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ON

**Perceptions of postnatal mothers about enablers of and barriers to early antenatal care
initiation and contact times at Salima District Hospital**

BY

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Declaration

I Sylvia Kumatso declare that this thesis titled “*Perceptions of postnatal mothers about enablers of and barriers to early antenatal care initiation and contact times at Salima District Hospital: A mixed method*” is my original work and it has never been presented for an award at any University either within or outside Malawi or Africa.

Acknowledgement

Heartfelt gratitude should go to Almighty God, the source of wisdom and everything. It would have been impossible for me to develop this document if it were not for Him. I also acknowledge more sincerely Dr. F. Mpasa and Mrs. F. Lungu, my Research Supervisors from Mzuzu University, for tirelessly supporting me throughout the entire period of developing my research proposal to this terminal stage. To be honest, a lot has been learnt. Special thanks should go to the Director of Health Services and the entire Health Research Coordinating Committee including staff from Khombedza health center and postnatal ward at Salima District for offering a conducive setting for my pilot and actual study. Associate Prof Bvumbwe and your colleague Prof Mbakaya, you are also much appreciated for the timely support rendered to me during my thesis development. May the good Lord bless them all abundantly.

Dedication

This thesis is dedicated to my dear husband, Joseph and my two children, Precious and Nokuthula for their perseverance and continuous support throughout the period of my studies. You are indeed my “Partners in development” and May God richly bless them all.

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List of Abbreviations

ANC: Antenatal care

CHAM: Christian Health Association of Malawi

DHS: Demographic Health Survey

HMIS: Health Management Information System

ITN: Insecticide Treated Nets

MoH: Ministry of Health

MPHC: Malawi Population and Housing Census

MZUNIREC: Mzuzu University Research Ethics Committee

NSO: National Statistical Office

PMTCT: Prevention of Mother To Child Transmission

SDG: Sustainable Development Goals

SPSS: Statistical Package for Social Sciences

TBA: Traditional Birth Attendants

WHO: World Health Organization

Definition of terms

Perception: Perception is defined as the way in which something is regarded, understood or interpreted (Simpson and Weinor, 2021).

Antenatal care contact: a more active connection between ANC clients and their healthcare Providers (WHO, 2016).

Early antenatal care initiation: defined as the first antenatal care contact occurring within the first trimester of pregnancy (WHO, 2016).

Antenatal care booking: First antenatal care contact in which health education, checking vital signs including weight and height, collection of detailed history (WHO, 2018).

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Abstract

Delayed access and underutilization of antenatal care still remain a big challenge in sub Saharan Africa, including Malawi. The World Health Organization's (WHO's) new antenatal care (ANC) model recommends early initiation of antenatal care and attainment of a minimum of eight contacts for positive pregnancy experience and reduction of perinatal deaths. Salima District Hospital started implementing this new antenatal care model in 2019 following the national launch. However, most pregnant women continue to delay and underutilize the antenatal services. This has been associated with the perception of individuals towards enablers and barriers for early antenatal care initiation and contact times. However, this area has not been studied much in Malawi. This study explored the perceptions of postnatal mothers about enablers of and barriers for early antenatal care initiation and contact times at Salima District Hospital. A mixed method study approach employing a convergent design were used. Quantitative data were collected using a questionnaire from 68 participants sampled randomly while 12 other participants were purposively sampled for focus group discussions having consented to participate in the study. An ethical approval was sought from Mzuzu University Research and Ethical Committee gave the study the approval number Ref No: MZUNIREC/DOR/23/20 and a permission letter from the Director of Health and Social Services in Salima through Salima District Health Research Committee was granted Ref No: SA/DHO/RES/2023/19 prior to data collection. All data collection tools and the data collected were stored safely for privacy and confidentiality. Quantitative data were analyzed using Statistical Package for Social Sciences (SPSS), whereby descriptive and inferential statistics were run. Percentages were used to summarize the nominal (categorical) data presented as Yes or No responses. Mean scores and standard deviation (SD) were calculated for all interval data such as age, number of pregnancies, months at commencement of ANC and the number of ANC contacts. Then, Cross tabulations were used to associate between some variables such as, parity, place of residence, knowledge of month for starting ANC versus the actual month they started ANC. The chi-square test with the p value of 0.05 was used to find any significance of this association. The p-values of 0.05 or less was considered statistically significant.

The results for the current quantitative study established that majority of women perceived the first trimester as the recommended time for initiating ANC despite their delay in booking. Regarding

perceived enablers for early ANC initiation and contact times, the study revealed that previous complications and frequent schedules were the only statistically significant enablers associated with early ANC initiation and attainment of more contacts, p value 0.021 and 0.001 respectively. The study further demonstrated that lack of knowledge regarding the recommended time for initiating ANC, unplanned pregnancy and individual decision were statistically significant barriers associated with early initiation and utilization of ANC, p value 0.020, 0.033 and 0.000 respectively.

On the other hand, qualitative data were analysed using thematic analysis. The study revealed the following key emerged themes used as a basis to explain the perceived enablers and barriers for early ANC initiation and contact times: acknowledging ideal time and benefits of early ANC initiation, knowledge deficit about ideal number of ANC contacts to be attained, traditional beliefs, health care workers' attitudes, protection of self and unborn baby, poor socioeconomic status, hospital system, individual negligence and unplanned pregnancy.

Results dissemination will be through presentations at the hospital setting and national conference, submission of report to Mzuzu University Research and Publications committee and also publication through credible peer reviewed journal publication.

The major limitations observed for this study was small sample size and only participants who had ever accessed their ANC services at Salima district hospital were included which would interfere with generalization of the results.

1.0 INTRODUCTION

The route to safe motherhood is so precious but risky time for women, unborn babies and their families, especially when associated with individual perceptions. A healthy prenatal period for both the mother and the unborn baby, a smooth transition to uncomplicated labour and delivery experience, and successful parenthood are all areas of a positive pregnancy experience required by almost each and every women (Tolossa, Feyissa and Kassa, 2020). Some women have ended up having complications and even dying due to issues surrounding pregnancy, child birth and beyond. As such, maternal mortality still stands as a public concern, both, globally and nationally. Several efforts have been employed to mitigate this condition, but with minimal impact, and antenatal care (ANC) is a critical lifeline that has proven to enable women assume healthy pregnancy, birth and beyond. Ali et al. (2020), defined antenatal care as the care provided by skilled healthcare professionals to pregnant women and adolescent girls throughout their pregnancy. This care is supposed to be provided by skilled attendants. Skilled attendant is a healthcare professional with necessary training, skills, and expertise to manage normal pregnancies, deliveries and postpartum care, and also detect and respond to complications (Damian et al., 2020). For Example, Obstetrician, Midwife, Nurse-midwife and Clinical Officers and Technicians. These skilled attendants provide antenatal care as follows: health education on different health topics including birth preparedness, screening for risk factors, abnormalities and complications and then receive appropriate care, ongoing assessment and care, and administration of tetanus diphtheria vaccine, anthelmintic- a prophylactic treatment for intestinal worms, intermittent presumptive treatment of malaria, Prevention of Mother to Child Transmission (PMTCT) of Human Immunodeficiency Virus (HIV), hepatitis B and C and iron supplementation (Jiee, Safii and Hazmi, 2018; Katz and Puett, 2019; Redi et al., 2022). Pregnant women are exposed to health education on danger signs and birth preparedness; hence promoting health facility deliveries with a skilled attendant (Mgata and Maluka 2019). Women who are well equipped with health information are able to make individual decisions regarding their health. In addition, early detection of potential pregnancy risk factors by skilled health attendant may enable them employ prompt measures to prevent them from impacting negatively on the women and the unborn baby. The acquired knowledge during this period is not used only during pregnancy but throughout the perinatal period. The timing of ANC initiation and the number of contact times are prerequisites in determining the quality of care and

outcomes for mothers and their babies. Despite that, a majority of women, particularly those in low-resource settings, miss out on this essential care due to multiple barriers.

In November, 2016, the World Health Organization (WHO) released the comprehensive recommendations on antenatal care, prioritising person-centered care and well-being including the prevention of morbidity and mortality for a positive pregnancy experience (WHO, 2019). The WHO recommends that antenatal care should be initiated within the first 12 weeks of gestation and considers “late initiation” when it has been initiated after these first three months (WHO, 2019). First trimester ANC contact is very crucial for the early detection, prevention and treatment of pregnancy-related problems and concurrent diseases. In addition, it also establishes effective communication and provides timely information to pregnant women and their companions, offering emotional and psychological support (Van den Broek, 2022). This may promote timely intervention of the problems to prevent them from affecting the fetus. The shift from four targeted ANC visits to a minimum of eight contacts highlights the critical need for further targeting women who delay in initiating ANC, and who are less likely to attain the new recommended threshold for a positive pregnancy experience. Recent evidence has demonstrated that eight or more ANC contacts can reduce perinatal deaths by 8 per 1000 births in comparison with four visits (WHO, 2016).

Timely initiation of ANC contacts also serves as a gateway for risk identification and early diagnosis of pregnancy-related complications such as premature birth, still birth and increased maternal hypertensive disorders during pregnancy, childbirth and puerperium (Woldeamanuel and Belachew, 2021). Furthermore, studies have shown that early antenatal care initiation can promote achievement of more ANC contacts and the required content of antenatal care service (Ekholuenetale, 2021). Therefore, promotion of early ANC attendance would also help in the achievement of the recommended ANC contacts.

Inadequate antenatal care utilization such as either late initiation or low frequency of ANC contacts prevent the clients from accessing such comprehensive antenatal care. Based on the revealed evidence, these problems result from the way the clients perceive the antenatal service (Warri and

George, 2020). In this regard, pregnant women who consider antenatal care service as important to them (both self and the fetus) comply with the recommendations, keep follow up appointments and continue utilizing the services without problems than those who conceptualize it as not much important to them. Reasons associated with this delayed ANC initiation may include pregnancy wantedness, perceptions on the need to start ANC early, financial challenges, distance to the nearest health facility, cultural and religious beliefs around disclosure of pregnancy signs, lack of knowledge regarding signs and symptoms of pregnancy, antenatal care schedules and reception of quality care (Warri and George, 2020).

Understanding the perceptions of pregnant women regarding antenatal care, healthcare providers and policy makers can design targeted interventions that may help in addressing challenges that may interfere with adherence to the WHO ANC recommendations, thereby promoting ANC utilization, and then ultimately minimize risks of maternal and neonatal morbidity and mortality.

However, in Malawi, evidence has demonstrated that ANC attendance in first trimester and attainment of 4 plus ANC contacts are at 28% and 51%, respectively with only 1% attaining at least 8 contacts (National Statistical Office [NSO], 2021); Palamuleni, 2024). In another report by the District Health Information Software 2 (DHIS 2), ANC attendance in the first trimester and four plus visits were at 17% and 31%, respectively (DHIS 2, 2020/2021). These district health office' indicator performances were slightly higher than that of Salima District Hospital where the study was conducted which were at 12% and 30 % respectively. This has been the performance despite having free ANC services in both Christian Health Association of Malawi (CHAM) and government health facilities, orienting some midwives on the 2016 WHO antenatal care guidelines and conducting ANC outreach clinics in some hard to reach areas. However, to date, it is not well known if there has been any study conducted in Salima to explore the reasons for delaying and underutilizing the ANC services. Therefore, this study sought to explore the postnatal mothers' perceptions about the enablers of and barriers for adhering to the recommended timing for initiating antenatal care and the WHO recommended number of antenatal care contacts at Salima District Hospital.

1.1 BACKGROUND

Globally, the number of women dying from pregnancy and childbirth-related causes or complications has reduced, but still remains high, particularly in low and middle-income countries (LMICs). Approximately 287 million women died from pregnancy, childbirth or postpartum-related complications in 2020, equivalent to 223 Maternal Deaths (MDs) per 100,000 live births. According to the WHO, sub-Saharan Africa (SSA) alone accounted for about 70% of the global MDs in 2020 (WHO, 2023). At least 2.4 million newborns die prior to the attainment of their first 28 days of life each year, with the majority dying due to prematurity (WHO, 2019). The United Nations' (UN) Global strategy for women's, Children's, and Adolescent's Health (2016-2030) prioritises maternal health, with an ambitious mortality decrease in maternal and neonatal deaths as indicated in the Sustainable Development Goal (SDG) number 3, target 3.1 call for a global reduction of this maternal and neonatal mortality to 70 or below per 100,000 live births and 12 per 1000 live births, respectively and also ensuring universal access to Sexual and Reproductive Healthcare services by 2030 (WHO, 2019). In addition, Malawi continues to experience unacceptably increased levels of maternal mortality, with a recently estimated Maternal Mortality Ratio (MMR) of 349 per 100,000 live births (NSO, 2021) despite a significant increase in deliveries by skilled birth attendant to 96% in recent years. This situation calls for an adoption of several strategies to reduce the mortality ratios. Some of these strategies are: improved access and utilization of antenatal care services, increasing the percentage of deliveries by skilled personnel and provision of relevant postnatal care to both mothers and their babies (Haruna, Dandeebo and Galaa, 2019).

In respect to the increased occurrence of preventable pregnancy-related deaths, and in line with the SDG target of global reduction in mortality rate, the WHO released new ANC guidelines and recommendations in 2016 for a positive pregnancy experience (WHO, 2018). The new guideline recommended a shift from the focused antenatal care (FANC) model of four targeted ANC visits developed in 1900s to eight contacts or more, based on the new evidence that fewer ANC visits were associated with more perinatal deaths. Despite the WHO recommendations, international and national evidence have demonstrated that most of the women still underutilize antenatal care services (Maharaj and Mohammadnezhad, 2022; Ng'ambi et al., 2022).

The World Health Organization Universal Health Coverage (UHC) was brought to help address inequality in access and utilization of healthcare services (Lozano et al., 2020). This was geared towards promoting maternal and child healthcare through the elimination of barriers that limit accessibility and affordability of services among the disadvantaged and vulnerable population (Darrudi et al., 2022). The UHC sorts to give healthcare access to the most-at-risk and vulnerable population such as the pregnant women. This resulted from the large evidence of socioeconomic inequality in the utilization of healthcare services (WHO, 2018). The need for ANC services is important to everyone as it presents the expectant mothers an opportunity to uptake proper care. In addition, it helps in early detection of danger signs and health promotions

Cross-sectional surveys, Demographic and Health Survey (DHS) data analyses and in-depth interviews have demonstrated a strong link between clients' perceptions of care and utilization (Islam and Masud, 2018; Warri and George, 2020; Odusina et al., 2021). In these studies, pregnant women placed a low value on early antenatal care because they perceived pregnancy to be a normal health condition not a serious issue that could require seeking health care. In addition, long waiting time, unfriendliness of some health care workers made them not to be motivated to effectively utilize the antenatal care.

Evidence has also demonstrated a strong link between women's perception about the recommended number of ANC contacts and attainment of 8 or more contacts (Ekholuenetale et al., 2020). This perception may result from exposure to educational materials, listening to news, watching television, reading newspapers and passing through a formal education. In this regard, having these exposures may promote women's awareness about the importance of adhering to the recommended minimum number of ANC contacts (8 contacts) for positive pregnancy experience (Ekholuenetale et al., 2020).

A study conducted in Fiji on perception of pregnant women towards early ANC contact revealed that 76% of the women had correct information about the ideal time for starting ANC (Maharaj and Mohammadnezhad, 2022). However, all of them had booked after the first trimester because their understanding of early booking ranged from one to six months of pregnancy.

In Malawi, it is not well known whether there has been a study conducted to assess the perceptions of postnatal mothers towards enablers and barriers for early initiation and number of antenatal care contacts. One study which explored the perception on acceptability of the new WHO ANC model by the pregnant women established that the Model was well accepted as women felt it would help in reducing maternal and neonatal death rate, however, they perceived the number of visits as tiresome and costly (Nyumwa, Bula, and Nyondo-Mipando, 2022). Furthermore, the adapted new WHO ANC guidelines were launched at national level in 2019 for the district councils to disseminate them further to their districts (Ministry of Health (MoH), 2019). Salima district hospital started implementing the guidelines towards the end of 2019 after orienting the staff members who were working in the Maternal and Child Health (MCH) department.

According to Salima DHIS 2 (2020/2021), the 2016 WHO ANC model has not yet impacted much on the performance of antenatal care initiation in the first trimester and the number of antenatal care contacts. In this period, out of 19051 pregnant women registered for an initial antenatal care contact, 3201 of them started in the first trimester, representing 17 percent. In addition to that, out of 19734 pregnant women who booked in that cohort, 6123 of them had four plus antenatal care contacts representing 31 percent. Furthermore, out of 4259 pregnant women who started ANC at Salima District Hospital, 537 started in the first trimester representing 12.6%. Moreover, out of 4758 pregnant women booked in that cohort from Salima District Hospital, 1413 had four plus ANC contacts representing 30%. This performance is far much below the national which are 28% and 51%, respectively with only 1% attaining at least 8 contacts (NSO, 2021). This has been the performance despite having free ANC services in both CHAM and government facilities, orienting some midwives on the new WHO antenatal care recommendations and conducting ANC outreach clinics in some hard to reach areas. However, to date, it is not well known if any study has been conducted in Salima to explore the reasons for delayed initiation and underutilization of ANC services. Therefore, this study sought to assess the postnatal mothers' perceptions about enablers of and barriers for adhering to the recommended new WHO ANC initiation and contact times at Salima District Hospital.

1.2 Statement of the problem

Inadequate antenatal care utilization such as either late initiation or low frequency of antenatal care contacts prevent the clients from accessing comprehensive antenatal care, and have good maternal and health outcomes. Warri and George (2020), asserts that this underutilization may be secondary to the perceptions of the consumers of care about the health care service, including the associated factors (enablers or barriers). In this regard, pregnant women who consider antenatal care service as important to them (both self and the fetus) comply with the recommendations, keep follow up appointments and continue utilizing the services without problems than those who conceptualize it as not much important to them.

In 2016, the WHO approved a new ANC Model with increased numbers of antenatal care contacts from four visits to eight contacts, with the initial contact in the first trimester, two contacts in the second trimester and five contacts scheduled in the third trimester. The word ‘visits’ has been replaced by ‘contact’ which is to increase close interaction between health professionals and pregnant women rather than simply follow up number increment (WHO, 2019). Recent evidence has demonstrated that eight or more ANC contacts can reduce perinatal deaths by 8 per 1000 births in comparison with four visits (WHO, 2018). In addition to the number of ANC contacts, the timing of its initiation is also a crucial factor in improving fetal and maternal outcomes. Timely initiation of ANC contacts also serves as a gateway for risk identification and early diagnosis of pregnancy-related complications such as premature birth, still birth and increased maternal hypertensive disorders during pregnancy, childbirth and puerperium (Woldeamanuel and Belachew, 2021). Furthermore, studies have shown that early antenatal care initiation can promote achievement of more ANC contacts and the required content of antenatal care service (Ekholuenetale, 2021).

Nevertheless, a majority of pregnant women, both internationally and nationally, continue to underutilize the antenatal care service. Some of the identified reasons for the late initiation of ANC and attainment of at least eight ANC contacts may include pregnancy wantedness, perceptions on the need to start ANC early, financial challenges, distance to the nearest health facility, cultural and religious beliefs around disclosure of pregnancy signs, lack of knowledge regarding signs and

symptoms of pregnancy, antenatal care schedules and reception of quality care (Warri and George, 2020).

According to the World Health Organisation, sub-Saharan Africa alone accounted for about 70% of the global MDs in 2020 (WHO, 2023). In addition, Malawi continues to experience unacceptably increased levels of maternal mortality, with a recently estimated Maternal Mortality Ratio (MMR) of 349 per 100,000 live births (NSO, 2021), despite a significant increase in deliveries by skilled birth attendant to 96% in recent years.

Antenatal care utilization has been considered as one of the means for reducing such a high maternal mortality ratio globally, including in low income countries (Mekonnen, Dune and Perz, 2019; Ahuru, Anyiwe and Nzoputam, 2020). Based on these findings, the new WHO ANC Model recommended a minimum of eight ANC contacts within the duration of a woman's pregnancy at 12, 20, 26, 30, 34, 36, 38 and 40 weeks of gestation (WHO, 2018). The aim was to promote positive pregnancy experience. However, recent evidence has demonstrated poor adherence to early antenatal care initiation and attainment of four plus antenatal care contacts in many countries including the sub-Saharan Africa (Jiwani et al., 2020).

In Malawi, evidence has demonstrated that ANC attendance in first trimester and attainment of 4 plus ANC contacts are at 28% and 51%, respectively with only 1% attaining at least 8 contacts (NSO, 2021); Palamuleni, 2024). In another report by the District Health Information Software 2 (DHIS 2), ANC attendance in the first trimester and four plus visits were at 17% and 31%, respectively (DHIS 2, 2020/2021). These district health office' indicator performances were slightly higher than that of Salima District Hospital where the study was conducted which were at 12% and 30 % respectively (DHIS 2, 2020/2021). This has been the performance despite having free ANC services in both Christian Health Association of Malawi (CHAM) and government facilities, orienting some midwives on the 2016 WHO antenatal care guidelines and conducting ANC outreach clinics in some hard to reach areas. However, to date, it is not well known if there has been any study conducted in Salima to explore the reasons for delaying and underutilizing the ANC services. Therefore, this study sought to explore the postnatal mothers' perceptions about the enablers of and barriers for adhering to the recommended timing for initiating antenatal care and the WHO recommended number of antenatal care contacts at Salima District Hospital.

1.3 Study objectives

1.3.1 Broad objective

To assess perceptions of postnatal mothers about enablers of and barriers to early antenatal care initiation and contact times at Salima District Hospital.

1.3.2 Specific objectives

- i. To explore perceptions of postnatal mothers about ANC initiation time at Salima District Hospital.
- ii. To determine perceptions of postnatal mothers about the recommended ANC contact times at Salima District Hospital.
- iii. To assess postnatal mothers' perceived enablers for adhering to the recommended ANC initiation and contact times at Salima District Hospital
- iv. To determine postnatal mothers' perceived barriers for adhering to the recommended ANC initiation and contact times at Salima District Hospital

1.4 Research questions

1. What are the perceptions of postnatal mothers about the recommended time for initiating ANC at Salima District Hospital?
2. What are the perceptions of postnatal mothers about the recommended number of ANC contacts at Salima District Hospital?
3. What do postnatal mothers perceive as enablers for early initiation of ANC and the recommended number of contacts at Salima District Hospital?
4. What are the perceived barriers for early initiation of ANC and the recommended number of contacts among postnatal mothers at Salima District Hospital?

1.5 Significance of the study

The results from this study when concluded would provide new knowledge regarding the perceptions of postnatal mothers about enablers of and barriers for adhering to the recommended timing for initiating ANC and the number of contacts. This knowledge would guide the policy

makers to effectively develop and promote the implementation strategies of the adapted new WHO ANC guidelines to best suit the Malawian context.

In addition, the results might guide Midwifery Science program to develop culturally sensitive curricula and care approaches in order to address the identified barriers.

Furthermore, knowledge from the current study would enable the hospital management and staff to understand the context based factors affecting early initiation of ANC and adherence to the recommended WHO ANC contacts. In the end, this understanding could guide them in modifying their ANC implementation strategies such as resource mobilization and allocation targeting areas whose impact would be much significant to the general public, thereby promoting delivery of quality health care services.

The findings would also provide the researchers with the base line information for replication of studies in order to have enough evidence for effective implementation of the new WHO ANC Model.

In the end, results from this study would contribute towards improving maternal and neonatal health outcomes globally, particularly, in sub-Saharan Africa.

2.0 LITERATURE REVIEW

2.1 Introduction

A review of literature is conducted to have a clear picture of what has been studied already on particular phenomena and what needs to be done to fill the noted gaps (Frederiksen, Phelps and Kimmons, 2018).

The literature under review presents in depth interviews, focus group discussions, cross-sectional studies, Demographic and Health Surveys, systematic and secondary data analyses done in developed and developing countries including Malawi demonstrating the perceptions of women about early antenatal care initiation and contact times, including the enablers and barriers for adhering to the recommended time for initiating ANC and the number of contacts, (Gebrekirsto et al., 2021; Rustagi et al., 2021).

2.1.1 Perceptions about the recommended time for initiating ANC

Early initiation of antenatal care is very vital in promoting good maternal and neonatal outcomes. This requires individual decision making, yet many women, this crucial step is covered with uncertainties, misconceptions and fears. As the world still struggles with challenges of maternal healthcare, a critical question remains: would pregnant women and their families see the need for early antenatal care attendance? This calls for a need to review and understand the existing literature globally, on these women's perceptions about the recommended times for initiating antenatal care, first trimester, based on the reviewed literature.

