Section A: Demographic characteristics**

1. Please indicate your Age (Specify)……
2. Please indicate your highest level of education

   None [ ] Primary [ ] Secondary [ ] Tertiary [ ]
3. What is your employment status?

   Employed [ ] Self employed [ ] Unemployed [ ]
4. How many children do you have?.....
5. Are you aware of any services offered during pregnancy?

   Yes [ ] No [ ]

**Section B: Antenatal care visit**

6. How did you hear about Antenatal Care Services? Through friends and relatives

   During a visit to health institution [ ]

   Through the media –TV, Radio [ ]

   Social media [ ]

   Any other, specify…….
7. Have you ever attended ANC?

   Yes [ ] No [ ]

   When did you visit ANC for the first time?

   1st Trimester (1-3 months) [ ]

   2nd Trimester (4-6 months)[ ]

   3rd Trimester (7-9 months) [ ]

   Never [ ]

8. If yes, How many visits did you have? (specific).....

9. If no, What are the reasons?.....

**Section C: Health facility factors**

10. Are ANC facilities available near you?

    Yes [ ] No [ ]

11. Are healthcare providers readily available in the facilities for ANC

    Yes [ ] No [ ]

12. What is approximately distance to health facility

    Less than 1km [ ]

    1 – 5 km [ ]

    6 – 10 [ ]

    >10Km [ ]

13. How long do you take to travel to a health facility?

    Less than 30 minutes [ ]

    30 – 1 hour [ ]

    More than 1 hour [ ]

14. What is your means of transport to the health facility

    Walking [ ]

    PSV [ ]

    Personal vehicle [ ]

**Section D: Barriers and facilitators**

The following questions are about the perceptions, feelings, attitudes you have on the use of antenatal services.

Do people in your locality discourage women from attending clinics during pregnancy

Strongly agree [ ] Agree [ ] Not sure [ ] Disagree [ ] Strongly Disagree

Ever witnessed anybody attend antenatal care

Strongly agree [ ] Agree [ ] Not sure [ ] Disagree [ ] Strongly Disagree

My religion does not allow me to attend ANC

Strongly agree [ ] Agree [ ] Not sure [ ] Disagree [ ] Strongly Disagree

People are discriminated when they attend ANC

Strongly agree [ ] Agree [ ] Not sure [ ] Disagree [ ] Strongly Disagree

ANC is for those who are privileged

Strongly agree [ ] Agree [ ] Not sure [ ] Disagree [ ] Strongly Disagree

Do you know of any health, psychological or social problems associated with antenatal care services?

Strongly agree [ ] Agree [ ] Not sure [ ] Disagree [ ] Strongly Disagree

## 2. Appendix II: Key Informant Interview guide

1. What is the uptake of ANC in your region?
2. Do you think ANC Uptake is at required levels?
3. What are barriers to ANC uptake ?
4. What are the facilitators to ANC uptake ?
5. Describe the effect of culture on ANC?

## 3. Appendix III: Ethical approval

DAWLADDA PUNTLAND
EE SOOMAALIYA

حكومة ولاية بونت لاند
الصومالية

WASAARAODA CAAFIMAADKA
Xafiiska Agaasimaha Guud

Puntland Government of Somalia
Office of the Director General

وزارة الصحة

Ref: MOH/PL/DGO/016812022 Date: Nov 10", 2022

ETHICAL APPROVAL

Tliis is to cortif› that the proposal subinittetl by

Piñncipal Investigator

Name of researcher responsible for project: Abdulla hi Alarmed Ali

lteference No:

MOH/PL/DGO/0168/202Z

Full Project Title:

FACTORS **IhF LUE** NCI NG **UTILIZATION OF ANTENATAL CARE** SER4'ICES AMONG WOMEN 15-49 YEARS IN G-4RO¥¥U, NUGAAL REGION. SOAIALL4.