A qualitative study conducted at Nkwen Baptist Health Center, Bamenda, Cameroon using in depth interview on perceptions of pregnant women of reasons for late initiation of antenatal care revealed different perceptions basing on the women's previous knowledge regarding the purpose for early antenatal care. In this study, majority of pregnant women delayed in initiating ANC because they perceived early antenatal care initiation to be a waste of time and money since their understanding about the purpose of early ANC initiation was to know the state of the baby yet there could not be full development of the fetus in the first trimester (Warri and George, 2020). In contrast, a mixed study conducted in public health institutions of Axum town, Tigray, Ethiopia on timing of first antenatal care attendance and associated factors among pregnant women found that those that perceived that the correct timing of ANC initiation was before 16 weeks of gestational

age were three times more likely to book their ANC timely than those who perceived it inappropriately (Gebresilassie et al., 2019).

Another study conducted in Fiji using in depth interview on perception of pregnant women towards early ANC visit established that having correct information regarding the ideal time for initiating ANC may not result into early initiation. In this study, most of the women had correct information regarding the recommended time for initiating ANC. However, the majority of them initiated after the first trimester because their understanding of early booking ranged from one to six months of pregnancy (Maharaj and Mohammadnezhad, 2022).

A qualitative study conducted at Area 25 Health Center, in Lilongwe, Malawi using focus group discussions and in depth interviews regarding perceptions of pregnant women on antenatal care visit during their first trimester showed that most of the women delayed in initiating ANC because they felt there was no reason for them to initiate ANC early (Nyando et al., 2023). This was based on their understanding that early antenatal care initiation should be for only those experiencing health problems such as backache, headache and HIV/AIDS during antenatal.

Literature has demonstrated mixed perceptions regarding recommended time for initiating ANC. This highlights a significant disconnection between the recommended standard of antenatal care and the beliefs of the women, the consumers of care. As healthcare providers, this enable us understand the knowledge gap and strategize for effective closing of the existing gap, though educating women about the importance of early antenatal care initiation for all pregnancies.

2.1.2 Perceptions about the recommended number of ANC contacts

Understanding the perceptions and beliefs of women regarding the recommended number of ANC contacts is essential in combating the barriers that deter them from attending ANC services. The reviewed literature below shares evidence from various researchers around the globe pertaining to the perceptions of women about the recommended number of ANC contacts.

Evidence has demonstrated a strong link between women's perception about the recommended number of ANC contacts and attainment of 8 or more contacts (Ekholuenetale et al., 2020). This perception may result from exposure to educational materials, listening to news, watching

television, reading newspapers and passing through a formal education. In this regard, having these exposures may promote women's awareness about the importance of adhering to the recommended minimum number of ANC contacts (8 contacts) for positive pregnancy experience (Ekholuenetale et al., 2020).

A multilevel negative binomial analysis of factors associated with numbers of antenatal care contacts in low and middle income countries: Findings from 59 nationally representative datasets found that perception played a role in the attainment of 8 or more ANC contacts (Alem et al., 2024). In this study, women who perceived more ANC contacts as a big problem significantly achieved lower ANC contacts and initiated after the first trimester. Findings from this study would be generalized to the other countries since the sample size was large. Nevertheless, this study lacked the lived experiences of the participants regarding early ANC initiation and the achievement of the minimum of eight antenatal care contacts.

A feasibility study of the eight or more contacts of the WHO new antenatal care Model in Cote d'Ivoire involving antenatal care providers through individual interviews established that the majority of the respondents perceived that a minimum of eight antenatal care contacts is very crucial as a way of continuously monitoring the mother and her unborn baby (Kourouma, et al., 2021). However, since the study involved only antenatal care providers, it might be better if this study could be replicated to the consumers of care in order to ascertain their perspectives on feasibility of this new WHO ANC model. In addition to that, the findings for this study may not be generalized due to its methodology. However, this study can help the researcher have insights for the implementation of the new WHO ANC Model and guide on the design of further feasibility studies of a randomized trial in order to generate enough evidence on the issue under study.

Contrary, a qualitative study that used focus group discussions and in-depth interviews in area 25 health Centre, Lilongwe, Malawi on perceptions of women about antenatal care initiation and contact times showed that the majority of pregnant women perceived the antenatal care contacts as too much for them (Nyando et al., 2023). Furthermore, the study showed that the participants viewed first trimester as not necessary to initiate antenatal care because the pregnancy was too small. In addition, they thought too much contacts were not necessary rather were just tiresome. Hence, they were less adhering to the minimum number of contacts. However, this poor

compliance would be attributed to the timing of the study since it was conducted during the COVID 19 pandemic, the time when most of the clients were shunning from accessing healthcare services. A facility-based cross-sectional study conducted in public hospitals of Northeast Ethiopia revealed that fear was a strong predictor of ANC attendance (Tadesse, 2020). In this study, fear of COVID 19 infection was also found to be significantly associated with an 87% reduction in full ANC service utilization. Many pregnant women were anxious about contracting coronavirus and feared visiting the health facility to access care. Therefore, the study results may not be a true reflection of the perceptions of the participants that may be transferable, hence, the need to further conduct a similar research when there is no COVID 19 pandemic in order to ascertain if the current results might be the same or different from the previous results.

2.1.3 Perceived enablers for early ANC initiation and contact times

The new WHO ANC guidelines recommend a minimum of eight ANC visits with the initial contact at less than 12 weeks gestational age (WHO, 2018). In this respect, the subsection under discussion will highlight some of the facilitators (enablers) for early ANC initiation and adherence to the recommended number of ANC contacts based on the reviewed international and national research findings.

An analysis of 54 priority Demographic and Health Survey and Multiple Cluster Indicator Surveys in the countdown to 2030 conducted from 2012 established that regionally, women in Central and Southern Asia had the best performance of early ANC initiation while Latin America and Caribbean had the highest proportion of women attaining a minimum of eight ANC contacts (Jiwani et al., 2021) This means that early ANC booking and achievement of the recommended ANC contacts were dependent on the region. However, the study started from 2012, and this may interfere with the results on ANC contacts since new WHO ANC guidelines were not yet being implemented.

A cross-sectional survey conducted among 5,734 reproductive-age women using data from 2019-2020 Gambia Demographic and Health Survey (GDHS) on factors associated with timely initiation of antenatal care revealed that individual level factors such as maternal age have a significant association with the timely initiation and utilization of ANC services. Relative to women aged 15-19, those aged 30-34 and above had higher odds of initiating timely ANC services (Daniels-

Donkor et al., 2024). Similar findings were found in Ghana and Cameroon (Manye et al., 2020; Appia, 2022). This was attributed to older women having more knowledge regarding the importance of antenatal care attendance. In addition to that, older women may have higher health literacy because of their life experience and previous interaction with healthcare providers, thereby making them better prepared to understand and navigate the healthcare system. Furthermore, the probability of older women to ask questions and seek out information related to their health and antenatal care might be higher than that of the younger women secondary to their confidence in advocating for their own good health.

Therefore, these perceived enablers guided the researcher in designing relevant data collection tool and collecting relevant data from the participants targeting the new WHO ANC recommendations about ANC initiation.

An equity analysis of the 2015–2016 Demography and Health Survey in Myanmar on factors associated with utilization of the new WHO recommended ANC revealed that place of residence especially urban and good socioeconomic status were the main significant enablers for early booking and adequate ANC contacts (Mugo, Mya and Raynes-Greenow, 2020). Women from urban areas were more than four times more likely to have adequate ANC contacts compared to women from rural areas. Furthermore, pregnant women in the highest wealth quintile were three times more likely to receive eight or more ANC contacts relative to women from the lowest wealth quintile. Similarly, an analysis in the countdown to 2030 priority countries (Latin American, Caribbean and Sub-Saharan African countries) revealed that the region where one is accessing the antenatal care service also has a positive bearing on initiation and utilization of ANC (Jiwani et al., 2020). Regionally, Latin American and the Caribbean countries had the highest ANC coverage of 8+ at 34.3% compared to the lowest in the Sub-Saharan Africa at 6.1%. This demonstrates a huge difference in performance, so it would be better if the comparison could be done at regional level; for instance, Sub-Saharan African countries' performance only.

Contrary to the above findings, a secondary analysis of the Benin's Demographic and Health Survey established that women's enlightenment about ANC facilitated early initiation of ANC and utilization of eight or more contacts (Ekholuenetale et al. 2020). Findings from this study demonstrated the need to enhance women's enlightenment through formal education, exposure to

mass media, and other channels of behavior change communication for effective utilization of ANC. Similarly, an institutional-based Cross-sectional study conducted on early initiation of antenatal care and its associated factors among pregnant women attending antenatal care at public health centers in Bahir Dar Zuria zone, Northwest Ethiopia found that higher level of education contributed positively to early initiation of antenatal care (Ambaye, Regase and Hailiye, 2023). The study revealed that respondents with Secondary education and above were more likely to initiate ANC early. In this regard, those with College education were 3.5 times more likely to initiate antenatal care early as compared with those with primary school education (AOR=3.5, 95% CI:1.8 to 6.8), and those with Secondary education were 2.1 times more likely to initiate ANC than those with primary education (AOR=2.1, 95% CI:1.3 to 3.6). This meant that, the higher the level of maternal education and media exposure to information regarding ANC, the more the involvement in household decision making and tendency to initiate ANC in the first trimester.

Furthermore, an institutional based study mixed with qualitative study done in Axum town, Tigray, Ethiopia found that pregnant women with current health problems were three times more likely to begin their ANC in first trimester than their counterparts in order to be treated of their health problems (Gebresilassie et al., 2019).

Therefore, improving the delivery of quality ANC services at all levels of health care delivery such as health post, health center or district hospital would help improve ANC utilization.

2.1.4 Perceived barriers for early ANC initiation and contact times

Evidence has shown that most of the pregnant women fail to start ANC early due to the perceived barriers (Mahaj and Mohammadnezhad, 2022). Some of the barriers to be discussed are: socio-demographic barriers, socio-economic, socio-cultural, obstetric and health service-related barriers.

2.1.4.1 Socio-demographic barriers

Early ANC initiation and attainment of the recommended eight ANC contacts are very critical for the improvement of maternal and neonatal health outcomes. However, multiple sociodemographic factors such as, limited education, rural residence, adolescence and young adulthood, unmarried status and low social support can affect access of individuals to quality ANC, leading to delayed and inadequate care as per the reviewed literature below:

A population-based cross-sectional study conducted among 4274 women using data from the 2016-2018 Papua New Guinea (PNG) Demographic and Health Survey found that 63% of pregnant women who were not working initiated antenatal care after the first trimester (Seidu, 2021). This study finding was inconsistent with other studies conducted in South African Countries Ebonwu et al. (2018), which established that working women present late for their first antenatal care. The probable explanation they offered was that employed women were busy compared to those who are not working and as a result attend ANC in later part of their pregnancy duration. However, the cross-sectional study results could not establish the cause and effect relationships between variables, as data is collected at a single point in time.

A mixed-methods study with quantitative (cross-sectional study) and qualitative (in-depth interviews with pregnant women and ANC providers) on late ANC booking and its determinants in Bhutan established a high probability for late first ANC contact amongst women with only primary education and those residing in rural areas than their counterparts (Dorji et al., 2019). The results demonstrated a high magnitude of late antenatal care initiation in Bhutan, associated with educational, geographical and the general context of the individual expecting mothers. These findings are a triangulation of quantitative observations of the study, reported using Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines and qualitative findings reported using the Consolidated Criteria for Reporting Qualitative (COREC) guidelines. One limitation of this study is that the study population consisted of only women delivering at the hospital, which may be a population with a higher rate of complications than women delivering at the primary healthcare level (health center) or delivering at home, and may also be a population that is more likely to attend ANC. Additionally, the sample size for the qualitative interviews did not include those women who did not have an ANC booking, hence, could not explore their rationales for not attending antenatal care. Another limitation of this study is that the qualitative interviews with the pregnant mothers were conducted by a male doctor, which may have contributed to social and gender sensitivity bias. Additionally, a Ghanaian Malaria Indicator Survey of 2019, (GMIS), on prevalence and socioeconomic inequalities in eight or more antenatal care contacts relative differed from the previous study in the sense that, the results indicated that pregnant women with secondary or higher education, irrespective of their ages, place of residence or timing to ANC booking, had higher uptake of eight or more ANC contacts (Ekholuenetale,

Nzopotam and Barrow, 2021). The main strength for this study was on the usage of nationally representative high-quality data from household survey. Besides that, the collected data used appropriate statistical adjustments making the results of this study dependable. Nonetheless, a major limitation of this study is the potential for recall bias which might lead to an over, or under-estimation of eight or more antenatal care contacts.

2.1.4.2 Socio-economic barriers

Socio-economic factors such as wealth quintile, low educational status are not married, place of residence, not having enough money, long distance from the nearest health facility were some of the barriers to early initiation of antenatal care and attainment of the recommended antenatal care contacts.

A study conducted in New Zealand on barriers to early initiation of antenatal care demonstrated that inadequate social support during pregnancy affected early initiation of ANC amongst majority of the women (Corbett, Chelimo and Okesene-Gafa, 2019). Pregnant women with inadequate social support had financial problems leading to delayed ANC attendance and poor adherence to the recommended number of ANC contacts. Similar findings were found in a cross-sectional study on household socio-economic status and antenatal care utilization among women in reproductive-age group at Delta State, Southern part of Nigeria. In this study, long distance to the facility, not married and financial challenges were some of the perceived barriers to early initiation of ANC (Sui et al., 2021). These challenges made them fail to meet transport costs to the facility leading to late booking and underutilization of ANC. In line with this study, another study conducted in Kenya revealed that some pregnant women failed to initiate early antenatal care and achieve the recommended ANC contacts due to payment of the user fee (Dennis et al., 2020). Strategies such as user fee exemption and waivers for pregnant women may therefore increase women's utilization of ANC services, including timely initiation and more contacts.

Furthermore, an institutional based cross-sectional study conducted in Northwest of Amhara Region referral hospitals, Ethiopia on intention to use eight antenatal care Model and associated factors among pregnant women who came to antenatal care found that the family, friends or social support strongly promoted intention to use eight ANC contacts (Semaw et al., 2023). The support could have many directions such as informational giving, advice or emotional support like

attention and affection to the service of antenatal care. In addition, the instrumental support either with material or time were valuable to influence ANC utilization positively. Some pregnant women may need motivation to access and utilize antenatal care, otherwise, they might simply focus on their routine activities.

In contrast, a multicountry comparative correlational study on barriers to health care access and implementation of the 2016 WHO antenatal care services in Nigeria, Mali, Guinea and Zambia revealed that financial problems and long distance to the health facility were not correlated to the number of ANC contacts (Ahinkorah et al., 2021). In this study, women with financial challenges and residing far from the health facility managed to attain eight or more ANC contacts than their counterparts. Similarly, a community-based case control study on factors affecting the utilization of antenatal care among married women of reproductive age in the rural Thatta, Pakistan found that road network distance had no measurable effect on ANC utilization among married women (Ali et al., 2020). In this study, some married women from nearby residence and presumed to have some social support from their spouses were less likely to utilize antenatal care services.

The Malawi Demographic Health Survey data reviews for 2004/5, 2010 and 2015/6 from 26386 women who had given birth in the five years before being surveyed on socio-demographic factors associated with early antenatal care visits among pregnant women in Malawi also revealed that women with richest socio-economic position and those that had attended secondary and tertiary education were more likely to attain four plus antenatal care visits than their counterparts (Ng'ambi et al., 2022). The study demonstrated that the proportion of women reporting ANC4+ and of key ANC interventions in Malawi had increased significantly since 2004. However, most of the women did not access the recommended number of ANC visits in Malawi, prior to the 2016 WHO policy change which may mean that women are less likely to undertake the 2016 WHO recommendation of 8 contacts per pregnancy. Hence, the need for the Maternal Health Program to devise appropriate national strategies to ensure that all women access the appropriate frequency of ANC contacts during their pregnancy.

2.1.4.3 Socio-cultural barriers

Barriers such as sociocultural aspects of the consumers of care interferers with their utilization of care, for instance, antenatal care. The following literature highlights some existing evidence of the sociocultural barriers that have implicated on antenatal care utilization either positively or negatively.

A mixed-methods study with a quantitative (cross-sectional study) and qualitative (in-depth interviews with pregnant women and antenatal care providers) on late antenatal booking and its determinants in Bhutan found that shyness of the pregnant women to be examined by a male health worker was an important factor in delayed first ANC contact, especially among teenage and primigravida mothers (Dorji et al., 2019). In this study, male doctors conducted the interviews, which may have contributed to social and gender sensitive bias, hence the need to improve communication between healthcare providers and patients.

A cross-sectional analysis of Bangladesh Demographic and Health survey revealed being a Muslim pregnant women was significantly associated with underutilization of antenatal care (Chanda et al., 2020). The study highlighted that these women were advised to maintain indoors throughout their pregnancy period to the onset of labour. This made the women fail to attain the recommended antenatal care contacts of eight or more. Correspondingly, a sub-national analysis and determinants of number of antenatal care contacts in Nigeria, assessing the compliance with the WHO recommended standard guidelines among pregnant women, the study revealed that ethnic grouping, religious beliefs and region where the participants had come from played a significant role in complying with the WHO guidelines (Fagbamigbe, Olaseinde and Satlhare, 2021). The study observed that Hausa or Fulani women and other ethnic groups were less likely to meet the required minimum number of eight antenatal care contacts compared to Yoruba and Igbo or Ibiobio women. The explanation was that their ethnicity could affect their norms and values of education, poor decision making power and early marriage as factors that are mostly associated with ANC utilization in Hausa or Fulani dominated Northern Nigeria. The only limitation is that, this disparity in ANC utilization might be secondary to their regional differences in access to health care. Therefore, intra analysis of ethnic disparities in ANC utilization may highlight on this. In addition, the study found that faithful Islamic women, including other religious affiliates were also less likely to meet the minimum standard number of ANC contacts compared to Christian women.

However, the identified factors are only associated with the number of ANC contacts and should not be considered as causes of the number of contacts as the data used was only cross-sectional in design.

A facility based cross-sectional study conducted in Lira City, Northern Uganda on factors associated with first antenatal care attendance within 12 weeks of pregnancy among women established that gender contributed negatively on ANC utilization among the teen age mothers (Acup et al., 2023). The study indicated that some pregnant women had a 4.29 fold higher likelihood of delaying in initiating antenatal care than their counterparts because their spouses had not yet consented to their pregnancies. The strength for this study was that the sample size of 368 pregnant women attending their initial ANC contact was larger enough to represent the entire population. However, the cross-sectional design limited the study to generate the real cause-effect relationship of the variables under study.

Another qualitative study which used focus group discussion on contributing barriers to loss to antenatal care follow up found that primigravidas' delivery at parents' place affected their number of ANC contacts (Tsegaye et al., 2021). In this study, some cultures force primigravidas to deliver at their parents' place, and they are forced to go there during third trimester. This affects their subsequent attendance for antenatal care services either due to long distance or a feeling that the pregnancy is mature and no need to continue with ANC. Similar findings were established during a qualitative study conducted in Malawi on barriers to starting antenatal clinic in the first trimester. In this study, prolonged waiting of primigravidas for the marriage counselling by the man's relatives led to their delay in starting ANC (Chimatiro et al. 2018). In this regard, even though most of the women knew the ideal time for commencing ANC, they would still book late. On another note, some pregnant women thought early antenatal care initiation would risk them to miscarriage from witchcraft leading to the delay and then underutilization of antenatal care. On another note, mother or spouses of pregnant women had a significant role in ANC initiation and utilization. Warri and George (2020), highlighted that some women indicated that they delayed in initiating ANC because they grew up observing their mothers initiating antenatal care later in pregnancy.

2.1.4.4 Obstetric barriers

Obstetric barriers to utilization of healthcare can hugely interfere with pregnant women's compliance to the WHO ANC recommendations. This may lead to either delay or underutilization of antenatal care. Literature below will highlight some studies conducted internationally and nationally regarding the obstetric barriers' implications to ANC utilization.

The Demographic and Health Survey (DHS) and Malaria Indicator Survey (MIS) multi-country data from study was conducted using the most recent Demographic and Health Survey (DHS) and Malaria Indicator Survey (MIS) multi-country data involving Albania, Benin, Cameroon, Ghana, Guinea, Jordan, Mali, Mozambique, Nigeria, Pakistan, Papua New Guinea, Senegal, Sierra Leone, Uganda, and Zambia found that unplanned pregnancy, multigravidity and past obstetric complications were some of the barriers to early ANC booking (Ekholuenetale, 2021). In this study, women who were not prepared for the pregnancy felt shy for other people including the health care provider to discover that they were pregnant. In line with this finding, an institutional-based, cross-sectional study conducted in five public health centers in Bahir Dar Zuria zone, Northwest Ethiopia on early initiation of antenatal care and its associated factors among pregnant women also established that the likelihood of primigravidas to initiate ANC timely was 4.14 and women with planned pregnancy were 3.5 times likely to initiate their ANC early than their counterparts (Ambaye et al., 2023). The challenge is that this study could not generate the cause effect relationship of these variables due to the research design used. Similar findings were established in Adis Ababa, Tanzania, during a qualitative study which used focus group discussion on contributing barriers to loss to ANC follow up. Evidence from this study revealed that unwanted and older age pregnancies hindered most of the women from early ANC booking and accessing subsequent antenatal care (Tsegaye et al., 2021). Women did not want to expose their secrets to neighbors and health professionals, hence the delay in starting the care and continuing with the visits. Furthermore, women without previous obstetric complications coupled with multigravidity thought they had no proper reason for starting ANC early, hence the delay. In support of this finding, a qualitative study that used in depth interview conducted in Nkwen Baptist health centre, Bamenda, Cameroon on perceptions of pregnant women of reasons for late initiation of antenatal care found that having delivered before made most of pregnant women to delay in initiating ANC.

These women said they used previous positive pregnancy outcomes as experience in handling subsequent pregnancies. Previous positive pregnancy experiences prompted pregnant women develop confidence and thus were less motivated to initiate antenatal care early.

Furthermore, a data analysis of the Demographic and Health Survey for the 32 African Countries on preceding birth interval, timing and number of antenatal care contacts in Africa, 2010-2020 illustrated moderate significant associations between spacing on the most recent birth of equal to or more than 36 months. Pregnant women who spaced births by this duration were 1.18 times ($p < 0.001$) more likely to initiate the first ANC contact in the first trimester as compared with those who spaced for < 18 months (Tuoyire, and Amo-Adjei, 2023). This meant that longer preceding birth intervals allowed women to better prepare for the subsequent child/pregnancy and thus they were more motivated to utilize ANC services.

2.1.5 Health care service related barriers

Healthcare service-related barriers, such as health system challenges and health care provider challenges can interfere with women's ability to initiate ANC early in pregnancy. These barriers can result in delayed care seeking, and the poor maternal and neonatal health outcomes. A review of these healthcare service barriers will give insight to the researcher regarding the anticipated barriers the research participants might share during the study. The following literature will highlight the barriers with focus on the health system and health care barriers.

2.1.5.1 Health system barriers

Healthcare system includes provider, clinical and system factors that may either facilitate or hinder access and utilization of health services resources (Travelers et al., 2020). Weak health care system acts as a significant barriers to early antenatal care initiation and attainment of the recommended ANC contacts. This may then affect strives to promote good maternal and neonatal health outcomes. Health system barriers, such as inadequate infrastructure, lack of resources, for instance, necessary drugs and insufficient skilled healthcare providers and inefficient referral systems, can interfere with access to early ANC and contacts.

A systematic review from the five databases (SCOPUS, Web of Science, PubMed, EMBASE and CINAHL) on factors that impact on antenatal care usage in the 37 countries or regions classified as fragile and conflict affected situations (FCAS) in 2020 by the World bank revealed that women in these areas are still not meeting the WHO's 2002 recommendations of four ANC visits during

pregnancy, yet the recommendation which has been increased to a minimum of eight contacts (Alibhai et al., 2022). This study established that poor infrastructure and lack of resources deterred pregnant women from initiating their ANC in the first trimester, and to attain a minimum of eight ANC contacts in 11 studies. In this regard, women who perceived operational and infrastructure problems in the community such as lack of electricity, running water, destroyed building infrastructure, were deterred from accessing ANC and in the end faced bad outcomes. In line with this finding, a scoping review of evidence on input, process and output factors contributing to quality of antenatal care services in six sub-Saharan Africa countries, including Kenya, Malawi, Namibia, Rwanda, Tanzania and Uganda observed that out of 91 studies reviewed, 60 of them described inputs and processes factors as contributing to provision of quality antenatal care (Khatri et al., 2022). These inputs and processes factors included health system factors such as health workforce, commodities and health facility readiness, including structural and intermediary characteristics of users, and approaches to antenatal care service delivery. Examples of characteristics of better facility readiness according to this study include the availability of antenatal care guidelines and procedures, central electricity supply, information, organization of services, community health planning and patient reception and interpersonal communication (Owili et al., 2019). This study indicated similar findings were observed during a qualitative study, using focus group discussions conducted in rural Tanzania on barriers and enablers to accessing maternal and reproductive healthcare services among women and their communities (Yeates et al., 2021). In this study, many participants described shortage of equipment and supplies as a barrier to women wanting to deliver at a health facility. This challenge also affected them much financially, because lack of the basic supplies such as gloves, sutures required them to purchase these items on their own in order to access the necessary healthcare. Those that could not manage to procure would then deliver at home, as it would not cost them any money. Nevertheless, this study's results could not be generalized because only women from the rural area were included. Therefore, replicating the study by triangulating these rural women with their urban counterparts would promote generalization of the results.

Furthermore, poor quality of antenatal care was observed as a barrier to ANC uptake. In this review, women were not motivated to access ANC at a facility where there were no required

resources such as scanning machine, enough healthcare providers and long waiting time. However, the study could not identify conflict as a barrier to accessing maternal health services, therefore, it might be that the frequently cited factors like quality of care, distance, education might have been the complications of conflict. So, understanding how conflict affects ANC uptake may be beneficial in order to reduce the global maternal mortality rate (MMR) and achieve SDG 3.1 by 2030. The results on poor quality corroborated a qualitative study that used semi-structured interviews conducted on 15 healthcare providers and 35 clients concerning quality of ANC services as experienced by Tanzanian clients and providers. In this study, both clients and providers perceived quality as items related to experience of care, provision of care and cross-cutting essential physical and human resources. In addition, the results demonstrated that the experience of care was just as crucial to both of the participants as the availability of physical and human resources and the content of care (Sheffel et al., 2019). This study had strengths because it involved heterogeneous participants, whereby, both providers and consumers of care were sampled out to share experiences regarding quality care. The only limitation was that those who had never had any ANC contact were excluded. Similar results were established in semi-structured interviews conducted on 35 clients and 15 healthcare providers in the same Tanzania which found that clients' perception of the quality of maternal and neonatal care received is associated by having respectful, knowledgeable healthcare provider, availability of medical equipment, availability of drugs and having reduced waiting time to receiving ANC (Mgata and Maluka, 2019).

A 2015-2016 Indian Demographic and Health Survey that used data on 183,091 women concerning enablers and barriers to ANC service use established that poor infrastructure and shortage of drugs in Public hospitals made most of the women to book ANC late and underutilize the services (Ogbo et al., 2019). These women were not attracted by the infrastructure and problems of drugs leading to delayed initiation and infrequent visitation at the health facility. Similar findings were found in Zimbabwe where pregnant women failed to start early antenatal care and attain the recommended contacts due to lack of resources (Mutowo et al, 2021). Women were not motivated to frequently visit the facility because they knew they could not receive the expected antenatal care due to lack of resources such as blood pressure machine and some essential ANC drugs (ferrous sulphate and Fansidar).

A qualitative exploratory study that used in-depth interview conducted in the Southern part of Mzimba, Malawi on why pregnant women delay to initiate and utilize free antenatal care services found that lack of essential equipment made the majority of women not to adhere to the recommended time for ANC initiation and contact times (Funsani et al., 2021). The only limitation was that this study was conducted in health centers where most of the times they experience challenges of resources, such as equipment, drugs and other supplies. Hence, the need for the healthcare system to improve on the environment in order to be enabling to clients.

2.1.5.2 Health care provider barriers

A qualitative study conducted at Mbekweni health center in Eastern Cape, South Africa on exploring pregnant women's perspective of late booking of ANC services established that some clients attributed their delayed initiation to the bad attitude of some healthcare workers who could send clients back home when they visited the facility before feeling for the fetal movements made them fail to come for the subsequent ANC (Kaswa, Rupesinge and Longo-Mbenza, 2019). Another qualitative exploration study of Perceptions of Women and Nurse-Midwives on Antenatal Care Information and Communication in Tanzania established that some pregnant women delayed in initiating and underutilized antenatal care because they did not know about the expectations from the current WHO guidelines since some Nurse Midwives failed to educate them on this. In addition, the Nurse Midwives were fearful such that they could not approach and ask them about the guidelines (Kourouma et al., 2021). Mothers indicated that health workers often mistreated or demeaned them during visits. Additionally, health workers took more time before starting to provide the services. Coupled with increased number of the recommended ANC visits, women got demotivated leading to underutilization of antenatal care services.

2.2 Conclusion of the literature review

Based on the reviewed literature, majority of pregnant women have knowledge about the ideal starting time for ANC, however, none has demonstrated their knowledge about the recommended ANC contacts a woman should attain. Furthermore, the most significant enablers for early ANC booking and utilization were: socio demographic or socioeconomic status, distance, region knowledge, educational status, participation in decision making and quality care. On the other

hand, socio demographic barriers, socio cultural, obstetric, health care barriers were some of the barriers to early ANC booking and attainment of the ideal number of ANC contacts.

3.0 CONCEPTUAL FRAMEWORK

This research study applied Andersen's Behavioral Model of Health services Use (Andersen and Newman, 1973). The model was initially developed in the late 1960's. The purpose of this framework is to discover conditions that either facilitate or impede utilization of a services among pregnant women. A conceptual presentation of this model is illustrated in figure 1.

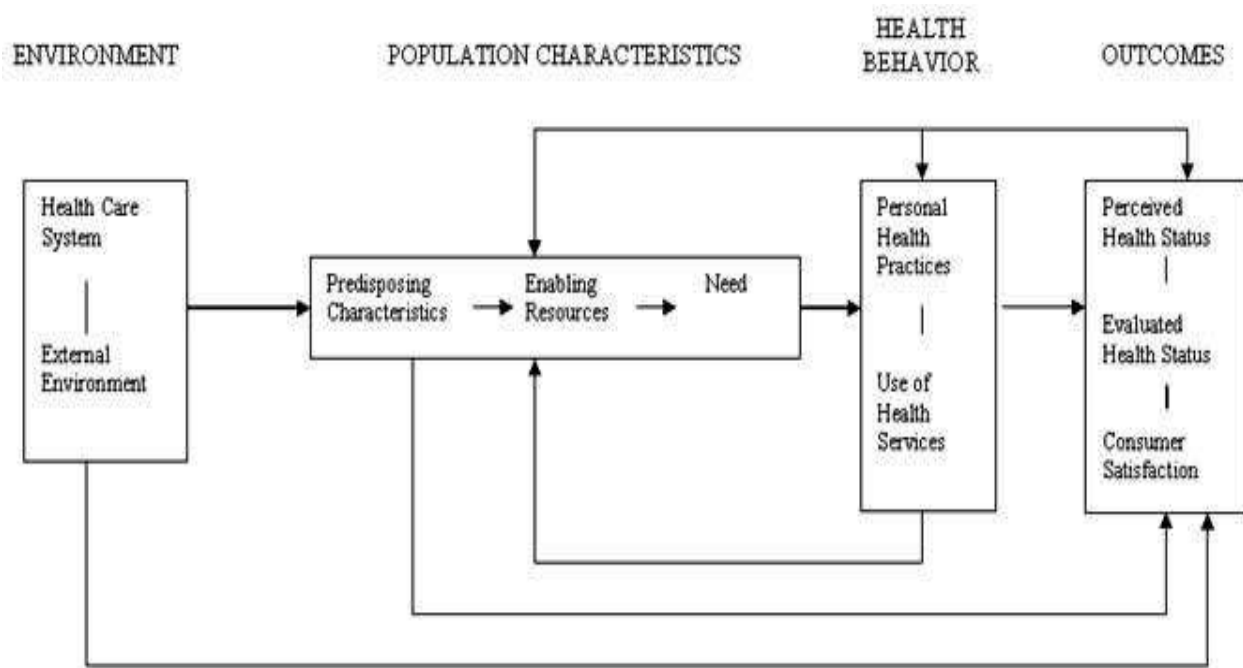


Figure 1. Andersen's behavioral model of health services use (Andersen and Newman, 1973).

3.1 Major concepts in the model

The Andersen's behavioral Model of health services use, has four major concepts thus: environment, population characteristics, health behavior and outcomes.

3.1.1 Healthcare environment

Healthcare environment refers to the healthcare system and the external environment which influence outcomes of care given to clients (Andersen and Newman, 1973). In this study, the health

care environment meant all the factors from the setting (Salima District Hospital) that would affect women's access and utilization of antenatal care services such as healthcare system and external environment.

3.1.1.1 Healthcare system

Healthcare system includes provider, clinical and system factors that may either facilitate or hinder access and utilization of health services resources (Travelers et al., 2020). These components perform several functions such as providing healthcare services, sustaining and promoting health, improving health, protecting households from the costs of illness, enhancing economic functioning and shaping societal norms and values (McCoy and Allotey, 2021). In this study, good or bad attitude of healthcare workers, delayed diagnosis of pregnancy and failure to triage clients by prioritising those accompanied by their spouses were some of the factors that either promoted or hindered early initiation of ANC and adherence to the appointment dates amongst the pregnant women.

3.1.1.2 External environment

The external environment includes physical, political, and economic factors unrelated to the health care environment (Travelers et al., 2020). In this study, external environment such as long distance to the nearest health facility coupled with clients' poor socioeconomic status and shortage of some essential resources such as pregnancy test kits were some of the factors that made it difficult for the pregnant women to initiate ANC early and adhere to the appointment dates.

3.1.2 Population characteristics

According to Andersen and Newman (1973), individual's access to and use of health services is considered to be a function of three characteristics such as predisposing characteristics, enabling resources and need factors. Below is the detailed description of these three characteristics.

3.1.2.1 Predisposing characteristics

These are the socio-demographic characteristics of individuals that exist prior to their illness (Andersen and Newman, 1973). In this study, predisposing characteristics included age of the participants which mainly ranged from 18 to 25, place of residence, predominantly from the rural areas. In addition, this included the participants' good perceptions regarding ANC initiation time

and its benefits despite their delayed initiation time attributed to some perceived barriers such as unplanned pregnancy and poor attitude of some healthcare workers. These characteristics influenced pregnant women's decision making regarding early ANC attendance and adherence to the recommended number of ANC contacts.

3.1.2.2 Enabling factors

Enabling factors refer to having appropriate community and individual-level resources necessary for accessing care (Travers et al., 2020). In this study, enabling factors included poor socioeconomic status of the participants, lack of transport to the facility, lack of social support with the majority of them having a minimum level of monthly income. These factors would either promote or hinder individuals' from utilizing ANC services as recommended.

3.1.2.3 Need factors

These are the most immediate cause (functional and health problems) of health service use (Andersen and Newman, 1973). In this study, need factors composed previous or current obstetric complications such as vaginal bleeding prior to onset of labour and desire for the pregnancy. These would foster pregnant women to adhere to the recommended utilization of ANC services in fear of the bad outcomes.

3.1.3 Health behavior

These include personal health practices and use of health services (Andersen and Newman, 1973). In the present study, this behaviour consisted delayed antenatal care initiation and poor adherence to the recommended number of ANC contacts. This may happen regardless of the associated factors the pregnant women may have, for instance, poor socioeconomic status, long distance to the facility nor poor attitude of some health care providers.

3.1.4 Health outcomes

These refer to perceived health status, evaluated health status and consumer satisfaction of antenatal care (Andersen and Newman, 1973). In this study, the health outcomes include reduction of maternal and neonatal mortality rates, positive perception towards initiation of antenatal care in the first three months of pregnancy and adherence to the WHO recommended number of ANC contacts.

4.0 METHODOLOGY

4.1 Study design

This study used mixed methods approach (Creswell and Creswell, 2018). This research approach combines qualitative and quantitative approaches in a single or multiphasic study (Ary et al., 2019). In this regard, both quantitative and qualitative data were collected on perceptions of postnatal mothers about enablers of and barriers to ANC initiation and contact times. Triangulation of these approaches enabled the researcher examine the convergence of the generated evidence or allowed the researcher the opportunity to examine whether the findings would converge, be inconsistent, or contradict (Creswell and Creswell, 2018). According to Noble and Heale (2019), research triangulation refers to the process that helps increase the credibility and validity of the research findings. In other words, this research approaches triangulation basically was aimed at helping the researcher make use of all the approaches to extract the required information as well as critically analyzing findings (Social Sciences Research Laboratories, 2018).

A convergent or concurrent parallel study design was used in this study as presented in Figure 2 (Creswell and Creswell, 2018). In this design, the researcher collected both quantitative and qualitative data separately but at roughly the same time. Thereafter, data analyses were also done separately, and interpretations made for each set of data followed by integration of inferences (Ary et al., 2019). Razali et al. (2022), pointed out that there are three ways to merge data analysis which are side-by-side comparison, data transformation and joint display. These authors indicate that side-by-side comparison is used by the researchers to integrate quantitative and qualitative data since this approach is much easier than the other approaches. Thereafter, the interpretation of the findings is basically written in the discussion section of the study which include a report comparing the results from the two data bases and notes where there has been convergence or divergence between the two sources of information. Furthermore, in parallel, quantitative study approach used cross-sectional design while qualitative, phenomenological design. The designs were chosen in order to provide comprehensive analysis of the perceived enablers and barriers within the given time of the study, having considered the nature of the participants whom it could not be possible to meet majority of the same participants subsequently.

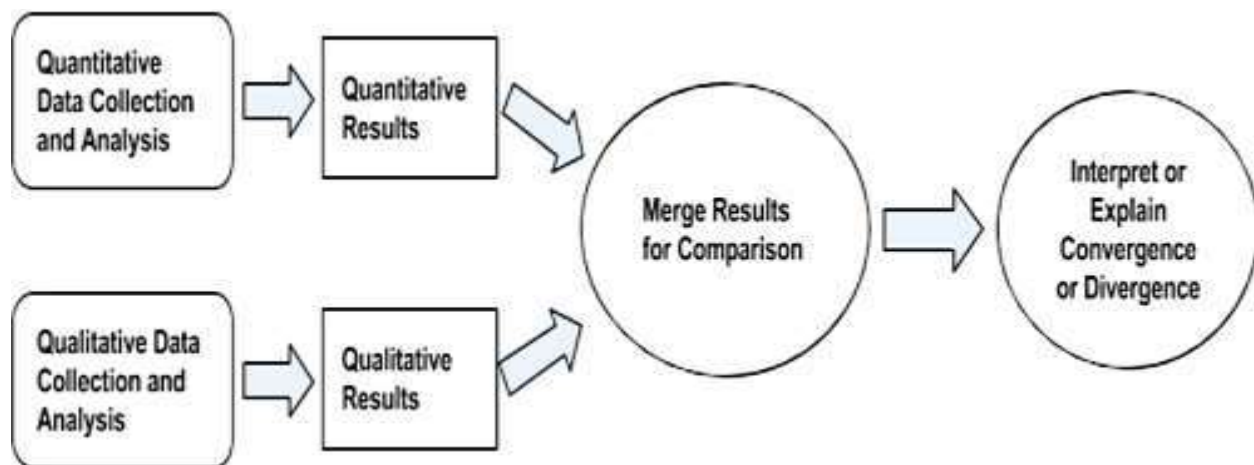


Figure 2: Convergent parallel mixed methods diagram (Creswell and Creswell, 2018)

4.2 Study setting

This study was conducted at Salima District Hospital. The main setting included postnatal ward. The district hospital is located in the Central Eastern Zone of Malawi. According to the Malawi Population and Housing Census (MPHC) of 2018, Salima serves a total population of 478,346 (NSO, 2018) from both urban and rural areas. In addition, the district has 23 health facilities with 22 of them providing antenatal care services. These facilities comprise 5 CHAM, 3 private and the 15 are under the Ministry of Health. The average monthly postnatal patients' attendance is eight Hundred. This hospital had been purposively sampled out because it was one of the hospitals in the Central Eastern Zone with poor indicator performance on ANC initiation in first trimester and four plus visits (DHIS 2, 2020/2021). These Central Eastern Zonal Districts comprised Dowa, Salima, Nkhonkhotakota and Kasungu. In addition to the previous rationale for sampling Salima District Hospital, relative to the other twenty one health facilities from within Salima District, the hospital's performance on ANC initiation in the first trimester and 4 plus ANC contacts were 12.55% and 30%, respectively (DHIS 2, 2020/2021). This had been the performance despite serving the largest population of 77,629, (NSO, 2018), with varied characteristics such as age, educational status, economic status, gravidity and parity, traditional and cultural beliefs. In addition, Salima District Hospital is the only referral facility in the district with increased number of women who come for delivery. Furthermore, the hospital had a number of midwives oriented on the new antenatal care guidelines launched in 2019. In this premise, the researcher thought this would offer an opportunity to have enough study population and a general view of how these

categories of mothers perceived early ANC initiation, contact times and the reasons for adhering or not adhering to the new WHO ANC recommendations.

4.3 Study population

The targeted population for this study was all postnatal mothers such as primiparas, multiparas, adolescent mothers, urban or rural mothers, educated or uneducated postnatal mothers from within 12 hours to 2 weeks post-delivery and who had attended their antenatal care at Salima District Hospital at least once and had delivered without any complications. Rahman et al. (2022), defined “target population” as a group of people or items about which researchers wish to make broad generalizations; a sample for the current study was obtained from this “target population”. This population had been considered basing on the assumption that by that time, they should have completed their antenatal care period and would share their perceived enablers and barriers to initiating ANC and attaining the recommended ANC contact times. On average, the hospital would discharge a total of 25 postnatal mothers a day and the majority of them being from within the catchment area of the setting (DHIS, 2020/2021). In addition, the average number of postnatal mothers that could come for their subsequent postnatal check-up would be 20. This signified that there would be enough study population from which the sample could be selected.

4.4 Sampling method

This study used parallel sampling method whereby, different methods were employed in quantitative and qualitative study approaches to select participants from the same population (Creswell and Creswell, 2018). Sampling is defined as the process of selecting a sample from the given study population (Rahman et al., 2022). In this study, simple random and stratified sampling methods were used to recruit participants for quantitative study while purposive sampling method was used in qualitative study. This process enabled the researcher select the specific number of participants for inclusion in either of the study approaches.

There are two main types of sampling techniques which are probability and non-probability sampling (Creswell and Creswell, 2018). The researcher utilized probability sampling method for quantitative study in which simple random and stratified sampling methods were applied. Thomas (2020), described simple random probability sampling method as the process that ensures that each

number of a population has an equal opportunity of being chosen as a respondent. The author further described stratified sampling method as the process of dividing the target population into separate strata in order to randomly select the required sample from each strata into the study. In this premise, strata of primiparas, multiparas and grand multiparas were identified from which the sample was randomly selected. This enabled the researcher have fair representatives of the study population.

The qualitative aspect of the study used purposive sampling method to select the participants from the study population. According to Nyimbiri and Nyimbiri (2024), purposive or purposeful sampling method is the process of selecting information rich participants for inclusion in the study based on the judgement of the survey taker or researcher. In other words, a purposive sample is collected according to the requirements of the test, survey, or research that it will be used for. Nyimbiri and Nyimbiri (2024), have discussed sixteen types of purposive sampling. These are: 1. Extreme case sampling which calls for researcher to sample the cases which are successful in that context of the study and those who are the best amongst the whole sample. 2. Deviant case sampling. This is the type of sampling technique which is opposite to extreme as this target the least or worst on the scale to learn from and understand from their experiences. 3. Intensity sampling. This is information rich cases that manifest the phenomenon intensely, but not extremely, such as good students, poor students, above/below average students. 4. Maximum variation sampling. In this type of sampling, the researcher targets participants who have the same characteristics but have different experiences which are unique to each other. 5. Homogenous sampling. This is the type of sampling methods that regroup the sample into similar characteristics and then take them as independent sample within the main sample. 6. Typical case sampling. This involves taking a sample of what one would call typical, normal or average for a particular phenomenon. It is mostly useful when a researcher is looking to investigate a phenomenon or trend as it compares to what is considered typical or average for member of the population. 7. Stratified sampling. This illustrates characteristics of particular subgroups of interest and facilitates comparisons between the different groups. 8. Critical case sampling. This permits logical generalization and maximum application of information to other cases like “if it is true for this one case, it is likely to be true of all other cases”. 9. Snowballing or chain sampling. This involves the identification of one participant who is relevant to the study and that participant should lead you

to another participant who is of the same characteristics until the planned sample is achieved. 10. Criterion sampling. This type of sampling calls for the researcher to set a specific criterion which should be followed for participants to take part in the study. 11. Theory based sampling. This method, finding manifestations of a theoretical construct of interest so as to elaborate and examine the constructs. 12. Opportunistic sampling. This involves a type of sampling which makes the researcher include new participants as the study is being conducted or during data collection as a result of new development whilst in the field. 13. Random purposeful sampling. This is the method that picks participants from a larger group and are streamlined to specific numbers which are manageable for qualitative study. This adds credibility when the purposeful sample is larger than one can handle. 14. Sampling politically important cases. This is a type of sampling which is targeted at politically aligned participants so that they can give views on the topic at hand which is political in nature. The participants are mainly political figures whose input is very relevant for the study to be complete. 15. Convenience sampling. It is the type of sampling where the researcher handpicks the participants who he or she feels are relevant to the study and are near to his site. This minimizes expenses and it's cost effective as it reduces chances of data collection inconveniences. 16. Mixed purposeful sampling. This combines various sampling strategies to achieve the desired sample in line with the research objective parameters of the study. This helps in triangulation, allows for flexibility and meets multiple interests and needs of the study.

Of these purposive sampling methods, the current study selected the fourth one; maximum variation sampling method. This enabled the researcher to include a variety of participants in the focus group discussions in order to have a wide range of views regarding their perceived enablers and barriers for early ANC initiation and contact times (Nyimbiri and Nyimbiri, 2024).

4.5 Sampling procedure

On quantitative study, the patients' files for the postnatal mothers who were due for discharge and postnatal register were used and names of the potential participants for inclusion into the study were listed down on a separate sheet of paper. In addition, details of postnatal mothers who had come for their 1 week postnatal care were also included onto the list. These names were stratified by parity (primipara, multipara and grandemultipara), including their place of residence, (rural or urban). From among the listed names in each strata, participants would be randomly picked. The

researcher continued with this procedure for all the strata during every recruitment day till a total of 68 postnatal mothers in each category were drawn.

Furthermore, from the separate patients' files and health passport books of the study population that were due for discharge and that had come for their 1 week postnatal care, the researcher purposefully selected participants for inclusion into the qualitative study. From each strata, the researcher, using own judgement and in reference to the inclusion criteria selected participants according to their variety of characteristics such as age, parity, place of residence and educational status. This triangulation of sampling method enabled the researcher have a representation of all the required characteristics of the participants.

4.6 Sample size

This mixed study had two different sample sizes which depended on the approach.

Quantitative study approach determined the sample size using Andrew Fisher's formula (Sharma et al. (2020), as follows:

$$n = Z\alpha^2 P (1-P)/I^2$$

n= Sample size of the population

Z α = The normal deviation at the desired confidence interval of 90% (1.645)

P= Proportion of the population (postnatal mothers) with the desired characteristics, 50% (0.5)

I= Margin of error, of the 90% confidence Interval which is taken as 10% (0.1)

$$n = 1.645^2 \times 0.5 \times (1-0.5)/0.1^2$$

$$n = 2.706025 \times 0.5 \times 0.5 / 0.01$$

$$n = 2.706025 \times 0.25 / 0.01$$

$$n = 67.650625$$

n=68

Sample size determined=**68 participants**

Therefore, 68 postnatal mothers were sampled for quantitative data collection.

For the qualitative study, there was no specific criteria or tool for determining the sample size as in quantitative study. Therefore, 12 postnatal mothers who met the inclusion criteria were purposively sampled for two face to face focus group discussions. This sample size was dependent upon the data saturation.

4.7 Inclusion and exclusion criteria

The study included postnatal mothers aged 15 to 49 years, from 12 hours to 2 weeks post-delivery who had delivered without any complications (maternal or neonatal) and due for discharge, regardless of their number of ANC contacts. In addition to that, only participants who had ever accessed their ANC services at Salima District Hospital, at least once and willing to participate in the study and with the capacity to articulate their antenatal care experiences were included. All unstable postnatal mothers and those who did not give consent to participate in the study were not included in the study.