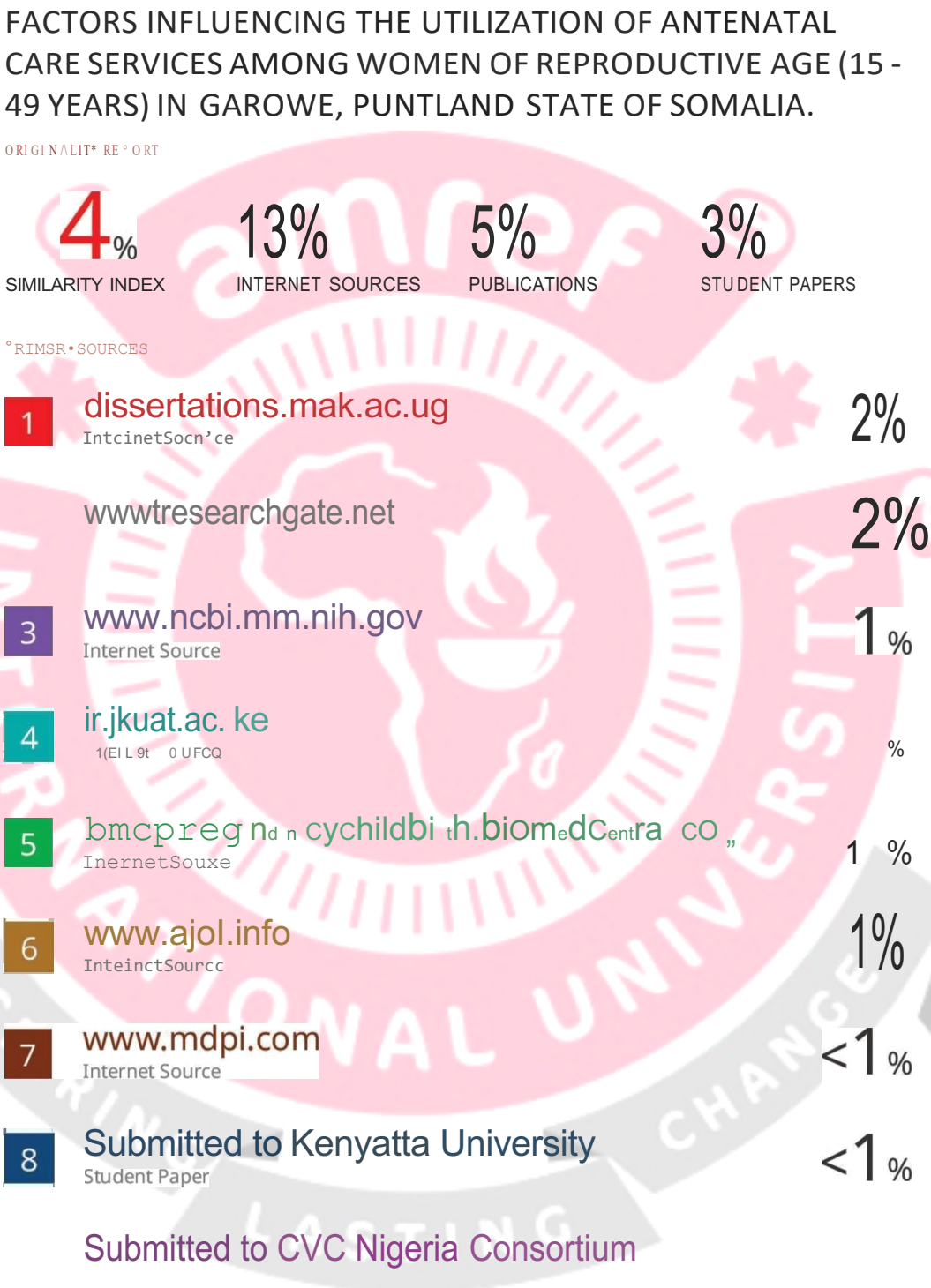
**Starting Date:** December 2022 **l'inishing Date:** Play 2023

For the prop osecl period of research has been approved by the Research & ethics committee at the Puntland ministry of Health on the Novembp r 10'". 2022.

Dr. Abdirizak Hersi Hassan
**Director** General Ministry of Health
Puntland State of Somalia

Minisln of Health, Puntlan0 state of Somalia, Garo e. Email:dg.moh'•i ɒ1statc so
Mobile: +2fi2-90-7 7tl3333

## 4. Appendix IV: Similarity Report



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## 5. Appendix V: Evidence of Publication

Ali, A. A., Muhonja, F. & Ajayi, A. I. (2025). Factors Influencing the Utilisation of Antenatal Care Services among Women of Reproductive Age (15 – 49 Years) in Garowe, Puntland State of Somalia. *East African Journal of Health and Science*, *8*(1), 424-438. https://doi.org/10.37284/eajhs.8.1.2988.