4.8 Data collection tool

Quantitative data were collected using a structured questionnaire designed in reference to the study objectives and the reviewed literature (Appendices III and IV) to help in collecting quantitative data. The tool had sections A and B. Section A included all related demographic data while Section B included pregnancy-related information that helped in identifying the extent to which the postnatal mothers perceived the recommended ANC initiation time and contact times including their enablers and barriers for adhering to the new WHO ANC recommendations.

On the other hand, the focus group discussion interview guides (Appendices V and VI) were also designed in reference to the specific objectives on the perceived enablers and barriers and the reviewed literature for qualitative data collection. These tools were also pretested at Khombedza health center (Appendix VIII) and no corrections were made on the tool.

The questionnaire and the focus group discussion guide questions were developed in English language to maintain the conceptual meaning similar to that found in literature. Thereafter, the questions were translated into Chichewa for easy communication with the study participants during data collection process.

4.9 Validity and reliability for quantitative study tool

Data collection instruments for quantitative part of this mixed study were ensured valid and reliable. Validity refers to whether the measuring instrument really measures the behaviour or quality it is intended for and it is a measure of how well the instruments performs its function. Creswell and Creswell (2018), indicated that there are three traditional forms of validity researchers need to consider. These are: Content validity, predictive or concurrent and construct validity. Content validity refers to a qualitative form of validity which evaluates if the current study items measure the content they were meant for (Surucu and Maslakci, 2020). Literature has proposed several methods of determining content validity. Amongst these, taking expert suggestions and statistical methods are the two methods mostly used. In the first method, evaluation by more than one referee is also a method of gathering expert opinions. This method is a process that changes qualitative studies based on expert opinions into quantitative statistical studies (Yesilyurt and Capraz, 2018). The second one is to test the content validity using statistical methods with factor analysis as the most frequently used method. Factor analysis uses mathematical procedures to simplify interrelated measurements to assess patterns in a set of variables. The current study questionnaire contained relevant questions to the area under study and this enabled the researcher achieve the study objectives. In addition, prior to data collection, pilot study was conducted at Khombedza health center and also verified by the research supervisors to ensure instrument's its validity. This pilot or feasibility study is a small scale preliminary study conducted prior to the main research to check the feasibility or improve the research design (Creswell and Creswell, 2018). After pilot study, corrections were done to the questionnaire, mainly on the phrasing of some questions and the timing of the process of data collection.

The other form that would make the instrument valid was predictive or concurrent validity. This entails if the current study findings correlate with other findings. This was in line with the current study since there were multiple correlations with the other reviews study results. The last form of validity is construct. This assesses the degree to which the instrument measures the concept,

behaviour, idea or quality- thus, a theoretical construct the instrument intends to measure (Surucu and Maslakci, 2020). Consideration of these forms of validity helped the researcher in identifying whether the instrument might be relevant to the area under study.

The other aspect, reliability entails the consistency or repeatability of an instrument (Creswell and Creswell, 2018). Its most important form for multi-item instruments is the instrument's internal consistency, which is the degree to which sets of items on an instrument behave as expected. In this study, this was considered by ensuring that questionnaire items were generated from the reviewed relevant literature.

4.10 Rigor and trustworthiness for qualitative findings

Qualitative research is perceived as a subjective process and therefore qualitative researchers develop measures for enhancing rigor and trustworthiness of the findings.

Kalu (2019), defined rigor as how the researcher establishes the trustworthiness of the findings. The main aim of ensuring rigor in qualitative research is to accurately represent study participants' experiences or narratives. This demonstrates how well the study was implemented and managed unforeseen circumstances. In this study, rigor was ensured by applying the four-dimension criteria as follows: credibility, dependability and confirmability (Forero et al, 2018).

4.10.1 Credibility

Credibility ensures the study measures what is intended and is a true reflection of the social reality of the participants (Maher et al., 2018). This was the first criterion the researcher had established to ensure trustworthiness of the study findings. In this study, credibility was ensured using triangulation (data sources and analyst), peer debriefing, prolonged engagement with the participants and member checking (Maher et al., 2018).

4.10.1.1 Triangulation

Triangulation refers to the use of multiple methods or data sources in research to develop a comprehensive understanding of the phenomena under study (Bans-Akutey and Timub, 2021).

Donkoh and Mensa (2023), stipulate that there are four types of triangulation. These are: 1. Methodological, 2. Data triangulation, 3. Researcher triangulation and 4. Theoretical triangulation.

Methodological triangulation is commonly called mixed methods. It includes the use of qualitative and quantitative research approaches to investigate a phenomenon (Anguera et al., 2018). These approaches both seek to understand and offer explanations for behaviour and events hence the best elements of quantitative and qualitative research approaches can be mixed in a single study. In this study, both approaches were employed in order to complement each other. Arias-Valencia (2022), illustrates that two types of methodological triangulation exist, and these are: within methods and among methods triangulation.

Triangulation within methods is the combination is defined as the combination of two or more data collections to approach the study of the same object. For instance, using two or more quantitative measurements of the same phenomenon in a study or including two or more qualitative approaches, like the observation and open interview to assess the same phenomenon. The collected data are analyzed separately, and then compared, as a measure of validating the findings. The obvious limitation is that only one method is employed. Observers are mistaken if they believe that five different variations on the same method generate five triangulation varieties. In addition, each type of data generated such as interviews, questionnaires, observation and physical evidence is potentially biased and its specificity may be threatened. Ideally, data should not contradict, although conserving their multiple differences.

Furthermore, triangulation among methods or triangulation through methods is a more sophisticated way of combining triangulation of dissimilar methods to illuminate the same category of phenomenon (Donko and Mensa, 2023). The rationale in this strategy is that the weaknesses of a method constitute the strengths of another; and with a combination of methods, observers reach the best of either of them, overcome its weakness. This method of triangulation can take a number of forms, but its main characteristic can be the combination of two or more research strategies in studying the same empirical unit or several.

Secondly, data triangulation is the use of multiple complementary data to investigate a phenomenon (Arias-Valencia, 2022; Donkoh and Mensa, 2023). These authors further indicated that this method of triangulation is mostly confused with methodological triangulation. This confusion can be avoided by looking at data triangulation from people, time and space aspects.

Data triangulation can be achieved in several ways (Santos et al., 2020). The main data of qualitative studies most often is generated from observation and interviews. Different groups of people can be observed or interviewed to collect the same information at different times and settings. For instance, learners from different schools and their parents can be interviewed on students' use of smartphones. The interview can be repeated six months later or after a certain period. Then data analysis may follow. Another way of triangulating data is by writing field notes or reports during and immediately after an observation or interview session with the participants. These notes or reports may provide additional information on the context in which the interview or observation was conducted. These may not necessarily be recorded in the transcripts or observational checklist. In observation and interview, other vital information that may be missed are the non-verbal cues such as participants' reaction, gestures and group behaviours, are potential sources of insights or clues. The main purpose of using data triangulation is not simply to gather comprehensive data about the phenomenon under study, rather it is a means of validating and verifying data and recognizing inconsistencies in the data sets.

Thirdly, researcher triangulation is the use of multiple researcher in one study. In this case, two or more researchers, interviewers, observers, or data analysts play different roles in the conduct of the study (Donkoh and Mensa, 2023). Arias-Valencia (2022), pointed out three conditions that must be fulfilled when applying this triangulation method. These conditions are: Every researcher involved should play a prominent role in the study, should have different experiences and the disciplinary bias of the researchers should be evident. There is high probability that different researchers may be experienced in using different qualitative research approaches. In such instances, both of them may play a balanced broader perspective of the area under study. Therefore, these researchers may team up to study a phenomenon by taking different aspects of the study area. One of the limitations of researcher triangulation as indicated by Arias-Valencia (2022), is that there is a potential of jeopardizing a study in sense that the researchers adhere strictly to their particular technique, may not understand the viewpoints of one another resulting in a clash of viewpoints. This study employed this triangulation method and it helped in minimizing biases that could have originated from gathering, reporting, and analyzing data, hence promoting the reliability and validity of the research.

Fourthly, theoretical triangulation means use of a variety of hypotheses and or theories in examining a phenomenon (Adewole, 2022). In other words, this involves testing rival theories, alternative explanations or rival hypotheses relating to the same phenomenon. This triangulation enable the researcher to examine a theory or hypotheses, having in mind multiple questions that either refute or support the findings. This method may be used to test various theories through the analysis of information from the same data. The opportunity of having alternative explanations for a phenomenon may reduce if only one theoretical perspective or hypothesis is utilized. Donkoh and Mensa (2023), assert that this triangulation method may be challenging if opposing theories are used.

This study mainly employed methodological and researcher triangulation. In this aspect, both quantitative and qualitative data were collected from the participants with using a questionnaire survey and focus group discussions in order to generate rich information regarding women's perceptions about early ANC and the number of contacts. In addition, the researcher interviewed postnatal mothers with different characteristics such as, ages, parity, whether they had ever attended ANC or not and place of residence to help the researcher have different perspectives of participants. Furthermore, an analyst triangulation was also used (Maher et al., 2018), whereby the researcher analyzed the collected quantitative data with another analyst, a professional statistician, in order to help in revealing the areas which the researcher could not see during data collection process.

4.10.1.2 Peer debriefing

In this study, peer debriefing was also used to promote the credibility of the findings. Hamilton (2020), stipulates that peer debriefing helps manage interviewer bias and to assist with conceptual clarity during data analysis and manuscript writing. Peer debriefing was done among the research team members after data collection and it was also a useful strategy during both data analysis and manuscript writing. In this premise, the researcher's fellow data collectors were asked to review and assess the transcripts, the emerging and final categories from those transcripts, and the final themes or findings of a given study. In addition, the peers reviewed the selected site notes for the

researcher. Furthermore, the peers made sure the researcher had not missed any key points from the participants, repeated one or more points. Many authors have suggested that peer debriefing enhances the trustworthiness and the credibility of the research project (Adewole, 2022; Maher et al., 2018).

4.10.1.3 Prolonged engagement

Prolonged engagement requires the researcher spend sufficient time in a research setting, developing relationship, and constructing meanings with the participants of the research (Forero et al, 2018). In line with this, the researcher allocated an average of twenty minutes per participant for quantitative data and about an hour for qualitative data collection process in order to have adequate engagement time with the participants and explore more ideas concerning their perceptions about early antenatal care initiation and contact times.

4.10.1.4 Member checking

Member checking means verifying the collected data with the participants prior to data analysis (Forero et al., 2018). This process is also known as participant validation. It involves seeking feedback from the participants. Some researchers view member checking as one of the measures to correct errors and permit participants to eradicate any information they would prefer not included (Thomas, 2020). The process helps the researchers eliminate the possibility of misrepresentation during data analysis process (Candela, 2019). The Principal investigator and the team of data collectors went through the collected data in partnership with the participants and corrections were made prior to concluding the process of data collection.

4.10.2 Dependability

Dependability is used to measure or demonstrate the consistency and reliability of the study (Forero et al, 2018). In this respect, the questionnaire and the focus group interview guide had been developed and were validated by my research supervisors prior to their use in collecting data. In addition to that, this tool was piloted and pretested at Khombedza health center which is one of the busy facilities in the Northern Cluster of Salima District. Apart from that, data collection was conducted by myself with support from the research assistant and a member of the district research coordinating team representative. This was done in order to ensure accurate and careful phrasing of the questions to avoid ambiguity (Creswell and Creswell, 2018).

4.10.3 Confirmability

Confirmability means proving that the study is neutral and not influenced by the assumptions or biases of the researcher (Forero et al, 2018). This measures how well the study findings are supported, or confirmed, by the original data. The researcher investigates if the findings are shaped by the participants, or if the investigator's interests or biases are reflected in the results (Kyngas, Kaariainen and Elo, 2020). In this respect, the researcher ensured that leading questions were avoided during focus group discussions. Furthermore, the researcher did not impose views during data analysis process, guiding the findings to reflect own beliefs instead of staying objective throughout the study period.

Additionally, the researcher continued conducting the focus group discussions until data saturation was achieved.

4.11 Data collection and management

Data collection was conducted by the research team members using in-depth interviews (quantitative study) and focus group discussion (qualitative study). The research team composed of the research assistant, the district health research committee representative and the researcher herself. The interviews were conducted in Chichewa, a local language used in the area where the study was conducted, and each lasted approximately 60 minutes. Data collection took place from 10th March, 2022 to 19th March, 2022.

Both quantitative and qualitative data were collected within the same time frame. This process of data collection was conducted in the allocated private room in postnatal ward. Prior to the actual data collection, a participant information tool was read for them to understand and then give informed consent. Thereafter, quantitative data was collected from each and every participant up to the last one (68th).

On the other hand, the qualitative data were also collected through two focus group discussions. This method provided a rich form of data, as the participants were visible to the interviewer who could isolate nonverbal cues. The researcher provided probing not leading questions to direct and allow the participants to tell their stories focusing on their perceptions not being influenced by the assumptions or biases of the researcher (Forero et al., 2018). Probing was a vital tool to ensure the

credibility or true value of the data, as it permitted the researcher to clarify on relevant issues. The focus group discussions depended on data saturation (Forero et al., 2018). The discussions were facilitated by the principal investigator whose work experience in the health system promoted her understanding of the participants' comments. A Research Assistant was recruited and trained to help in collecting and recording the qualitative data. The discussions lasted for about an hour. The whole process of mixed data collection lasted ten days. With permission from the participants, the interviews were audio recorded, transcribed verbatim and then translated into English. This allowed the researcher to prepare the transcript for analysis, based on a verbatim account of the interview. In addition, written notes were also used to document information as a supplement to the audio-recorded data.

4.12 Data analysis

Data analysis in this convergent study design was done in three phases (Creswell and Creswell, 2018), whereby quantitative and qualitative collected data were analyzed separately by starting with the quantitative data (refer figure 2).

On quantitative data analysis, the questionnaires were checked to make sure that each one was completed and the responses were correctly recorded. This was important to ensure that there were no mistakes as they could distort the data entry, analysis and the research findings.

Data entry started by creating a Statistical Package for Social Science (SPSS) data file. With the assistance of the statistician, variables such as age of participants, place of residence, number of times they had been pregnant, etc. were defined; coded (given the value labels) according to what had been specified in the questionnaire and entered in variable view window.

Each response on the questionnaire was coded giving it a numeric value corresponding to that which was selected on the questionnaire. For items that were under others, they were specified and given specific codes.

Data entry was done by the researcher. Data values for each question were entered case by case into the (SPSS) Software version 20 across the variable list. Before running the frequencies, each questionnaire response was validated as entered. The researcher run and inspected frequencies for each variable to establish any errors. Coding errors were identified and corrected by re-entering data from the questionnaire. After data entry, the researcher checked all cases again. After cleaning the data, the actual analysis was conducted using both descriptive and inferential statistics.

Percentages were used to summarize the nominal (categorical) data presented as Yes or No responses. Mean scores and standard deviation (SD) were calculated for all interval data such as age, educational status, monthly economic income, number of pregnancies, months at commencement of ANC and the number of ANC contacts.

Cross tabulations were used to associate between some variables such as, parity, place of residence, education status, monthly income, knowledge of month for starting ANC versus the actual month they started ANC. The chi-square test with the p value of 0.05 was used to find any significance of this association. The p-values of 0.05 or less was considered statistically significant.

Furthermore, analysis of the qualitative data was done manually using Thematic Analysis (Kiger and Varpio, 2020), following all the six steps as follows:

The first step was familiarization in which the audio recordings and the texts were listened to and read repeatedly for the researcher to get familiarized with the collected data. This then followed transcription of the audio recordings verbatim in comparison with the collected texts. Later, they were translated into English to have a conceptual meaning.

Secondly, coding was done using the transcripts, whereby some identified phrases were highlighted from the transcripts.

Thirdly, patterns were noted among the identified codes and then initial themes were generated.

Fourthly, initial themes were compared with the data set to ensure accuracy. Some themes that were similar in meaning were combined, while those not making sense were discarded in order to only have useful data.

Fifthly, themes were defined and named. In this respect, the researcher came up with the themes that would be easily understood, for instance, obstetric enablers for early ANC initiation.

Lastly, a table of themes and subthemes for the focus group discussions was written for reference in qualitative results documentation.

Thereafter, findings from the quantitative and qualitative study were compared using a side-by-side comparison approach (Creswell and Creswell, 2018). In this approach, the numeric values from quantitative data and the narratives from the qualitative study were compared to establish their relationship, whether they were merging or diverging in reference to the study objectives.

4.13 Ethical consideration

Approval letter was obtained from Mzuzu University Research Ethical Committee (Appendix III, RefNo: MZUNIREC/DOR/23/20). Thereafter, a letter of permission was sought from the Director of Health Services for Salima District Hospital through the District Health Research Coordinating Committee (Appendix X, Ref No: SA/DHO/RES/2023/19) which also represented the Facility In charge for the pilot study site, Khombedza health Centre (Appendix VIII). In addition, the verbal permission was also sought from the postnatal ward In charge who then offered the separate room for data collection.

The Chichewa Version participant information form that explained about the nature, purpose, benefits and risks of the study was also read for the participants to understand and then give an informed consent prior to their participation (Appendices II and III). The participants were given an appropriate time to ask questions and get clarifications on any concerns regarding the study. They were also informed that their answers would be written and audio–recorded, especially the qualitative data for them to know. Thereafter, participants for both quantitative and qualitative study were asked to sign the informed consent form before the interview to indicate their permission to be part of the study and this signature was confirmed prior to the interview session. For the illiterate, they were being asked to put a thumb print. Participants who did not give consent for participation in the study were not included. The anticipation of the researcher was that the study would not cause any harm to the participants. However, a representative from the District Health Research Coordinating Committee was available throughout the process of data collection to ensure that there was no breach of the ethical principles.

Furthermore, anonymity and confidentiality were preserved by ensuring that all data collection tools (questionnaires, focus group discussions’ guide, written and audio-recorded responses) had no names but identity numbers to avoid recognizing who said what. The tools were also being kept under lock and key to avoid unnecessary access to the information by some people. The researcher could not discuss what the participants had said with anyone else except the supervisor and the research assistant involved in data collection. The researcher was the only person to match the participants’ identity numbers with their voice recordings (Arifin, 2018). In addition to that, only stable participants were included in the study to avoid causing more discomforts to the unstable participants.

4.14 Limitations

The main limitation for this study was the small sample size of 68. In addition, the perceptions were sought from the postnatal mothers alone and from those that had once visited Salima District Hospital antenatal clinic. Therefore, the results may not be generalized to the whole community in the district. Therefore, subsequent studies should extend to other zones and triangulate perceptions of these clients and health care providers including the policy makers in order to have varied perspectives regarding enablers and barriers for early ANC initiation and contact times.

4.15 Dissemination of results

The results of this research would be communicated through a written report and a presentation which will be made at Salima district hospital, the setting for the study. Another copy should be available at Research and Publication Committee, Mzuzu University where the researcher was studying. Later on the findings will be published in credible journals and also presented in conferences for other academicians to appreciate the findings and for the policy makers to consider the better ways for closing the gap identified during the study.

5.0 RESULTS

5.1 Introduction

This chapter presents the results of both quantitative and qualitative data analysis on perceptions of postnatal mothers about enablers of and barriers to early initiation of ANC and contact times conducted at Salima district hospital. Sections 5.2 to 5.5 presents quantitative results of the study while the remaining section presents the qualitative findings. Sixty eight postnatal mothers participated in the quantitative study with a response rate of 100%. The presentation of the quantitative findings include the subjects' socio demographic characteristic and their perceptions about the recommended month for initiating ANC and the contact times. In addition, the presentation also includes results of the actual months the participants had started ANC, the number of contact times they had achieved including their perceived enablers and barriers for early ANC initiation and contact times.

5.2 Socio Demographic Characteristics of Participants

The study solicited the demographic characteristics of 68 postnatal mothers who participated in the quantitative study. The predominant ages were between 18 to 25 years 58.8% (n=41) while the least age were those from 35 years and above 4.4% (n=3). On place of residence, 64.6% (n=44) of the participants were from the rural area while 35.3% (n=24) came from the urban area.

Furthermore, the majority of the participants 85.3% (n=58) were married and about 15% (n=10) were not married. Out of the 10 participants who were not married, slightly above half 60% (n=6) stated that the boyfriend/father of the baby was the one providing them for the things needed during pregnancy, while 20% (n=2) and 10% (n=1) were those providing for themselves, parents or relatives, respectively. In addition to that, majority of the participants 97.1% (n=66) indicated that they had ever attended school, of which 63.2% (n=43) had attained between standard 5 to 8, while 11.8% (n=8) had attempted form 1 to 2 and forms 3 to 4 and the least of them had attended tertiary education 2.1% (n=1). Refer Table 1.

Table 1: Demographic characteristics of participants, n=68

Feature	Frequency (n)	Percentage (%)
Age		
15-17 years	9	13.2
18-20 years	17	25
21-25 years	23	33.8
26-30 years	9	13.2
31-34 years	7	10.3
>34 years	3	4.4
Residence		
Urban	24	35.3
Rural	44	64.7
Total	68	100
Marital status		
Married	58	85.3
Unmarried	10	14.7
Education level		
Standard 1- 4	6	8.8
Standard 5-8	43	63.2
Form 1-2	8	11.8
Form 3-4	8	11.8
Tertiary	1	1.2
None	2	2.9

The participants were also asked about their family's monthly income, sources of income and if the money earned was adequate for providing their daily needs or not. The study revealed that the

modal (most occurring) monthly income for the respondents was between MK41, 000 and MK60, 000 27.9% (n=19) with the least of them 1.5% (n=1) earning between MK31, 000 and MK40, 000 per month. Nearly, 70.6% (n=48) of all the participants reported that their family's income for daily provisions was adequate. Regarding the participants' major sources of income, the findings showed that business, 64.7% (n=44) and small holder farming, 33.8% (n=23) were the major sources of income while the least source was bicycle tax (dampa) accounting for 8.8%. Refer Figure 3.

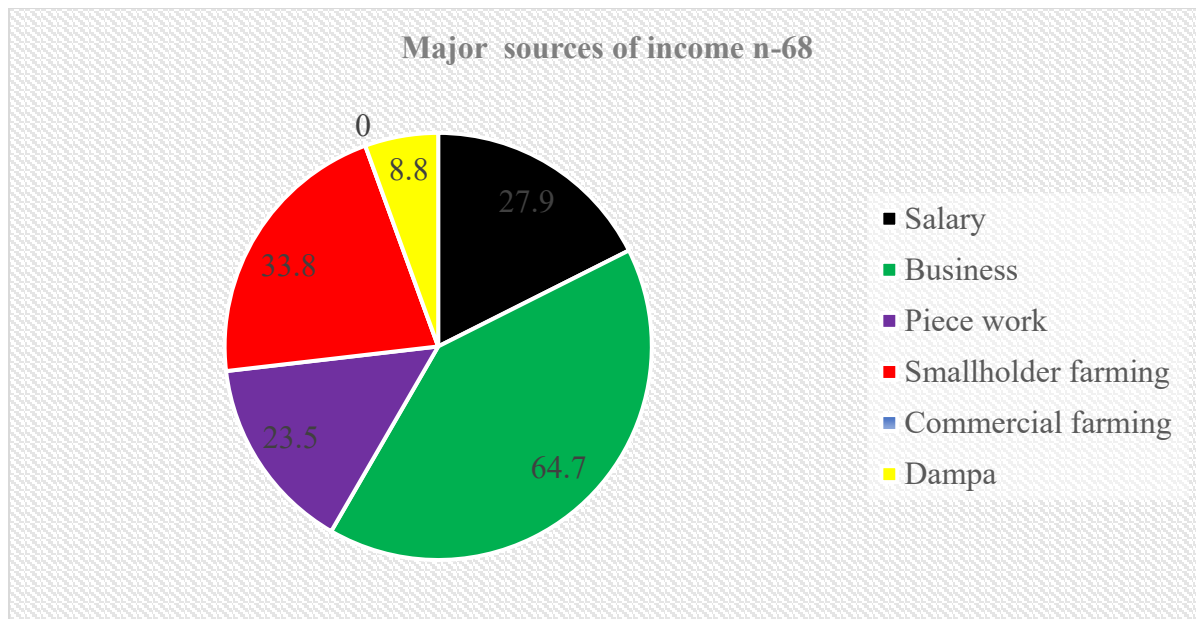


Figure 3: Major sources of income n-68

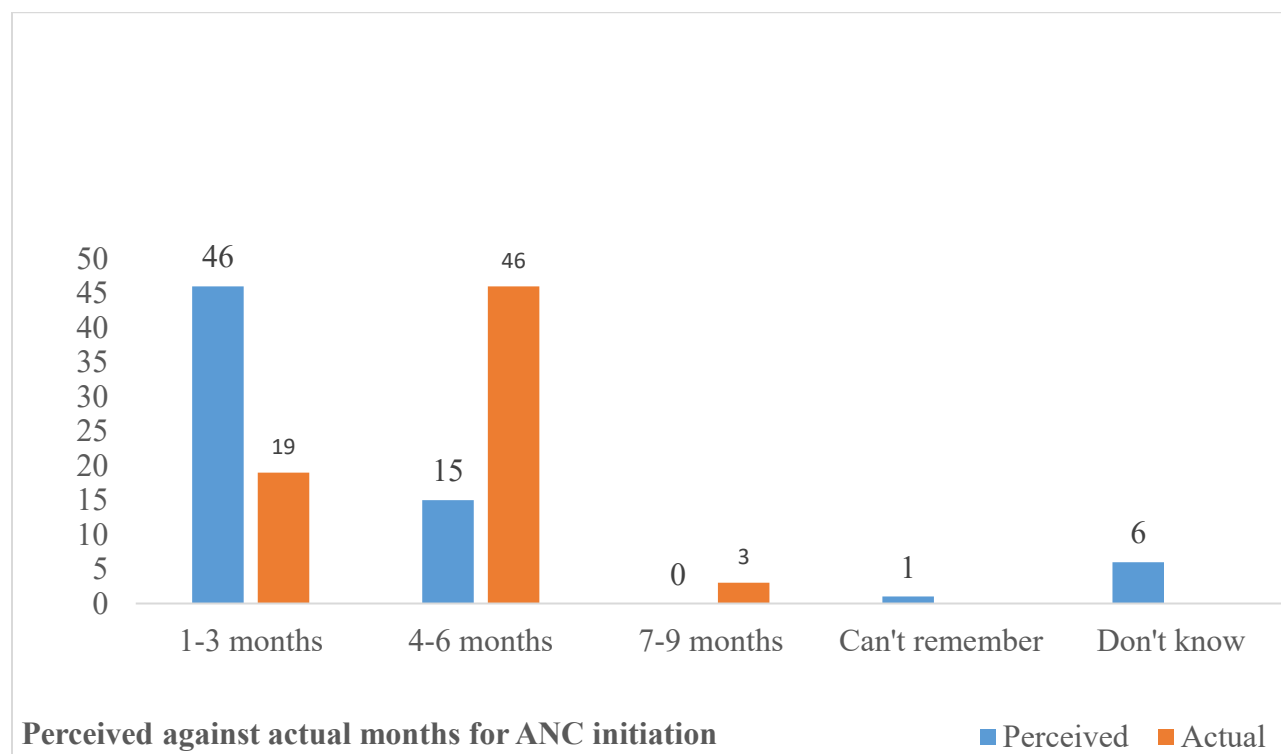
5.3 Obstetric related data

The participants were also asked about their obstetric information such as gravidity, parity, and perceptions regarding ANC timing and contact times. The findings revealed a mean gravidity of 2.28 (SD=1.601) and mean parity of 1.28 (SD=1.601). Refer Table 2. The study further revealed that 41% (n=28) of the participants did not know the recommended number of ANC contacts a pregnant woman should attain and 2.9% (n=2) of them met the minimum eight ANC contacts. In addition, the mean for ANC contacts attained by the women was 4.56 (SD=1.661). Table 2 illustrates.

Table 2: Pregnancy characteristics

	Minimum	Maximum	Mean	Std. Deviation
Gravidity	1	8	2.28	1.601
Parity	0	7	1.28	1.601
Known ANC contacts	3	11	7.93	2.949
ANC contacts attained	1	8	4.56	1.661

Regarding the participants' perceptions on the recommended time for initiating ANC and actual time they initiated ANC, the findings showed that 67.6% (n=46) of them perceived the first 3 months of pregnancy as the recommended time for initiating ANC while 27.9% (n=19) of the participants actually initiated ANC within the first 3 months with the majority of them initiated within the second trimester (4 to 6 months). Refer to the graphical presentation in Figure 4.

**Figure 4: Perceived against actual months for ANC initiation**

Regarding the participants' perceptions on the minimum recommended ANC contacts a pregnant women should attain, the findings showed that majority of them, 42.6% (n=29) perceived and attained 4 to 7 ANC contacts as the recommended frequency for contacts, 41.2% (n=28) had no knowledge regarding the recommended ANC contacts while 2.9% (n=2) managed to achieve the recommended WHO ANC contacts of eight. Refer Figure 5.

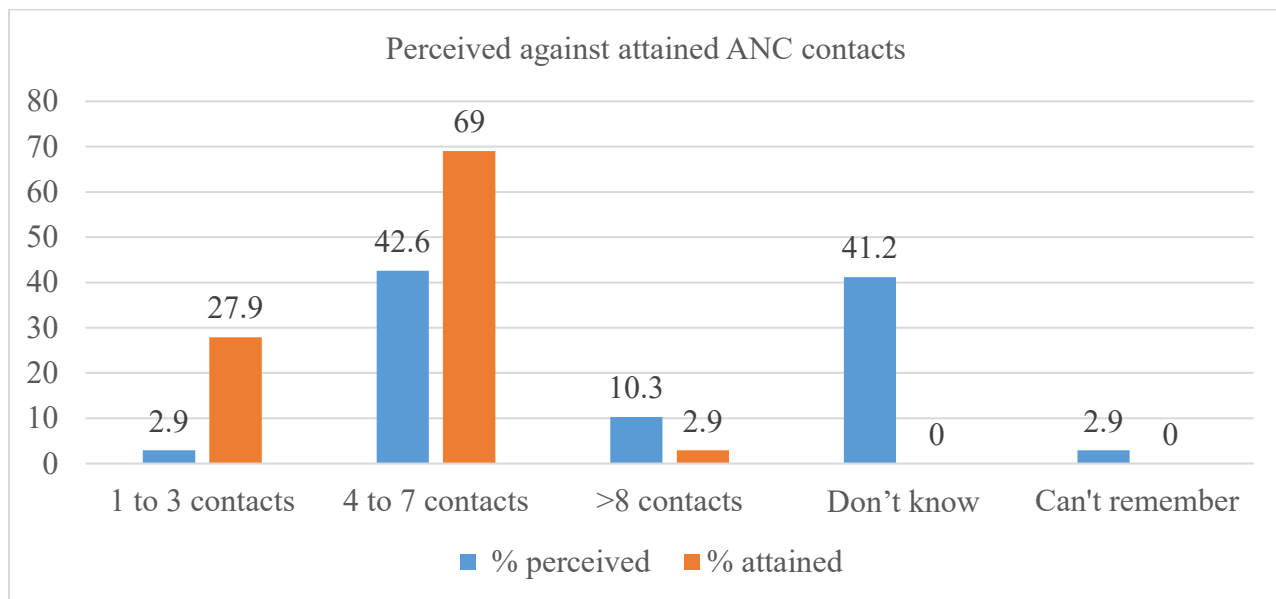


Figure 5: Perceived against attained ANC contacts

5.4 Perceived enablers for early ANC initiation

The participants were also asked about their perceived enablers and barriers for early ANC initiation and contact times. This study revealed the following as the most leading enablers for early ANC initiation: previous complications 39.7% (n=27), $X^2(1) = 5.314, p < .05$, sickness 33.8% (n=23), need to know health status 26.5% (n=18) and individual decision 14.7% (n=10) while the least enabler was previous complications which accounted for 2.9%. (Refer to Table 3).

Table 3: Perceived enablers for early ANC initiation

Enablers	X²	Df	P-value
Individual decision	0.847	1	0.357
Short Distance from home	1.217	1	0.27
Availability of Transport	1.648	1	0.199
Husbands Influence	1.217	1	0.27
Previous Complications	5.314	1	0.021*
Fear of Complications	1.84	1	0.175
Need to know Health Status	0.398	1	0.528
Sickness	0.808	1	0.369
Social Influence	2.338	1	0.126
Following Guidelines	1.59	1	0.207

NB: * 2-tailed sig at 5%

Perceived barriers for early antenatal care

Furthermore, the perceived barriers for early ANC initiation were also solicited from the participants and the major barriers were negligence 42.6% (n=29), lack of social support 27.9% (n=19), transport problems 20.6% (n=14), unplanned pregnancy 14.7% (n=10), $X^2(1) = 4.546$, $p < .05$), and lack of knowledge about the recommended month for starting ANC 11.8% (n=8), $X^2(1) = 5.378$, $p < .05$. On the other hand, fear of witches and maternal old age were the least barriers which accounted for 0% while health worker unfriendliness, having no previous complications, lack of necessary resources, sickness, hiding pregnancy and failure of health workers to identify pregnancy early accounted for 1.5%. Refer to Table 4.

Table 4: Perceived barriers for early ANC initiation

Barriers	X²	Df	P-value
Unplanned Pregnancy	4.546	1	0.033*
Lack of Social Support	0.035	1	0.852
Unfriendliness of some Health Workers	0.394	1	0.53
Perception that Pregnancy is a normal Condition	2.755	1	0.097
Having no Previous Complications	2.617	1	0.106
Traditional Practice	1.217	1	0.27
Lack of Knowledge about Recommended Time	5.378	1	0.020*
Transport Problems	1.633	1	0.201
Negligence	0.24	1	0.624
Avoiding more Visits	0.045	1	0.831
Doubting about Pregnancy	0.799	1	0.371
Fear of HIV Test	0.045	1	0.831
Failure of Health Worker to identify Pregnancy	0.394	1	0.53

NB: * 2-tailed sig at 5%

5.5 Perceived enablers for attaining recommended ANC contact times

The participants were also asked about their perceived enablers and barriers for achieving the recommended ANC contacts. The findings revealed the following as the main enablers: availability of quality care from health care professionals 52.9% (n=36), having obstetric complications 14.7% (n=10), having good knowledge about the recommended contact times 13.2% (n=9) and delayed delivery time (postdate), need to have good outcome and good socio-economic status of participants accounted for about 11.8% (n=8) and frequent scheduling of ANC contacts accounted for 4.4%, $X^2 (1) = 10.155, p < .05$. On the other hand, fetal wellbeing and

availability of transport to the health facility (0%) were the least enablers for the ANC contacts. These have been summarized in Table 5.

Table 5: Perceived enablers for 8 or more ANC contacts

Enablers	X²	Df	P-value
Place of Residence	0.129	1	0.72
Good Socio-economic Status	0.275	1	0.6
Availability of Quality Care	0.007	1	0.933
Knowledge about the number of Recommended Contacts	0.314	1	0.575
Need to have good Outcome	2.902	1	0.088
Frequent Schedules	10.155	1	0.001*
Early Starting	0.129	1	0.72
Having Complications	0.355	1	0.551
Delayed Delivery	0.275	1	0.6

NB: * 2-tailed sig at 5%

The participants were also asked about the perceived barriers for attaining the recommended 8 minimum ANC contacts. The main barriers for not attaining 8 or more ANC contacts were: negligence 38.2% (n=23), long distance 26.5% (n=18), delayed initiation of ANC contacts 25% (n=17), transport problems 17.6% (n=12), lack of money 16.2% (n=11), poor knowledge about the recommended contact times 14.7% (n=10) and individual decision 2.9%, $X^2 (1) = 15.985$, $p < .05$. On the other hand, the study established the least barrier as sickness of the woman (0%). All other presumed factors were not significant, $p > .05$. Results are presented in Table 6.

Table 6: Perceived barriers for 8 or more ANC Contacts

Enablers	X²	Df	P-value
Long Distance	0.742	1	0.389
Lack of Money	0.398	1	0.528
Poor Infrastructure	0.031	1	0.861
Long waiting time	0.031	1	0.861
Increased Number of Visits	0.062	1	0.803
Unfriendliness of some Health Workers	0.062	1	0.803
Poor Knowledge about the Number of recommended Contacts	2.046	1	0.153
Transport Problems	0.442	1	0.506
Delivery Before the Expected Date	0.164	1	0.686
Delayed Starting	0.687	1	0.407
Individual Decision	15.985	1	0.000*
Health Worker Scheduling	0.129	1	0.72
Fear of HIV Test	0.095	1	0.758
Having no Complications	0.031	1	0.861

NB: * 2-tailed sig at 5%

5.6 Qualitative results of the study

The qualitative data focused on the participants' perceptions on the recommended time for initiating ANC versus the actual time started, the recommended ANC contact times versus the actual number of ANC contacts attained, enablers and barriers for early ANC initiation and adherence to the recommended ANC contact times. A total of 12 participants comprising primiparas, multiparas, grand multiparas, adolescent mothers, urban or rural, aged 17 to 36 years and within 2 weeks post-delivery were included in the study provided they had attended their ANC at Salima District Hospital at least once, and had delivered without any complications. Triangulation of quantitative and qualitative findings enabled the researcher have a complete understanding about the perceptions of the participants regarding the enablers and barriers for early ANC initiation and contact times. Therefore, sections 5.6 to 5.6.6 present the qualitative findings of the study from different participants of the same population.

Table 7: Demographic characteristics of participants n=12

Feature	Frequency (n) =12	Percentage (%)
Age (years)		
15-17	1	8.33
18-20	2	16.66
21-25	4	33.3
26-30	2	16.6
31-34	1	8.3
>34	2	16.6
Residence		
Urban	5	41.6
Rural	7	58.3
Marital status		
Married	8	66.6
Unmarried	4	33.3
Education level		
Standard 1- 4	3	25
Standard 5-8	5	41.6
Form 1-2	1	8.3
Form 3-4	1	8.3
Tertiary	1	8.3
None	1	8.3
Number of children		
1 to 2	7	58.3
3 to 4	2	16.6
5 to 6	2	16.6
>6	1	8.3

Month ANC initiated

1 to 3	2	16.6
4 to 6	8	66.6
>7	2	16.6

Number of ANC contacts

1 to 3	4	33.3
4 to 7	8	66.6
>8	0	0

5.6.1 Perceptions on recommended ANC initiation time versus actual month started

Regarding perceptions of the participants on recommended ANC initiation time versus actual month started, the majority of the participants perceived that the first three months of pregnancy was the ideal month for starting ANC.

Their narrations were as below:

“As advised by the Health Surveillance Assistant from our catchment area, pregnant women are supposed to start antenatal care the first three months of pregnancy in order to get early services such as STL/HIV test and treatment for the protection of the unborn baby” (FGD1, P3).

Another participant echoed as follows:

“I also agree with my friend that the first three months of pregnancy is the recommended time for starting antenatal care because that is the period most of the health care workers have been teaching me during my previous pregnancies” (FGD1, P4).

Another one also said:

“My view is that the good time for the pregnant women to start their ANC is any time they feel they are pregnant; but three months should not elapse without starting” (FGD1, P3)

Another participant also echoed as follows:

“My understanding about the recommended time for initiating antenatal care was the time the woman has missed her monthly period but before the completion of the first three months” (FGD2, P 2)

These narrations were clear demonstration that the majority of the participants had good perceptions regarding the recommended time for initiating antenatal care.

Furthermore, on actual month the participants had started their antenatal care, most of them indicated that they had started after the first three months of their pregnancy.

The participants had this to say:

“My actual month for starting ANC was four months because I thought that was the good time the nurse could easily see and feel the presence of my pregnancy since some nurses would send you back and ask you to come on another date if they do not see nor feel anything” (FGI2, P6).

“As for me, I really knew that the ideal time for starting ANC was the first three months. However, I started at five months because of transport problems since I was supposed to have about K6, 000.00 as transport for me to go and return from the hospital” (FGD2, P2)

Another one illustrated as follows:

“For me, I started my antenatal care when my pregnancy was at six months because I did not want to have more ANC contacts” (FGD1, P1)

The other ones also said:

“My antenatal care was initiated at seven months because I was feeling shy to start early since it was unplanned” (FG1, P5)

“As for me, I started very late because I did not want people to recognize that I was pregnant at school since it was unplanned” (FGD2, P6)

These illustrations indicated that although the majority of the participants had good perceptions about timing of antenatal care initiation, their actual month of starting ANC was after the first trimester.

5.6.2 Perceptions on ANC contact times and the actual contacts attained

Participants were asked about their perceptions regarding the recommended antenatal care contact times and their actual number of ANC contacts they had attained.

The participants had this to say:

“My understanding about the recommended number of times a pregnant woman was supposed to contact the health facility was six times as educated during the time of visit. However, I only had attained four contacts because I thought there was no need for me to have more contacts since I was not sick” (FGD2, P5)

“As for me it’s the same as my friend because I really knew that the recommended number of times a pregnant woman should contact the health worker was six times, but I only had four contacts because I felt more contacts would be tiresome for me” (FGD2, P6)

Some participants indicated as follows:

“For me, I had no knowledge about the ideal antenatal care contacts and I managed to have four contacts (FGD1, P4)

“As for me, I had no knowledge regarding the ANC contacts since I was not educated when I visited the facility (FGD2, P1)

Another one illustrated as follows:

“I did not know that there were stipulated number of ANC contacts; I thought we could just attain any number as long as we had visited the facility” (FGD2, P8)

The illustrations above have shown that the participants had a variety of views about the recommended antenatal care contacts. In addition, this was also evidenced by the number of contacts they had achieved.

5.6.3 Perceived enablers for early ANC initiation

The participants were also asked about their perceptions regarding enablers for early ANC initiation. They provided different ideas as enablers.

The participants had the following narrations:

“My first pregnancy I started ANC late and the end result was that my baby was delivered by buttocks first, then I saw that Aa! May be this has happened because of delayed starting of ANC. Then I told myself that with the current pregnancy I should start fast, and this has made it different since the current baby has been delivered by head first, then I saw that it’s really important to start ANC early for it has made my current baby been born normally.” (FGD1, P3)

Another participant narrated as follows

“The way the health worker talks to us; speaking with respect and love when informing us about what we are supposed to do during pregnancy made me start my ANC visits in good time”(FGD1, P3)

Another participant had a different perspective that prompted her to initiate antenatal care early. The illustration was as follows:

“As for me, I forced myself to go and start my ANC early because my friend told me that some health care providers shout very much when you delay in starting”(FGD1, P2)

Sometimes, health problems pregnant women experience may prompt them to seek healthcare service early. During the focus group discussions, some participants narrated as follows:

I was just menstruating following insertion of loop. This made me go back to the hospital. Upon being examined by the nurse, I was told was pregnant by indicating that the loop had fallen off (FGD1, P2).

Other participants were just motivated by the healthcare received at the antenatal care clinic.

These participants had this to say:

“I was motivated to start ANC early because I wanted to receive Fansidar and mosquito net for me to get treated and get protected from malaria” (FGD2, P4).

“I started ANC early to protect my unborn baby from being infected by the current Sexually Transmitted Infections e.g. syphilis/ HIV before the problem reaches maturity since at this stage it might be difficult to protect the baby.” Also to receive medical help as early as possible (FGD2, P2).

These narrations signified that these participants had multiple factors that enabled them to initiate ANC early. Most of these factors were healthcare related.

5.6.4 Perceived barriers for early ANC initiation

On perceived barriers for early ANC initiation, some participants had multiple ideas and experiences regarding support from their husbands.

These participants narrated as follows:

“I failed to start ANC early because my husband could not give me money to buy some snacks in readiness for taking Fansidar for it once made me faint because I took it on an empty stomach.” (FGD2, G2P1)

Another one said:

“Sometimes men make us fail to go to ANC early because they do not give us transport money for they say they do not have and they should first of all go and search for the money. This makes us fail to go to the hospital early” (FGD1, G6P5).

In addition to above experiences, some participants shared views about their traditional and cultural aspects.

These participants illustrated as below:

“Some women who have been struggling to find a child start by visiting the Traditional Birth Attendant (TBA) before going to hospital to be confirmed about the presence of the

pregnancy and also receive some medicine for the pregnancy not to be aborted” (FGD1, P2)

....indeed, one of my friends also had a similar experience. Her pregnancy resulted from taking traditional medicine. So, the traditional healer advised her to have her initial antenatal care contact at the healer’s home in order to give her some medicine (FGD2, P1)

The issue of promoting a blood test for HIV prior to receiving antenatal care service also had an implication.

The participant had this to say:

“I was afraid of being tested for HIV. That’s the main reason I failed to start my ANC in the first three months” (FGD1, P2).

While the majority had shared some reasons that barred them from initiating their antenatal care early. Another one seemed having no specific reason.

The participant narrated as follows:

“Mmmm! (showing some facial expressions of feeling shy), “it was just due to laziness. I did not want to visit the hospital so many times” (FGD2, P1)

Some hormonal changes that result in menstrual alterations in some pregnant women affect early attendance of ANC, including achievement of the recommended contacts. This mostly happens when it’s coupled with failure of some health care workers to identify the pregnancy early. In addition, if the health facility lacks some necessary resources, such as pregnancy test kits. This was established during the current study as evidenced by the illustrations below:

“As for me, what made me start at the 5th month was that I was having heavy menses at 2 months and when I came here, and explained they said ‘we cannot see your pregnancy because it seems it is within the blood because you have got more blood. So you need to go back home and await.’ I also went for urine test for pregnancy and I was told the same thing. I then stayed with that problem for the next 3 months and until such a time when the

owner wanted and then I started feeling heavy. Upon reporting back here, I was then told that it was the 5th month and that was the time I then started ANC”. (FGD2, P4)

Furthermore, another participant narrated as follows:

“I missed my period for a month, thereafter I only spotted for two days for a period of two months which made me think it could not be pregnancy”. Then from the fourth month I could not see my period which made me go to the hospital where I was then told by the nurse that I had a four months pregnancy, this confused me.” (FGD1, P2)

In addition, multiparas that had given birth before without any complications may not see the significance of initiating antenatal care early and even having more frequent ANC contacts. However, since complications may arise at any time, these women may be required to adhere to the recommendations to prevent complications. These women narrated as below:

“The current pregnancy I did something childish because since I had in my mind that the previous pregnancies I had no complications throughout pregnancy, I thought there was no reason for me to rush to the clinic. That is why I started at five months pregnancy.” (FGD2, P3)

Another one added that:

“Mmmm! Without cheating you, for me, I delayed because I did not see any major reason for the delay. I just thought that early ANC initiation was mainly meant for those with either present or previous health problems” (FDG2, P4)

The focus group discussions also established that some health care providers’ behaviours barred pregnant women from starting ANC on recommended time as narrated below:

“Being forced to buy face masks by health workers when we do not have money. Sometimes, they even help others who do not have masks just because they either know them or are related to a staff member” (FGD1, P1).

“Asking us to go to outpatient department to be seen by the doctor when we have some health complaints. This demotivates us for we do not want to be on another cue (FGD1, P4).

One of them said:

“If the nurses do not feel the pregnancy, they may send you back and ask you to come again later when you start feeling the foetal movements” (FGD2, P2)

Based on the narrations stated above, the following factors delayed the participants from initiating their ANC early: socioeconomic factors, sociocultural, healthcare and individual factors.

5.6.5 Perceived enablers for 8 or more ANC contacts

Regarding perceived enablers for 8 or more ANC contacts, participants narrated as follows:

“Nurses monitor your weight during each and every ANC visit. If it is reducing you are put on nutritional supplement, like soya for you to be eating porridge in order to increase in weight. This prompted me visit the facility as advised”. (FGD1, P1)

Another one had this to say:

“When you are being seen by the nurse frequently, they are able to monitor your unborn baby’s health status, how the unborn baby is lying and breathing in the uterus. If there is any problem, the nurses offer you immediate help” (FGD1, P3)

Another one said:

“As for me, I was not feeling well because I was coughing and having general body pains. These made me being seen by nurses frequently and attain more ANC contacts” (FGD2, G5 P4)

“As for us we had more contacts (6 contacts) because the nurse gave us two appointment dates within a month.”(FGD1, P1)

Another participant had this to say:

“I was motivated to have more ANC contacts because I heard that frequent ANC contacts would make the unborn baby active even during birth because it makes the baby to come out without any delays” (FGD2, P1)

These narrations have demonstrated that the participants had varied views regarding enablers for their attainment of 8 or more antenatal care contacts.

5.6.6 Perceived barriers for 8 or more ANC contacts

On the perceived barriers for attaining 8 or more ANC contacts, the study revealed that most of the participants were demotivated by the bad behaviours of some health care providers as portrayed in the following comment:

“I failed to have more contacts because the time I went for my initial ANC contact, the nurse told me that Insecticide Treated Nets (ITNs) were not available, and she advised me to come next time. Unfortunately, during my next visit, the nurse said the available ITNs were reserved for only those coming for the first visit. This upset me and made me not to go again for ANC.” (FGD2, P5)

Increased number of antenatal care contacts from four targeted visits to a minimum of eight contacts has also impacted on the clients negatively. In this regard, some participants seemed not comfortable with the increased number of ANC contacts.

The participant had this to say:

“I did not want to visit the facility more than once, rather I wanted just to visit the facility once and then go for delivery.” (FGD2, P1)

Yet another one narrated as follows:

“Increased number of ANC visits is costly to us especially when we relate that to the long distance and transport problems most of us experience. Some of us require bicycle transport money of about 3000 to come to the hospital” (FGD1, P1)

Another one commented as follows:

“I also agree with my friend because previously we were starting ANC at 4/5 months of pregnancy and have about 3 /4 ANC visits. Nowadays, health workers are saying we should have 8 ANC visits even if you may start ANC late” (FGD1, P5)

Some participants narrated that they failed to meet subsequent ANC appointment dates due to negligence as presented below:

“I failed to have more ANC contacts because I saw no reason since I had no problems in my body.”(FGD1, P1)

Promotion of male involvement in order to increase their involvement in reproductive health care services utilization was stated as one of the challenges deterring women to meet the WHO ANC recommendations. Participants indicated that the way clients are handled during the ANC contact also has a bearing on their further visits.

One of participant narrated by below.

“I reported at the ANC clinic at around 10 AM due to body pains but was assisted at around 2 PM because I did not bring my husband. I tried to ask for help by telling them how I was feeling (failing to sit properly on the chair due to body pains).This made me think of finding bicycle taxi driver (wadampa) in order to be assisted but then decided to continue waiting until I got assisted 4 hours later than I came”.(FGD2, G6 P5)

From the above shared narrations, healthcare factors played a significant role in interfering with women’s utilization of antenatal care.

From these narrations of the participants, categories and themes emerged (Refer to table 6).

Table 8: Emerged themes

Focus area	Significant statements	Category	Theme
1. Perception on ANC initiation time and actual time initiated	“As advised by the Health Surveillance Assistant from our area, pregnant women are supposed to start antenatal care the first three months of pregnancy in order to get early services such as STL/HIV test and treatment for the protection of the unborn baby”	Need for other health care services	Acknowledging ideal time and benefits of early ANC initiation
	“I really knew that the ideal time for starting ANC was the first three months. However, My actual month for starting ANC was four months because I thought that was the good time the nurse could easily see and feel the presence of my pregnancy since some nurses would send you back and ask you to come on another date if	Need to initiate ANC within the first 3 months of pregnancy	

	they do not see nor feel anything		
	“I also agree with my friend that the first three months of pregnancy is the recommended time for starting antenatal care because that is the period most of the health care workers have been teaching me during my previous pregnancies”		
	“My understanding about the recommended time for initiating antenatal care was the time the woman has missed her monthly period but before the completion of the first three months”		
2. Perceptions on ANC contact times and actual	“My understanding about the recommended number of times a pregnant woman was supposed to contact the health facility was six times as educated during the time of visit.	Mixed information about recommended ANC contacts	Knowledge deficit about the ideal number of ANC contacts to be attained

contacts attained	However, I only had attained four contacts because I thought there was no need for me to have more contacts since I was not sick”		
	“As for me it’s the same as my friend because I really knew that the recommended number of times a pregnant woman should contact the health worker was six times, but I only had four contacts since I felt more contacts were just tiresome”		
	“For me, I had no knowledge about the ideal antenatal care contacts and I managed to have four contacts”		
3. Perceived enablers for early ANC initiation and recomme	“My first pregnancy I started ANC late and the end result was that my baby was delivered by buttocks first, then I felt that Aa! May be this has happened because of	Having positive or negation beliefs	Traditional beliefs

ended contact times	delayed starting of ANC. Then I told myself that with the current pregnancy I should start ANC early”		
	“I was motivated to have more ANC contacts because I heard that frequent ANC contacts would make the unborn baby active even during birth because it makes the baby to come out without any delays”		
	“To get the vaccines that would make my baby not to be born too quite		
	“Some women who have been struggling to find a child start by visiting the TBA before going to hospital to be confirmed about the presence of the pregnancy and also receive some medicine for the pregnancy not to be aborted”.	Child wish experience leading to Traditional consultation first	

	“The way the health worker talks to us, speaking with respect and love when informing us about what we are supposed to do during pregnancy”	Healthcare workers’ positive or negative attitude	Healthcare workers’ attitude
	“To meet the requirements of the healthcare providers since they educate us to start ANC before the end of three months of our pregnancy”		
	“Health care providers shout at us when we start ANC late, that’s why I started in the first three months”		
	“Telling you that the mosquito nets have finished yet some of the nurses’ friends are being given. Or telling us that we shall receive next visit yet when you come again they tell you that		

	they only have nets for those starting ANC”		
	“Being forced to buy face masks by health workers when we do not have money. Sometimes, they even help others who do not have masks just because they either know them or are related to a staff member”.		
	“To get tested for HIV/AIDS and syphilis and be treated if found positive for protection of my unborn baby”	-Need to protect self and unborn baby	Protection of self and unborn baby
	“I was motivated to start ANC early to receive Fansidar and mosquito net to protect my unborn baby from malaria”		
	Fear of delivering a dead baby since when you are being seen by the nurse frequently, they are able to monitor and tell you about the health status of		

	your unborn baby, presentation and whether breathing normally or not		
	As for me, I was not feeling well because I was coughing and having general body pains. These made us being seen by nurses frequently.		
4. Perceived barriers for early ANC initiation and contact times	“Sometimes men make us fail to go to ANC early because they do not give us transport money for they say they do not have and they should first of all go and search for the money. This makes us fail to go to the hospital early”.	Failure of spouse to meet transport cost	Poor socioeconomic status
	“Some of us started ANC late because we had no money to buy some snacks when we go to the hospital since we cannot take fansidar without any food”	Lack of money to buy snacks	

	“.....however, I started at four months because of transport problems since I was supposed to have about K6, 000.00 as transport for me to go and return from the hospital”	High transport cost	
	“Helping first those accompanied by their husbands even if those without husbands came with health problems or earlier. They should be alternating when seeing us. “I remember one other time, I left home at 5am and arrived at the antenatal clinic 6am and was helped at 2pm because of the women who came with their husbands”	Failure of midwives to triage mothers	Hospital system
	“Asking us to go to outpatient department to be seen by the doctor when we have some health complaints. This demotivates us for we		

	do not want to be on another cue.		
	“Because if the nurses do not feel the pregnancy, they may send you back and ask you to come again later when you start feeling the foetal movements”	Health care provider’s failure to diagnose pregnancy early	
	“As for me, I started ANC late because I was having heavy menses. Upon coming to the hospital the 2 nd month, the midwife told me that my pregnancy was in the blood and was sent back home. At 5 months, I came back to the hospital where I was sent to laboratory for pregnancy test where the pregnancy was then confirmed”		
	“We do eat, but since we spend almost the whole day at the hospital moving from one office to another, i.e.	Late return back home	

	weighing, blood test, examination and sometimes laboratory. These make us go back home late like around 2pm”		
	I delayed in starting ANC because of fear of being tested for HIV	Anxiety about outcome of blood investigations	Fear of the unknown
	“I did not want to have more visits since if you start early you may end up having more ANC visits”	Not wanting to have more ANC contacts	Individual negligence
	“Some women delay because they want just to visit ANC once and then go for delivery”		
	“I had 3 ANC visits because I wasn’t suffering as others do. So there was no need for me to go there frequently”		
	“I was menstruating the first 2 months of my pregnancy so I thought it could not be pregnancy.	Being ignorant of signs and symptoms of pregnancy	

	That's why I was just staying at home until the 3 rd month when I had no mense and then decided to visit the hospital"		
	"I could not see the reason for me to rush for ANC since it was not my first pregnancy and I knew what the health provider would do on me".	Having previous experience	
	"I did not want people to be talking about me since my pregnancy was unplanned"	Feeling shy	unplanned pregnancy

6.0 DISCUSSION

The main objective of this study was to assess the perceptions of postnatal mothers regarding enablers and barriers of early antenatal care initiation and contact times at Salima district hospital to promote effective implementation of the new WHO ANC guidelines.

The Quantitative study approach discussion focuses on the demographic data, perceptions of postnatal mothers on the recommended time for initiating ANC and contact times, enablers and barriers for early antenatal care initiation and contact times.

The present study revealed that the women came from both urban and rural areas and their ages ranged from 18 to 25. Those coming from the rural areas were, however, more than those from the urban areas. This means that the study was dominated by women from the rural area. In addition, majority of them were married, with low educational and economical status. Although the current quantitative study has not established any significant association between these predisposing characteristics and early ANC booking, including the achievement of the recommended minimum of eight ANC contacts, evidence from Central and Southern Asia; Latin American and Caribbean (Jiwani et al., 2020), Ghana (Ekholuenetale et al., 2021), Ethiopia (Oyato et al., 2024) & Low and Middle Income Countries (Tegegne et al., 2024) have demonstrated a strong link between these predisposing characteristics and antenatal care initiation and utilization. This means that these characteristics affected ANC utilization either positively or negatively. Nonetheless, the finding on educational status contradicts that in African countries (Ebonwu et al., 2018). Similarly, rural area dwelling was not significantly associated with early initiation of antenatal care nor attainment of a minimum of eight ANC contacts. Evidence from elsewhere have revealed a significant association between rural area residence with late and underutilization of antenatal care (Ambaye, Legasa and Hailiye, 2023; Ndomba et al., 2023). Similar findings were found in 15 African countries (Ekholuenetale, 2021). In these countries, a comparison of prevalence of eight or more ANC contacts observed a steady increase in 8 or more ANC contacts among the urban dwellers in all the 15 countries than the rural inhabitants. The observed difference in rural-urban inhabitants shows inequality among these women. Rural area has negatively affected the use of ANC, including other maternal healthcare services. Some findings have justified how

residing in urban area is advantageous on ANC utilization (Ekholuenetale, 2021). This means that being an urban resident increases the likelihood of utilizing antenatal care services. This is obvious in most of the urban areas since they have got greater opportunity of having more health facilities, thereby easing women's access to quality health care services compared to their rural counterparts. Although the current quantitative results would not establish any statistical significance for this demographic characteristic, the present qualitative results revealed that some pregnant women delayed in initiating their ANC and attained fewer than eight recommended ANC contacts due to poor socioeconomic status. The presumed justification suggests that rural areas are more associated with multiple barriers to health service utilization such as long distance, low educational status, low socioeconomic status and early marriages. Therefore, maternal health program should employ deliberate measures targeting these rural women such as outreach clinics and community sensitization on the importance of early ANC and attainment of a minimum of eight ANC contacts in order to promote ANC indicator performance and health outcomes.

Furthermore, the highest level of education attained by the participants was senior primary education, were predominantly earning minimum monthly income, and that they were primiparas. Findings of this study demonstrated an overwhelming trend, whereby these demographic characteristics were neither significantly associated with early antenatal care initiation nor attainment of more contacts. Contrary, studies from Ghana, Malawi and the eight rural communities in Delta State, Southern part of Nigeria have demonstrated a significant association between primary education, adolescents, low socioeconomic status and primigravidity with late and underutilization of ANC (Ekholuenetale et al., 2021; Ng'ambi et al, 2022; Sui et al., 2021). Those below secondary education, irrespective of age, place of residence, timing to ANC initiation and parity had delayed ANC initiation and lower uptake of eight or more ANC contacts. Over the years, it has been argued that disparities in socioeconomic status resulting in out-of-pocket expenditure, poor access to well-equipped and functional healthcare facilities, lack of women's enlightenment and poor decision-making power have been barriers to maternal health care utilization (Tesfu et al., 2021; Semaw et al., 2023) . These observations are in line with many other reports on the analysis of socioeconomic disparities, where higher coverage of maternal health care services was registered amongst women with higher educational levels and those from rich

households as compared with those from less educated and disadvantaged women (Nwosu and Ataguba, 2019; Shibre and Mekonnen, 2019). This suggests that policy makers should promote girl child education and adult literacy targeting those from the rural areas for them to be empowered and improve their decision-making efforts on maternal healthcare issues.

The study also revealed that the participants delayed in initiating their antenatal care despite having good perception that the first trimester is the recommended time for initiating antenatal care. This means that the participants did not meet the current WHO ANC recommendations, which promote first contact within the first 12 weeks of gestational age (WHO, 2018). The present study corroborated other studies conducted in Malawi and elsewhere (Chikalipo et al., 2018; Tesfu et al., 2021) in which most of the pregnant women initiated ANC in second trimester despite their good understanding of the recommended time for initiating ANC. However, the current findings were lower than those reported elsewhere. The possible explanation would be that majority of them were from the rural areas and with primary education. Besides that, the midwife might not have emphasized on the significance of early antenatal care or the clients themselves might have other commitments. The current findings are inconsistent with previous reports from Axum town, Tigray, Ethiopia on timing of first antenatal care attendance and associated factors among pregnant women which established that those that perceived that the correct timing of ANC initiation was before 16 weeks of gestational age were three times more likely to book their ANC timely than those who perceived it inappropriately (Gebresilassie et al., 2019). This finding suggests that good perception might correlate with timing of antenatal care initiation.

The actual month the participants had initiated their ANC in the present study was slightly higher than the Malawi national performance (NSO, 2017). This might be attributed to the difference in scope of the study, to the fact that the national study covered more rural areas, and that this study was conducted at an institution; hence, there would be high probability for them to attend early ANC than the general population. The present results confirmed a big challenge of late ANC initiation in Salima, Malawi and other low resourced settings around the globe including but not limited to Ghana, Nigeria and Myanmar (Ekholuenetale et al., 2020; Mugo et al., 2020; Ahinkora et al., 2021). The findings contradict that of Jiwani et al. (2022), which established that 44.3 % of

women initiated their ANC in first trimester. However, this performance was attributed to the setting since regionally, women in Central and Southern Asia had the best performance of timely ANC initiation than the sub-Saharan Region. Although the current bivariate analysis results have not associated antenatal care initiation time with antenatal care contact times, other study reports of eight or more antenatal care contacts during pregnancy, conducted in Africa including the Central and Southern Asia have significantly associated early ANC initiation with the achievement of more ANC contacts, including access to quality care (Ekholuenatale, 2021). The current quantitative findings corroborate the qualitative findings which also demonstrated that more women delayed in initiating antenatal care. Since so few women initiated their first ANC contact late in Malawi and elsewhere, there should be collaborative efforts between the government, non-governmental organizations and the maternal health care program Officers to strategize on the effective measures for promoting early antenatal care attendance thereby increasing the coverage of ANC 8+, with target to those women from the rural communities.

Furthermore, the study revealed that the women had mixed perceptions regarding the recommended antenatal care contacts. Some had no knowledge while others knew different number of times ranging from 4 to 6 times. Only 2.9% of the women managed to attain at least eight ANC contacts. Similar patterns have been observed by other researchers in low resourced settings around the world, including but not limited to Ghana, Nigeria and Myanmar, including Malawi (Ekholuenetale, et al., 2020; Ahinkora et al., 2021; NSO, 2021), though the current finding was lower. Noncompliance with the minimum of eight antenatal care contacts is, indeed, a common occurrence in sub-Saharan Africa and has been estimated to range from 99% in Zambia to 73% in Libya (Odusina et al., 2021). In support of this evidence, data review from Africa has demonstrated that the prevalence of a minimum of eight ANC contacts is minimal in the majority of the countries, ranging from 1% in Senegal, Zambia and Uganda to 43 % in Ghana (Ekholuenetale, 2021). The performance of eight or more ANC contacts during pregnancy has been related to factors such as the timing of the initial ANC contact, maternal education and wealth (Ekholuenetale et al., 2020; Ahinkorah et al., 2021; Ekholuenetale, 2021). Therefore, the study suggest that acknowledgement and improvement of the community in such aspects would help improve compliance with the 2016 WHO ANC Model.

However, the current findings contradict that from the 30 Low and Middle Income Countries (LMICs) despite the setting for the study being amongst the same LMICs (Apanga and Kumbeni, 2021). The low compliance with the minimum of eight antenatal care contacts across many countries including Malawi could have been due to many reasons. Some countries might not have adopted the new WHO ANC guidelines (Ekholuenatale et al., 2020). In addition to that, some community members might not be aware of the changes as indicated in the current mixed study. This might mean that adherence to WHO recommendations of a minimum number of antenatal care contacts in Malawi is poor. Thus, the nation has a long way to achieve the sustainable development goal's target on maternal and child health. On another note, perceptions of midwives regarding the increased number of antenatal care contacts may also have a negative bearing on the achievement of the guidelines. Health care workers with good perceptions might take a leading role in encouraging the community members to comply with the WHO recommendation, unlike their counterparts (Kourouma et al., 2021). Therefore, the study proposes that the maternal and child health programmes should review the existing implementation strategies and identify the challenges that might be interfering with meeting the guidelines such as intensifying measures on community sensitization for the community to know about the changes and then adhere to the adapted ANC guidelines.

Regarding perceived enablers for early antenatal care initiation and contact times, the current study revealed that fear of complications, sickness, need to know health status, individual decision and previous complications influenced antenatal care initiation. In addition, availability of quality care, having obstetric complications, good knowledge about contact times and frequent scheduling of contacts were the perceived enablers for ANC contacts. However, previous complications and frequent schedules were the only statistically significant enablers associated with early ANC initiation and attainment of more contacts, p value 0.021 and 0.001 respectively. These results confirmed the systematic review conducted in sub-Saharan Africa (Ali et al., 2020; Okedo-Alex et al., 2019). Complementary, the present findings on previous complications prediction on timing of ANC corroborated another study conducted in Nigeria which revealed that women whose previous childbirth was by caesarean section had 25% shorter time interval to initiate ANC than those whose last birth was vaginally (Fagbamigbe et al., 2021). This finding also collaborated with similar previous studies (Adow et al., 2020; Kisaka and Leshabari, 2020). Another study conducted

in Tanzania, women with previous or current obstetric complications were more likely to book an ANC contact earlier than others (Kisaka et al., 2020). In Kenya, women with obstetric complications during their last pregnancy were twice as much likely to utilize ANC than their counterparts (Adow et al., 2020). This might be attributed to the worries these women could have about themselves and their fetuses which compels them to better uptake of ANC. However, this study utilized secondary data gathered from the self-reported interviews, which might be risky to recall bias and social desirability errors. Furthermore, some factors that are probably significant in determining the timing of the initial ANC contact, such as the quality of ANC provided, including women's perceptions of the ANC, were not available for consideration in the existing data.

However, the current study findings could be generalized since the sample size was large enough and a good representation of the Ethiopian nation. In addition, the study utilized sophisticated statistical design, which allows the greater reliability of the findings for control of the confounding factors. Nevertheless, the current findings contradicts the findings from Bhutan in Eastern Himalayas (Dorji et al., 2019). This highlights that not everyone with previous obstetric complication can start ANC early and attain the necessary ANC contacts.

The present findings also correlate with the qualitative findings which also established that some women initiated their ANC early and attained more contacts for the midwives to identify their current risks, including those for their fetuses and provide the necessary care to prevent recurrence or bad outcomes. The possible explanation for this suggest that such women may be more aware of the potential health risks as compared with their counterparts and desire closer monitoring and surveillance in order to prevent themselves from recurrences.

In addition, frequent scheduling coupled with compliance with the appointment dates was found to be a strong predictor for more antenatal care contacts. By scheduling the appointment date at regular intervals, midwives would promote the likelihood of pregnant women attending multiple contacts, since they are more likely to adhere to the appointment date that are closely spaced would also enable women attain more ANC contacts. In this regard, women's pregnancy experiences and Midwives' scheduling of antenatal care contacts need to be considered as critical for good timing and increased frequency of antenatal care contacts. Therefore, the study suggests that high risk pregnant women, especially those with previous obstetric complications should be

identified and encouraged to initiate their ANC early for prompt identification of the potential risks and proper scheduling in order to closely monitor them for any eventualities. However, studies that correlate frequent scheduling of ANC contacts and the attainment of more contacts seemed scanty, hence, the need for the subsequent researches to consider assessing more about this correlation.

Furthermore, despite having no significant association between the respondents' knowledge status about the recommended timing for initiating ANC and the actual month initiated, previous studies have indicated correlation between the two variables. In this study, women who had knowledge about the recommended time for initiating ANC were 3.14 times more likely to book with the first trimester compared to women who were not knowledgeable (Tesfu et al., 2021). It might be explained that exposure to information on early ANC contact, promotes women's level of understanding and increases knowledge on the advantages of timely booking. However, this contradicted findings from Tanzania which revealed that not all pregnant women may be given adequate information regarding ANC initiation time due to several reasons including inadequate staffing levels in public hospitals (Heri, Mselle and Malqvist, 2023). In this study, inadequate number of nurse-midwives, increased number of clients and insufficient time were reported to impact on inadequate sharing of information with antenatal clients. Strategies for effective provision of information during antenatal care contacts should be considered such as group antenatal care and information technology. In addition, there is need to sufficiently deploy and motivate nurse-midwives. This component of considering health care workers, especially, nurse midwives in implementing the new WHO ANC guidelines corroborates findings from Cote d'Ivoire (Kourouma et al., 2021). In this study, healthcare providers proposed that for effective implementation of the new WHO Model, there is need for those in authority to provide clear guidance to midwives, by disseminating the 2016 WHO new ANC Model to them in order to allow further rolling out of the guidelines to the community members.

Furthermore, the quantitative results could not establish any significant association between provision of quality healthcare services with early ANC initiation and achievement of eight or more contacts. In contrast, Boah et al. (2022), observed that the attainment of eight or more ANC contacts and the timing of the initial ANC contact had an independent association with the quality

of care received. On the one hand, women who made at least eight contacts during their previous pregnancy had a higher chance of receiving the full set of interventions. Women whose first contact was initiated in the second or third trimester, on the other hand, had a lower chance of receiving the full set of interventions, with a much lower chance noted among those whose first contact was in the third trimester. Previous studies identified that late initiation of ANC was associated with fewer than eight contacts, resulting in missed opportunities for ANC interventions (Ekholuenetale, Nzoputam, et al., 2020). Our bivariate analyses revealed that even among women who initiated ANC in the second trimester, those who made at least eight contacts were more likely to receive the full set of interventions. However, it is unclear at what contacts in these women's schedules these interventions were received, given that the DHS only records if the service was received by the woman during ANC. The findings emphasize the importance of both timely ANC initiation and frequent contact by pregnant women before delivery to reap the majority of the benefits of ANC. Specifically, a minimum of eight ANC contacts appears to be the key driver of receiving a greater number of ANC components during pregnancy, lending support to the new guideline on the minimum contacts required by pregnant women for a positive pregnancy experience (WHO, 2016). Nonetheless, there is deficiency of literature on how adherence to the revised guidelines on ANC coverage relates to receiving quality care in Cameroon, a country with a high burden of maternal mortality where most of the existing studies have focused on the utilization of ANC, including the determinants of the timing and frequency of ANC contacts (Ahinkorah et al., 2021; Venyuy et al., 2020). Recent study publication has been observed on the quality of care received during pregnancy by Ameyaw et al. (2024). The study reported that women's empowerment indicators such as knowledge and attitude toward domestic violence were associated with access to quality care during pregnancy in Cameroon. However, since the focus of their study was on how women's empowerment affects their ability to get good care during pregnancy, more research is needed to better understand the relationship between the frequency and timing of ANC contact under the revised WHO guidelines and the likelihood of getting basic ANC interventions during pregnancy.

On the perceived barriers for early ANC initiation and contact times, the study established that negligence, lack of social support, transport problems, unplanned pregnancy and lack of knowledge were the main barriers for early ANC initiation. Furthermore, negligence, long

distance, delayed initiation of ANC, transport problems, lack of money, poor knowledge and individual decision were perceived as the main barriers for achieving more ANC contacts. However, only lack of knowledge regarding the recommended time for initiating ANC, unplanned pregnancy and individual decision were statistically significant findings which were associated with early initiation and utilization of ANC, p value 0.020, 0.033 and 0.000 respectively. These findings corroborated other studies in sub Saharan Africa (Ambaye, Regasa and Hailiye, 2023; Okedo-Alex et al., 2019).

Lack of knowledge in the present study might be attributed to the majority of the participants attaining senior primary education and coming from the rural areas. Although the Chi square did not establish any significant association between women's educational status and place of residence with timing for ANC initiation and contact times, studies from elsewhere have observed that women who have attained secondary or higher level of education tend to initiate their ANC early and attain more ANC contacts than their counterparts (Rustagi et al., 2021; Tekeleb et al., 2019). The present findings highlight the need to reinforce community awareness campaigns regarding the new WHO ANC guidelines for effective implementation. In addition, maternal health program to collaborate with the educational sector in promoting female and male education, and uptake of family planning services in order to reinforce women's self-awareness and capability to make decisions with confidence regarding their health issues and to secure desirable pregnancies.

Furthermore, the present study has also established significant association between unplanned pregnancy and delayed ANC initiation. This corroborated findings from Southwest Ethiopia and elsewhere (Redi et al., 2022). In addition, the current findings also corroborate findings from the sub Saharan African Demographic Health Survey (Habte, Tanene and Melia, 2024), including those conducted in other parts of Ethiopia (Teshale and Tesema, 2020; Woldemmanuel and Belachew, 2021). This could be attributed to the preparations done by the women who had planned to become pregnant and had an opportunity to detect the pregnancy earlier at health facilities, leading them to initiate ANC in the first trimester. On the other hand, couples, are typically less vigilant about accessing ANC services when the pregnancy is unwanted (Islam and Masud, 2018). This might be secondary to unplanned pregnancies being not cared for by pregnant women and

their spouses thereby leading to delayed initiation. Therefore, there is need that women should use modern family planning methods in order to avoid untimely pregnancies which may risk them to poor adherence to WHO ANC guidelines.

Discussion on qualitative findings centers on the following key emerged themes used as a basis to explain the perceived enablers and barriers for early ANC initiation and contact times: acknowledging ideal time and benefits of early ANC initiation, having knowledge deficit about ideal number of ANC contacts to be attained, traditional beliefs, health care workers' attitudes, protection of self and unborn baby, poor socioeconomic status, hospital system, individual negligence and unplanned pregnancy.

The study revealed that most of the participants perceived the first three months of pregnancy as the ideal time for initiating ANC. This was evidenced by their citation of the benefit of this early ANC initiation such as to access health services like mosquito net, Fansidar and HIV/STI tests on time and get prompt treatment upon testing positive. This finding is similar to the current quantitative results and a study conducted at Mbekweni in South Africa and Central Ethiopia which also demonstrated that the majority of the respondents knew about the recommended time for initiating ANC despite their delay (Kaswa, Rupesinghe and Longo-Mbenza, 2018). Similar findings were found at Ndirande health center, in Malawi, whereby the primary motivation for the pregnant women to initiate early antenatal care was because of the perceived benefits felt by the participants such as the need to receive Fansidar (Chikalipo et al., 2018). However, this contradicts the findings from another study conducted in Cameroon which established that the majority of women lacked understanding of the purpose for early ANC initiation. They primarily perceived early ANC as provided to prevent, detect or treat diseases (Okedo-Alex et al., 2019; Warri and George, 2020). Early booking in turn might promote attainment of the minimum of 8 ANC contacts (Ekholuenetale et al., 2020). However, findings from Bhutan established that early booking does not reflect the number of ANC contacts in all situations since some may have more contacts but with the booking in second or third trimester (Dorji et al., 2019). Therefore, this suggests the need for the maternal health program to reinforce Information Education and Counseling to clients and the community on importance of early ANC initiation and their benefits in order to improve and promote the implementation of the new WHO ANC guidelines.

The study also established that most of the participants had poor knowledge regarding the recommended number of ANC contacts. This was demonstrated by their mixed information with the majority knowing about six times. This finding was similar to the current quantitative study which also revealed that most of the participants did not know about the current recommended number of ANC contacts. Similar findings were established during the previous Multiple Indicator Cluster Survey done in 30 Low and Middle Income Countries (Apanga and Kumbeni, 2021; Zhou, et al., 2020). This might be due to inadequate exposure to health information. In this regard, women may not have enough access to reliable sources of information, such as healthcare providers, media or community healthcare workers, in order to learn about the new WHO ANC contacts. Therefore, community sensitization on new WHO ANC guidelines should be intensified for effective implementation of the model.

The present study revealed three major themes under perceived enablers for early ANC initiation and contact times thus: traditional beliefs, healthcare workers' attitude and protection of self and unborn baby.

Traditional beliefs also emerged as one of the main themes in this study. Studies have documented that traditional beliefs and practices interfere with seeking modern healthcare promptly. The current results thus support the effect of such practices which still are in existent, particularly in rural communities and amongst women who adhere most to the traditional rites in Malawi. The current finding correlates with the reviewed literature for studies conducted in Malawi and elsewhere (Chimatiro et al. 2018; Tsegaye et al., 2021; Warri and George, 2020). Evidence from these reviewed studies demonstrated that some traditional beliefs and cultural practices such as need for primigravidas to undergo special ceremonies before initiating ANC, allowing primigravidas to deliver at their parents' homes also affects the attainment of more ANC contacts. Another study found that primigravidas' delivery at parents' place affected their number of ANC contacts (Tsegaye et al., 2021). In this study, some cultures force primigravidas to deliver at their parents' place, and they are forced to go there during third trimester. This affects their subsequent attendance for antenatal care services either due to long distance or a feeling that the pregnancy is mature and no need to continue with ANC. Similar findings were established in another study conducted in Malawi. In this study, prolonged waiting of primigravidas for the marriage

counselling by the man's relatives led to their delay in starting ANC (Chimatiro et al., 2018). In this regard, even though most of the women knew the ideal time for commencing ANC, they would still book late. On another note, some pregnant women thought early antenatal care initiation would risk them to miscarriage from witchcraft leading to the delay and then underutilization of antenatal care.

On another note, mother or spouses of pregnant women had a significant role in ANC initiation and utilization. Warri and George (2020), highlighted that some women indicated that they delayed in initiating ANC because they grew up observing their mothers

This could either be positive or negative beliefs. Findings of this study demonstrated that traditional beliefs play a significant role in shaping women's perceptions of antenatal care and affecting their decisions to book antenatal care early and attain the recommended contacts. These traditional beliefs act as central forces that guide women's choices and experiences. Coupled with cultural practices, some women were motivated to initiate their ANC early because they believed this would enable their unborn baby assume the normal position in utero. In addition, some women initiated early in order to get vaccinated against Tetanus Diphtheria (TD), for they believed this would make their unborn baby active and later get delivered without complications. On the other hand, some women who had been struggling to conceive would firstly visit Traditional healers to be confirmed about their conception and also receive some medicine for prevention of abortion prior to ANC booking. The fear of miscarriage secondary to bewitchment made pregnant women resort to the practice of confinement, which had an implication for early initiation of antenatal care in Ghana (Ansong, Asampong and Adongo, 2022). This practice of confinement could not make pregnant women start ANC as recommended and enable them achieve the required number of contacts during pregnancy. Similar findings were revealed in another study conducted in Zambia where some women delayed in initiating ANC because they needed to wait for the elderly women to confirm the presence of their pregnancy (Jacobs, Michelo and Moshabela, 2018). Furthermore, similar findings were established in Matabeleland South Province, Zimbabwe (Mudonhi and Nunu, 2021). Women would utilize traditional medicine and remedies during pregnancy for different reasons such as protection from evil spirits and fetal growth. This could risk the majority of them to delayed antenatal care initiation since they were supposed to visit the traditional healer first before visiting the health facility. Hence, there is a need for the maternal health program to

ensure availability of preconceptual care in health facilities for easy access of the service to those in need.

Some behaviours of midwives whether good or bad have proven to be associated with ANC utilization. Most of the women mentioned that they were motivated to start ANC early and attain more contacts due to the positive behaviours of some midwives who demonstrated royalty to them, shout at them when they fail to adhere to the ANC guidelines and gave them instructions regarding the ANC recommendations. These findings corroborated a study conducted in Uganda and Malawi where women were encouraged to adhere to the ANC guidelines due to the respect and good relationship with the midwives (Skaruup et al., 2022; Nyumwa, Bula, Nyondo-Mipando, 2022). Hence the need for the management and the policy makers to priotise respectful maternity care for the health workers to adhere to.

On the other hand, misconduct of some health care workers also emerged as a perceived barrier for recommended ANC timing and contact times. Most of the participants argued that some health care workers' conduct was poor and that some of them were profoundly disrespectful and abusive. In this regard, the ill-treatment by health care workers, favoritism and late return to their respective homes barred them from utilizing antenatal care as recommended. A study from Uganda has likewise identified the patient-provider relationship to have a large impact on ANC utilization (Skaarup et al., 2022). The findings indicate that a negative reputation and perception of health workers and previous mistreatment at the health centers can result in fear among pregnant women, which negatively affects their health-seeking behavior and utilization of ANC services. Similarly, Warri and George (2020), established that pregnant women delayed in initiating ANC due to user-unfriendly booking system. The complaint was that there was overcrowding; many movements between consultation room, laboratory, ultrasound room and pharmacy, which were not close to each other, long waiting time, and some rude members of staff. These bad experiences limited the quality of care provided to pregnant women, thereby delaying women from early ANC initiation since they did not want to experience that an early stage of pregnancy. Similarly, lack of training of nurse-midwives on the 2016 WHO ANC Model, fear of workload for ANC providers and the late initiation of ANC by clients were identified as barriers for the attainment of eight or more ANC contacts (Kourouma et al., 2021). If nurse midwives are not well trained on the new WHO

ANC Model and lacked competence, they may not be able to perform routine care appropriately and this can negatively impact on the delivery of quality healthcare services. Hence, the study suggests that training programs (initial or subsequent), on the new ANC Model should be well planned in order to equip the providers with relevant knowledge, skill and attitude for delivery of evidence based antenatal care services. Surprisingly, the current findings misalign with another one conducted in Malawi (Nyumwa et al, 2023). In this study, good attitudes of the healthcare providers alongside the reported positive relationship that existed between pregnant women and the healthcare providers made pregnant women to access the new recommendations.

The perceived protection of self and unborn baby during antenatal care contacts also emerged as one of the major themes in this study. The majority of women said were motivated to initiate their ANC early and attain more ANC contacts in order to receive anti-malarial drug, Fansidar, get tested for HIV and STIs and receive prompt treatment in case of positive results for their unborn babies to be protected against such diseases. Surprisingly, this result contradicted the present quantitative findings despite being not statistically significant and the reviewed literature from Southern District of Mzimba, Malawi (Funsani et al., 2021) and Dar es Salaam, Tanzania (Mgata and Maluka, 2019). Findings from these studies established that some women delayed in initiating ANC because of fear of HVI/STI test.

The need to have the unborn babies monitored correlated with the WHO guidelines whose ultimate goal is to promote positive experience and pregnancy outcomes (WHO, 2016). In addition, these findings were congruent with the previous studies where content of antenatal care promoted early ANC initiation and contacts (Islam and Masud, 2018).

Therefore, there is need for the healthcare providers to ensure delivery of quality antenatal care services in order to promote utilization.

The present qualitative study established four major themes on perceived barriers for early ANC initiation and contact times as follows: Poor socioeconomic status, hospital system, individual negligence and unplanned pregnancy.

Socioeconomic challenge of the participants was also established as one of the main themes on perceived barriers for early ANC initiation and contact times. The present study found that failure of spouses to meet high transport costs and give pregnant women some money to buy snacks made them delay and underutilize ANC services. This confirmed the present quantitative findings despite being non-significant. The finding was also consistent with other studies conducted in Cameroon and elsewhere (Boah et al, 2022; Kpordoxah et al., 2023). In these studies, the findings established that many women with higher household incomes would initiate ANC early and attain more contacts than their counterparts. However, the only difference was that in these settings, the main challenge cited was lack of money to pay for the ANC services, yet in Malawi, ANC services are provided for free, both in public and Christian Health Association of Malawi (CHAM) health facilities. In this regard, uplifting the socioeconomic status of women through community-based developing strategies would contribute to improved and adequate utilization of antenatal care services. In line with this, Ekholuenetale et al. (2021, found that more women attained eight ANC contacts because of the improvement in maternal and child health seen in Ghana, especially, with the removal of the policy that forced women to pay for their healthcare services. However, findings from this study contradicts that of Malawi where ANC initiation in first trimester and attainment of a minimum of eight ANC contacts are still very low despite the provision of free. This may mean that more should be assessed from the consumers of care to identify the possible solutions to these barriers, for effective implementation of the Model.

Hospital system also emerged as one of the main themes in this study. Some women experienced administrative issues such as failing to triage clients by helping first those accompanied by their spouses and asking clients to consult the clinician first just to confirm presence of pregnancy prior to initiating ANC. These coupled with sending clients back home due to failure of the midwife to palpate the fetus despite having amenorrhea delayed most of the women from initiating ANC early and have recommended contacts. This concurred with the present quantitative findings which mentioned failure of healthcare providers to identify pregnancy early as one of the barriers for early ANC initiation despite being not statistically significant. These findings were consistent with the reviewed literature from Malawi (Funsani et al., 2021), Dar es Salaam, Tanzania (Mgata and Maluka, 2019) and Zimbabwe (Mutowo et al., 2021). In addition, the findings corroborate components of healthcare system as described in Andersen and Newman's behavioral Model of

healthcare services use (Andersen and Newman, 1973; Travelers et al., 2020). The system of promoting male involvement in maternal health activities seemed to have interfered with early ANC initiation and the attainment of more ANC contacts, especially during focused antenatal care (FANC) policy implementation. In Zimbabwe, these were the views from the heterogeneous sample (men, chiefs, counselors, politicians, midwives, TBAs and postnatal women). Therefore, the study suggests that this policy should be reviewed to consider all aspects of individuals such as the social consequences of the policy. In addition to that, health facilities should improve on ways and timing for diagnosing pregnancy to avoid delaying initiation of antenatal care.

The study has also established individual negligence as another major theme. In this regard, most of the participants indicated that they did not adhere to the ANC recommendations because they did not want to have more ANC contacts. This finding supports the current quantitative study findings and the reviewed literature for studies conducted in Bhutan (Dorji et al., 2019), Benin (Ekholuenetale et al, 2020), Nkwen Baptist Health Center, Bamenda, Cameroon (Warri and George, 2020) and Phalombe, Malawi (Nyumwa et al., 2022). Nevertheless, results from the current quantitative study were not statistically significant. This could be attributed to the small sample size of sixty eight postnatal mothers. In addition, the majority of the participants were from the rural area, and this is mostly associated with some external environmental factor challenges, such as long distance to the nearest health facility that can interfere with ANC utilization (Amungulu, Nghitanwa and Mbapaha, 2023), though the study could not highlight the participants' actual distance taken from their place of residence to the nearest health facility. Therefore, the study suggests that subsequent studies should include distance, in form of time taken in order to have a clue of its implication to the negligence. Moreover, Malawian nation should intensify compliance with the World Health Organisation Universal Health Coverage (UHC) brought to help address inequality in access and utilization of healthcare services, such as ANC among the most-at-risk and vulnerable population like the pregnant women (Lozano et al., 2020). In addition to that, efforts should be made to promote understanding of these women about the importance of increasing the frequency and closeness of ANC contacts. Moreover, mobile outreach clinics should be promoted in all hard to reach areas in order to help address the raised barrier.

Unplanned pregnancy was established as one of the main themes in the present study despite being not mentioned by the majority of the participants. The finding corroborated the current quantitative results and the systematic review done in sub-Saharan Africa and elsewhere (Okedo-Alex, 2019; Tekelab et al., 2019). In these reviews, women with mistimed or unplanned pregnancy mostly initiated their ANC in second trimester and attained less contacts than their counterparts. Similarly, the findings were in line with the reviewed literature for studies conducted in Malawi and those from the sub-Saharan Africa data analysis (Funsani et al, 2021; Habtel, Tamene and Melis, 2024), in this finding, the odds of receiving early ANC was higher among those women with a wanted pregnancy than their counterparts. This finding corroborated other studies conducted in Ethiopia (Teshale and Tesema, 2020; Woldeamanuel and Belachew, 2021). However, the most likely contributing factor to this unplanned pregnancy for the study conducted in Malawi as indicated by the researcher was that the setting was rural region of Malawi, with a lot of teenage pregnancies. This, coupled with some cultural practices that more young girls drop out of school due to premarital pregnancies and fear of causing shame to parents due to that, most of them could decide not to initiate their ANC early and frequently contact the nurse-midwives. Surprisingly, this finding contradicts that in Bahir Dar City Northwest Ethiopia, Tesfu et al. (2022), whereby the study identified that majority of the younger women initiated their ANC early and complied with the recommendations compared with the older women. This was attributed to their acknowledgement that they were at utmost risk for obstetric complications. Hence, they thought this adherence would enable them prevent complications and have good pregnancy outcome. This could be because those women were well prepared from the start and had a better chance of detecting the pregnancy earlier at health facilities, leading them to begin the visits earlier. Besides, a woman with a wanted pregnancy is more likely to seek appropriate care for her pregnancy and is eager to obtain any information presumed to be important for their fetus from health care professionals and peers or friends, all of which leads them to begin their ANC early. On the other hand, couples are typically less vigilant about receiving ANC services in the event of unplanned pregnancy (Islam and Masud, 2018). Thus, healthcare providers should be trained in identifying unwanted pregnancies and linking them to service delivery points by providing culturally appropriate support to those women. In addition, there should be promotion of uptake of modern family planning methods in order to prevent risks associated with unplanned pregnancies.

6.1 Conclusion

The current mixed-methods study conducted at Salima District Hospital in Malawi established that previous complications and frequent scheduling of antenatal contacts were the perceived enablers significantly associated with early ANC initiation and achievement of the recommended ANC contacts, respectively. On the other hand, unplanned pregnancy, lack of knowledge about the recommended month for initiating antenatal care, including individual decision were the perceived barriers that were significantly associated with early ANC initiation and attainment of the recommended ANC contact times, respectively.

Furthermore, the qualitative component of the study revealed that the main themes identified under perceptions of postnatal mothers on enablers and barriers of early ANC initiation and attainment of the current recommended ANC contacts were: acknowledging ideal ANC initiation time and its benefits, having knowledge deficit about the recommended number of ANC contacts to be attained. On perceived enablers, three major themes that emerged were: traditional beliefs, health care workers' attitudes and protection of self and unborn baby. On the other hand, the study also established the perceived barriers as poor socioeconomic status, hospital system, individual negligence and unplanned pregnancy.

Therefore, improvement of early antenatal care initiation and the attainment of the recommended WHO antenatal care contact times, comprehensive strategies will be useful, such as intensification of community sensitization, especially, child bearing women on early recognition of pregnancy and the new WHO ANC Model of recommending a minimum of eight ANC contacts, including the significance of early ANC initiation and compliance with the WHO recommendations to both herself and the unborn baby. Besides, there is need for the Sexual and Reproductive Health program to reinforce access and utilization of modern family planning services amongst the reproductive age women in order to achieve healthy timing and planning of pregnancy goals. Furthermore, the Human Resources Office should build capacity of the skilled attendants on respectful maternity care and also collaborate with other stakeholders to promote the socioeconomic status of the community, thereby improving access and utilization of ANC services.

6.2 Recommendations

The findings of this mixed-method study were from one district hospital in Malawi, Africa, with relatively small homogenous sample size of the postnatal mothers involved in the study (sixty eight for the quantitative and 12 for qualitative study). This could implicate the generalization of the research findings. Therefore, further studies are recommended, replicating nearly the same study, but triangulating the sample (heterogeneous sample) and the data sources in order to include relevant healthcare providers, such as the experienced antenatal care midwives, safe motherhood coordinator, Community leaders, District Health Management Team members representative, for instance, the District Nursing and Midwifery Officer and policy makers, respectively, in order to have a variety of perspectives for effective implementation of the 2016 WHO ANC Model.

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8.0 APPENDICES

Appendix I: Informed consent (English version)



Mzuzu University Research Ethics Committee (MZUNIREC)

Informed Consent Form for Research in

Perceptions of postnatal mothers about enablers of and barriers to early antenatal care initiation and contact times at Salima District Hospital

Introduction

I am Sylvia Kumatso from **Mzuzu University**. We are doing research on perceptions of postnatal mothers about enablers of and barriers to early antenatal care initiation and contact times. This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of me or of another researcher.

Purpose of the research

This research aims to **assess perceptions of postnatal mothers about enablers of and barriers to early antenatal care initiation and contact times at Salima District Hospital.**

Type of Research Intervention

This research will involve your participation in an individual interview.

Participant Selection

You are being invited to take part in this research because you are one of the postnatal mothers who may have had an experience of pregnancy period.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate nothing will change. You may skip any question and move on to the next question.

Duration

The research takes place for a period of about 30 to 45 minutes.

Risks

You do not have to answer any question or take part in the discussion/interview/survey if you feel the question(s) are too personal or if talking about them makes you uncomfortable.)

Reimbursements

You will not be provided any incentive to take part in the research.

Sharing the Results

The knowledge that we get from this research will be shared with you and your community before it is made widely available to the public. Following, we will publish the results so that other interested people may learn from the research.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact: ~~Prof/Dr~~ Mr Gift Mbwele. (Please give full address and phone number/s)

This proposal has been reviewed and approved by Mzuzu University Research Ethics Committee (MZUNIREC) which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the Committee, contact Mr. Gift Mbwele,

Mzuzu University Research Ethics Committee (MZUNIREC) Administrator, Mzuzu University, P/Bag 201, Luwinga, Mzuzu 2, Phone: 0999404008/0888641486

Do you have any questions?

Part II: Certificate of Consent

I have been invited to participate in research about perceptions of postnatal mothers regarding enablers and barriers for early antenatal care initiation and contact times at Salima District Hospital.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Print Name of Participant _____

Signature of Participant _____

Date _____

Day/month/year

If illiterate ¹

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Print name of witness _____

Thumb print of participant



Signature of witness _____

Date _____

Day/month/year

Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands the research project. I confirm the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Signature of Researcher /person taking the consent_____

Date _____

Day/month/year

Appendix II. Consent form (Chichewa version)

Appendix II. Consent form (Chichewa version)



Mzuzu University Research Ethics Committee (MZUNIREC)

Kalata ya Chilolezo yakafukufuku wokumva malingaliro a amayi oti abeleka pa zolimbikitsa kapena zolepheretsa kuyamba sikelo ya amayi woyembekezera munthawi yake ndikuyenda maulendo oyenera pa chipatala chachikuru cha boma cha Salima.

Malonje

Dzina langa ndine Sylvia Kumatso ndachokela ku **Mzuzu University**. Tikuchita kafukufuku wofuna kumva malingaliro anu pa zolimbikitsa kapena zolepheretsa kuyamba sikelo ya amayi woyembekezera munthawi yake ndikuyenda maulendo oyenera. Ndikupempheni kuti mukhale womasuka kundidziwitsa ngati mkalatayi mupezeka mau ena omwe simukuwanvetsa bwino, mukhoza kundiyimitsa kuti ndikulongozoleleni bwino bwino. Komanso nkutheka kuti tikamaliza mukhoza kukhala ndi mafunso, mumasuke kutifunsa.

Cholinga Cha Kafukufukuyu

Cholinga cha kafukufukuyu nkufuna kumva malingaliroo ya amai omwe abeleka pa zolimbikitsa kapena zolepheretsa kuyamba sikelo ya amayi woyembekezera munthawi yake ndikuyenda maulendo oyenera pa chipatala chachikuru cha boma cha Salima.

Momwe ayendele kafukufukuyu

Inu mutenganawo mbali pokhalanawo pagulu loyankha mafunso kapena kufusidwa mafunso panokha.

Kasankhidwe ka wotenga gawo pakafukufukuyu

Inuyo tukupemphani kutenga nawo mbali pa kafukufukuyu pakuti ndinu mmodzi mwa amai omwe abelekela kumene omwe mukhoza kutiuzako za momwe munachitila nthawi yomwe munati woyembekezela.

Kutenga mbali pakafukufukuyu mwaufulu

Kutengako mbali kwana pakafukufukuyu ndi mwaufulu wanu osati mokakamizidwa. Chisankho ndi chanu kutenganawo mbali kapena ayi. Mukasankha kuti musatengenawo gawo palibe vuto. Ngati pali funso lomwe simukufuna kuyankha mukhoza kulidumpha nkupita pa mafunso otsatila.

Kutalika kwa nthawi ya kafukufuku

Kucheza kwathu ndi inu kutenga nthawi yosachepera mphindi makumi anayi

Nkhawa/Mantha

Simukukakamizidwa kuyankha fuso panokha kapena pagulu ngati muona kuti funsolo kapena mafunsowo ngokuvutani kapena ngochititsa manyanzi.

Malipilo

Simupatsidwa kalikonse Kamba kotenganawo mbali pa kafukufukuyu.

Kugawana zotsatira za kafukufuku

Chidziwitso chomwe tipeze mukafukufukuyu tidzagawana ndi inu ndi anthu ena a m'dera lanu tisanagawane ndi anthu ena onse. Kuchoka apo, tidzalembe ndikuturutsa zotsatira mmapepala kuti anthu ena a chidwi aphunzirepo kanthu.

Ndi ndani woyenera kulumikizana naye pazakafukufukuyu

Ngati mungakhale ndi funso lililonse, mukhonzha kundifunsa pompano kapena nthawi ina. Ngati mungalakelake kundifunsa mafunso nthawi ina, mukhonzha kulumikizana ndi awa: Bambo Gift Mbwele, Mzuzu University Research Ethics Committee (MZUNIREC) Administrator, Mzuzu University, P/Bag 201, Luwingu, Mzuzu 2, Phone: 0999404008/0888641486

Kafukufukuyi wavomerezedwa ndi komiti yoona zakafukufuku ndi chitetezo cha anthu otengapo mbali pakafukufuku ya sukulu yaukachenjeda ya Mzuzu (MZUNIREC). Ngati mungafune kumva zambiri za komitiyi lumikizani ndi bambo Gift Mbwele, Mzuzu University Research Ethics Committee (MZUNIREC) Administrator, Mzuzu University, P/Bag 201, Luwingu, Mzuzu 2, Phone: 0999404008/0888641486

Muli ndi funso linalililonse?

Gawo lachiwiri: Kalata yachilolezo

Ndaitanidwa kuti nditengepo mbali mukafukufuku yokhudza malingaliro a mayi omwe abereka pazolimbikitsa kapena kulepheretsa kuyamba sikelo ya amayi oyembekezera munthawi yoyenera ndikuyenda maulendo oyenera pa chipatala chachikulu cha boma cha Salima

Ndawelenga/andiwelelenga bwino tsatanetsatane wa kafukufukuyu. Ndinapatsidwanso mwai wofunsa mafunso pa zimenezi komanso pa mafunso omwe ndinafunsidwa ndayankha mwa nzeru zanga zones. Ndavomela mwaufulu kuti ndichitenawo/nditenge mbali pa kafukufukuyu.

Dzina la woyankha mafuso: Tabitha Kophuwuss

Saini ya Woyankha Mafuso Tabitha Kophuwuss

Tsiku: 20/3/23

Tsiku/Mwezi/Chaka

Ngati sadziwa kulemba ndi kuwelenga¹

Ndachitila umboni kuwelengedwa kwa kalata yopemphela chilolezo kwa otenganaombali pa kafukufukuyu ndipo wofusidwayu anapatsidwa mwayi wofusa mafuso a pamtima pake. Ndikuchitila umboni kuti wofusidwa mafusoyu wavomela kutenga mbali mwaufulu.

Dzina la mboni: Anadu
Saini ya mboni: Anadu
Tsiku: 20/3/23

Chidindo cha chala cha woyankha mafunso participant



Tsiku/mwezi/chaka

Mawu a wopangitsa kafukufuku kapena wopereka chilolezo

Ndawerenga monveka bwino uthenga omwe walembedwa kwa yemwe akuyembekezeka kutengapo mbali pa kafukufuku, komanso ndayesetsa kuti amvetsetse mmene kafukufukuyi adzayendere. Ndikutsimikiza kuti anapatsidwa mwayi ofunsa mafunso wokhudza kafukufukuyu, komanso mafunso ena onse omwe anafusidwa ndayesetsa kuwayankha bwino lomwe. Ndikutsimikiza kuti anthu anatenga mbali mwakufuna kwawo osati mokakamizidwa.

Saini ya wofusa mafuso /yemwe akutenga chilolezochi: SA

Tsiku: 20/3/23

Tsiku/mwezi/chaka

¹ Mboni yomwe ingathe kuwelenga ndi kulemba iyenela kusainila (ndipo ngati nkhosha mboniyi isankhidwe ndi woyankha mafunsoyo yembe sadziwana ndi ochita kafukufukuwo.) Komabe oyankha mafuso ngati sadziwa kulemba angodinda ndi chala.

Appendix III. Questionnaire (English version)

Perceptions of postnatal mothers about enablers of and barriers to early antenatal care initiation and contact times at Salima District Hospital

Instructions

I will ask you questions regarding your personal life and your pregnancy experience. Feel free to tell me if the question is not clear so that I can repeat. There is no correct or wrong answer.

There are two sections, A and B. I will expect you to give me responses for the relevant questions. I will be responsible for recording the responses on the questionnaire.

Date: _____

Respondent Code: _____

SECTION A: PERSONAL DETAILS

- I. How old are you?
 - 1. Between 15 and 17
 - 2. Between 18 and 20
 - 3. Between 21 and 25
 - 4. Between 26 and 30
 - 5. Between 31 and 34
 - 6. Between 35 and above

- II. Where do you live?
 - A. Urban area
 - B. Rural area

- III. Are you married? (circle the applicable answer)
- A. Yes (If yes, go to question V)
 - B. No (if no, go to question IV)
- IV. If not married, who was providing for the things you needed for your pregnancy?
- A. Boyfriend/ father of the baby
 - B. Parents
 - C. Relatives
 - D. Other (specify).....
- V. Have you ever attended school?
- A. Yes
 - B. No (if no go to question VII)
- VI. What was the highest level of education you attended?
- A. Junior Primary (1 to 4)
 - B. Senior Primary (5 to 8)
 - C. Junior secondary (Form 1 and 2)
 - D. Senior Secondary (Form 3 and 4)
 - E. Tertiary (university, college)
- VII. What are your family's major sources of income? (**circle all that apply**)
- 1. Salary
 - 2. Business
 - 3. Piece work
 - 4. Smallholder farming
 - 5. Commercial farming
 - 6. Dampa (bicycle taxi)
 - 7. Other (specify).....

VIII. What is your family's monthly income?

1. Between MK1,000 and Mk5,000
2. Between Mk6,000 and Mk10,000
3. Between Mk11,000 and Mk20,000
4. Between MK21,000 and Mk30,000
5. Between MK31,000 and Mk40,000
6. Between Mk41,000 and MK60,000
7. Between Mk60,000 and Mk80,000
8. Between Mk81,000 and Mk80,000
9. Between Mk100,000 and Mk200,000
10. Above Mk200,000

IX. Does this amount of money cover all the basic things you needed every month?

1. Yes
2. No

SECTION B: PREGNANCY RELATED QUESTIONS

X. How many times including this current pregnancy have you been pregnant?

..... (write the number).

XI. How many times have you ever delivered? Verify with the health passport book and probe more.

..... (write the number).

SECTION B: Objective 1: To describe perceptions of postnatal mothers regarding ANC initiation at Salima District Hospital.

- XII. According to your knowledge, at how many months of pregnancy should one start ANC contacts?
1. 1 to 3 months
 2. 4 to 6 months
 3. 7 to 9 months
 4. Don't know
 5. Other (specify).....
- XIII. How many months pregnant were you when you first started ANC contacts? (**Please verify with available health passport book.**)
1. 1 to 3 months
 2. 4 to 6 months
 3. 7 to 9 months
 4. Don't know/can't remember
 5. Never attended
 6. Other (specify).....

SECTION B: Objective 2: To describe perceptions of postnatal mothers regarding the recommended ANC contact times at Salima District Hospital.

- XIV. According to your knowledge, how many ANC contacts should a pregnant woman attain?
..... (write the number of contacts)
- XV. How many ANC contacts did you attain for this pregnancy? (**Please verify with available health passport book.**)
..... (write the number of contacts).

SECTION B: Objective 3: To identify postnatal mothers' perceived enablers for adhering to the recommended ANC initiation and contact times at Salima District Hospital

XVI. If you started ANC in the first 3 months, what made you start at that time? **(circle all that apply)**

1. Individual decision
2. Short distance from home
3. Availability of transport
4. Husband influence
5. Previous complications
6. Fear of complication
7. Others, (please specify)

SECTION B: To establish postnatal mothers' perceived barriers for adhering to the recommended ANC initiation and contact times at Salima District Hospital

XVII. If you started ANC after the first 3 months, what made you start at that time? **(circle all that apply)**

1. Order age pregnancy
2. Unplanned pregnancy
3. Lack of social support
4. Fear of being bewitched
5. Unfriendliness of some health workers
6. Perception that pregnancy is a normal health condition
7. No previous complications (if second or more pregnancy)
8. Traditional practice (waiting for pregnancy counselling if first pregnancy)
9. Lack of necessary resources (e.g. Bp , scanning machine and drugs)
10. Others (please specify)

XVIII. If response to 'XV' is 8 contacts or more, what enabled you attain those recommended contacts? **(tick all that apply)**

1. Place of residence
2. Good socioeconomic status
3. Availability of quality care
4. Having knowledge about recommended ANC contacts
5. Others, (please specify)

XIX. If response to 'XV' is less than 8 contacts, what prevented you from attaining the recommended contacts? **(tick all that apply)**

1. Long distance
2. Lack of money
3. Poor infrastructure
4. Long waiting time
5. Increased number of visits
6. Unfriendliness of some health workers
7. Poor knowledge about the recommended number
8. Lack of necessary resources (e.g. Bp, scanning machine and drugs)
9. Others, (please specify)

THE END..... THANK YOU VERY MUCH.

Appendix IV. Questionnaire (Chichewa version)

Malingaliro a amayi oti abeleka pa zolimbikitsa kapena zolepheretsa kuyamba sikelo ya amayi woyembekezera munthawi yake ndikuyenda maulendo oyenera pa chipatala chachikuru cha boma cha Salima.

Dongosolo lake

Ndikufunsani mafunso okhudza mbiri yanu komanso mimba imene mwaberekayi. Mukhale omasuka kunena ngati simunamvetsetse funsani ndicholinga chakuti ndibwerezenso. Ndiponso, palibe yankho lolondola kapena lolakwa.

Perekani mayankkho pa funso lililonse m'mipata yomwe yaperekedwayo kapena fotokozerani pamene mwafunsidwa kutero.

Tsiku: _____

Nambala yachinsisi ya woyankha: _____

GAWO LOYAMBA: MBIRI YAWO

1. Muli ndi zaka zingati?
 1. Pakati pa 15 ndi 17
 2. Pakati pa 18 ndi 20
 3. Pakati pa 21 ndi 25
 4. Pakati pa 26 ndi 30
 5. Pakati pa 31 ndi 34
 6. Pakati pa 35 kapena kuposera apo
2. Mumakhala kuti?
 1. Mtawuni
 2. Kumudzi

3. Kodi muli pabanja?
 1. Inde
 2. Ayi (ngati ayi, pitani ku funso lachinayi)
4. Ngati ndi ayi, nanga munakhalako pabanja?
 1. Inde
 2. Ayi
5. Ngati ndi inde, nanga chinachitika ndi chiyani?
 1. Lidatha
 2. Tili pa chilekano
 3. Wamuna adamwalira
 4. Zina (tchulani).....
6. Ngati ndi ayi, nanga ndi ndani yemwe amakuthandizani muli oyembekezera?
 1. Abale
 2. Makolo
 3. Bwenzilanga/bamboo ake a mwanayu
 4. Ena (tchulani)
7. Kodi munaphunzirako sukulu?
 1. Inde
 2. Ayi (ngati ndi ayi, pitani ku funso la ix)
8. Ngati ndi inde, nanga maphunziro anu a pamwamba munalekezera pati?
 1. Sitandade 1 mpaka 4
 2. Sitandade 5 mpaka 8
 3. Folomu 1 ndi 2
 4. Folomu 3 ndi 4
 5. Koleji

9. Kodi ndi njira zitatu ziti zopezera chuma pa banja panu mwa zomwe zalembedwa mmusizi?
 1. Kuchita maganyu
 2. Ulimi wa an'gonoan'gono
 3. Kulima ndikugulitsa mbewu
 4. Matola a njinga yakapalasa/Dampa
 5. Kugulitsa malonda osiyanasiyana
 6. Malipiro a ntchito yomwe ndimagwira
 7. zina (tchulani).....

10. kodi banja lanu limapeza chuma chochuruka bwanji pa mwezi umodzi?
 1. Pakati pa MK1,000 ndi Mk5,000
 2. Pakati pa Mk6,000 ndi Mk10,000
 3. Pakati pa Mk11,000 ndi Mk20,000
 4. Pakati pa MK21,000 ndi Mk30,000
 5. Pakati pa MK31,000 ndi Mk40,000
 6. Pakati pa Mk41,000 ndi MK60,000
 7. Pakati pa Mk60,000 ndi Mk80,000
 8. Pakati pa Mk81,000 ndi Mk80,000
 9. Pakati pa Mk100,000 ndi Mk200,000
 10. Kuposera Mk200,000

11. Nanga chumachi chimakwanira kugulira zonse zofunikira zapa mwezi pa banja panu?
 1. Inde
 2. Ayi

GAWO LACHIWIRI: MAFUNSO OKHUDZA MIMBA

12. Kodi mimba mwaberekayi inali yachingati, mukaphatikizira nzomwe zinachoka kapena kupita padera? -----(lembani chiwerengero chake).

13. Nanga mwaberekako kangati kuphatikiza uchembere watsopanowu? (funsisitsani ndi kutsimikizira poona zomwe zinalembedwa mkabuku kakusikelo)-----
..... (lembani chiwerengero chake).

GAWO LACHIWIRI: Objective 1: To describe perceptions of postnatal mothers regarding ANC initiation at Salima District Hospital.

14. Malingana ndi mmene mumadziwira, mzimayi woyembekezera akuyenera kuyamba sikelo ali ndi miyezi ingati?

1. 1 mpaka 3
2. 4 mpaka 6
3. 7 mpaka 9
4. Sakudziwa
5. Zina (tchulani).....

15. Nanga inu munayamba sikelo muli ndi miyezi ingati? (tsimikizirani ndi zolembedwa mkabuku kakusikelo).

1. 1 mpaka 3 (ngati ndi imeneyi, pitani ku funso la xvi)
2. 4 mpaka 6
3. 7 mpaka 9
4. Sinkudziwa /ndaiwala
5. Sindinapiteko
6. Ina (tchulani).....

GAWO LACHIWIRI: Objective 2: To describe perceptions of postnatal mothers regarding the recommended ANC contact times at Salima District Hospital.

16. Kodi mzimayi woyembekezera amayenera kupita kusikelo kangati malingana ndi mmene mumadziwira?

..... (Iembani chiwerengero chake)

17. Nanga inu munayendera maulendo angati kusikero pauchembere watsopanowu?

(Iembani maulendo omwe anayenda potsimikizira ndipoona mkabuku kakusikelo).

GAWO LACHIWIRI: Objective 3: To identify postnatal mothers' perceived enablers for adhering to the recommended ANC initiation and contact times at Salima District Hospital

18. Ngati munayamba sikelo ya amayi woyembekezera mmiyezi itatu yoyambilira, tchulani zifukwa zitatu zomwe zinakuthandizirani kutero.

1. Chisankho changa
2. Kufupika kwa mtunda
3. Kepezeka kwa mayendedwe
4. Kukakamizidwa ndi wamuna/achibale
5. Mavuto auchembere omwe n'dakumana nawo
6. Kuopa kukhala ndi vuto lauchembere
7. Zina, (tchulani)

SECTION B: To establish postnatal mothers' perceived barriers for adhering to the recommended ANC initiation and contact times at Salima District Hospital

19. Ngati munayamba sikelo ya amayi woyembekezera patadutsa miyezi itatu, nenani zifukwa zomwe zinakupangitsa kutero mwa zifukwa zili mmusizi)
1. Kutenga mimba ndili wamkulu mu zaka
 2. Kutenga mimba yosakonzekera
 3. Kusowa kwa chithandizo
 4. Kuopa kulodzedwa
 5. Kkalidwe loipa la ena mwa ogwira ntchito kuchipatalako
 6. Malingaliro akuti mimba njosadetsa nkhawa
 7. Kusakumana ndi vuto mnthawi ya uchembere wa mmbuyomo
 8. Miyambo ina yakumudzi (kudikira chilangizo cha mimba kwa oyamba kumene kubereka)
 9. Kusowa kwa zipangizo zoyenera kuchipatala, monga, zoyezera kathamangidwe ka magari ndinso kuunika za mmene mwana alili mchibelekero
 10. Zina (tchulani)
20. Ngati yankho la 'XVII' ndi maulendo asanu ndi atatu kapena kuposera apo, fotokozani chomwe chinakulimbikitsani, **(chongani zonse zomwe zatchulidwa)**
1. Malo omwe ndimakhala
 2. Kupezeka kwa chithandizo chofunikira
 3. Kulandira chithandizo choyenera chakuchipatala
 4. Kudziwa maulendo oyenera kuyendera kusikelo
 5. Zina, (tchulani)

21. Ngati munayenda maulendo ochepera asanu ndi atatu, fotokozani kuti chinachititsa nchiyani mwa zifukwa zili mmusizi? (Chongani zomwe zatchulidwa)
1. Kutalika kwa mtunda
 2. Kusowa kwa ndarama
 3. Kusathandizidwa mokwanira
 4. Kuchepa kwa malo abwino olandilira chithandizo
 5. Kukhala nthawi yaitali pachipatala usalandire chithandizo
 6. Kuchuruka kwa maulendo opitira ku sikelo
 7. Kkalidwe loipa la ena mwa ogwira ntchito kuchipatalako
 8. Kusadziwa maulendo oyenera kupitira kusikelo
 9. Kusowa kwa zipangizo zoyenera kuchipatala, monga, zoyezera kathamangidwe ka magazi ndinso kuunika za mmene mwana alili mchibelekero
 10. Zina (tchulani)

MATHERO A MAFUNSO ----- ZIKOMO KWAMBIRI.

Appendix V. Focus group interview guide (English version)

Perceptions of postnatal mothers about enablers of and barriers to early antenatal care initiation and contact times at Salima District Hospital

Instructions

I will ask you some questions regarding your pregnancy experience. Feel free to tell me if the question is not clear so that I can repeat. My Research Assistant will be writing your responses in a note book and some information will be gathered from your health passport book. In addition, your responses will be audio-recorded for reference in case I miss any information during data collection. There is no correct or wrong answer.

Date: _____

Open ended questions

- I. What do you know about the recommended time for starting antenatal care?

Probe: record all responses and then seek clarity from the given responses.

- II. What would you say about the time mentioned in question I? (**refer to the responses given in question I**).

- III. What made you start at that time? (**refer to the responses given in question I**)

Probe on enablers:

1. Individual decision, what do you mean?
2. Distance, explain how long the facility from your home is? How long does it take to reach the facility?
3. Transport, what do you mean?
4. Husband influence, what happened?
5. Previous complications, what happened?
6. Fear of complication, what do you mean?
7. Others (please specify)

Probe on barriers:

1. Order age pregnancy, please explain what you mean?
2. Unplanned pregnancy, what happened?

3. Lack of social support, what happened during the current pregnancy?
4. Fear of being bewitched, what do you mean?
5. Bad behaviour of some health workers, what did they do?
6. Perception that pregnancy is a normal health condition, please explain what you mean.
7. No previous complications (if second or more pregnancy). What do you mean?
8. Traditional practice (waiting for pregnancy counselling if first pregnancy), what happened?
9. Lack of necessary resources (e.g. Bp, scanning machine and drugs), please explain.
10. Others (please specify)

IV. What do you know about the recommended number of ANC contacts? (**record all the responses**)

V. What would you say about the ANC contact times mentioned in question IV?

VI. What made you attain those contacts? (**record all the responses and seek clarity**)

Probe on enablers:

1. Short distance, what do you mean?
2. Fear of complications, what do you mean?
3. Availability of necessary equipment, what do you mean?
4. Availability of husband's support (transport money), what do you mean?
5. Knowledge about the recommended number of ANC contacts, what do you mean?
6. Fear of being shouted at by the midwives when she goes for hospital delivery, what happened?
7. Previous complications (e.g., abortions, NNDs, FSBs, hypertensive disorders of pregnancy, etc.), what happened?
8. Others (please specify)

Probe on barriers:

If you had less than 8 ANC contacts, please explain what made you have those contacts?

1. Inadequate care, what do you mean?
2. Long distance, explain how long the facility from your home is? How long does it take to walk from home to the facility?
3. Inadequate health care, what do you mean?
4. Poor infrastructure, what do you mean?
5. Long waiting time, what do you mean?
6. Increased number of visits, what do you mean?
7. Financial problems for transport, what do you mean?
8. Bad behaviour of some health workers, what happened?
9. Poor knowledge about the recommended number of contacts, what do you mean?
10. Lack of necessary resources at the hospital (e.g. Bp, scanning machine and drugs), please explain.
11. Others, (please specify)

THE END----- THANK YOU VERY MUCH.

Appendix VI. Focus group interview guide (Chichewa version)

Malingaliro a amayi oti abeleka pa zolimbikitsa kapena zolepheretsa kuyamba sikelo ya amayi woyembekezera munthawi yake ndikuyenda maulendo oyenera pa chipatala chachikuru cha boma cha Salima.

Dongosolo lake

Ndikufunsani mafunso okhudza mbiri yanu komanso mimba imene mwaberekayi. Mukhale omasuka kunena ngati simunamvetsetse funsi ndicholinga chakuti ndibwerezenso. Ondithandizira azilemba mayankho anu mu kabuki, ena mwa mayankho tizitenga mu kabuki kanu kakuchipatala. Kuonjeza apo, mayankho anu azijambulidwa ncholinga choti tikathe kumvetseranso ndikulemba mayankho olondola ngati pena sitinamvetsetse bwino panthawi yakucheza kwathu. Ndiponso, palibe yankho lolondola kapena lolakwa.

Tsiku: _____

MAFUNSO OTAMBASULIRA

- I. Mumadziwa zotani zokhudza nthawi yoyenera kuti mayi oyembekezera akayambe sikelo?
(lembani mayankho onse omwe aperekedwa ndipo afunseni afotokozere bwino pomwe simunamvetse).
- II. Nanga inuyo mumati bwanji zachimenechi? **(afunseni malingana ndi mayankho omwe aperekedwa mu funso loyamba)**
- III. Nanga chinakulimbikitsani kuyamba sikelo munthawi imeneyo nchiyani?
Ngati munayamba sikelo ya amayi woyembekezera mmiyezi itatu yoyambilira, fotokozani bwinobwino chomwe chinachititsa malingana nzifukwa zina izi:
 1. **Mwachiganizo ndikufuna kwanga, mukutanthauza chani?**
 2. **Kufupikira kwa mtunda wopita kuchipatala, fotokozani paja mumakhala pa mtunda wautali bwanji nkuchipatala? Nanga mumatenga nthawi yaitali bwanji kuchoka kunyumba kwanu kupita kuchipatala?**
 3. **Kupezeka kwa mayendedwe, fotokozani kuti mukutanthauza chani?**

4. **Kulimbikitsidwa ndi mwamuna wanga, fotokozani kuti chinachitika nchiyani?**
 5. **Mavuto omwe nnakumana nawo mmbuyomo, fotokozani mukutanthauza chiyani? Chinachitika nchiyani?**
 6. **Kuopa kukumana ndi mavuto, mukutanthauza chiyani?**
 7. **Zina (fotokozani)**
- IV. Ngati munayamba sikelo patadutsa miyezi itatu pazina mwa zifukwa zili mmusizi, fotokozani bwinobwino.
1. **Zaka zocuhuluka, chonde fotokozani kuti mukutanthauza chiyani?**
 2. **Mimba yosayembekezera, fotokozani kuti mukutanthauza chiyani?**
 3. **Kusowa kwa chithandizo, fotokozani kuti chinachitika nchiyani nthawi yomwe munali woyembekezera?**
 4. **Kuopa zaufiti, mukutanthauza chiyani? Nanga chimachitika nchiyani?**
 5. **Khalidwe loipa la ena mwa ogwira ntchito kuchipatala, fotokozani kuti mukutanthauza chiyani? Nanga chinachitika nchiyani?**
 6. **Malingaliro woti mimba sichinthu chodetsa nkawa, fotokozani mukutanthauza chiyani?**
 7. **Kusakhala ndi vuto lodetsa nkawa muuchembere wammbuyomo. Tafotokozerani bwinobwino kuti mukutanthauza chiyani?**
 8. **Miyambo yakumudzi monga kudikira chilangizo cha mimba maka kwa woyamba kumene kubereka. Mukutanthauza chiyani?**
 9. **Kusowa kwa zipangizo zogwiritsira ntchito kusikelo monga choyesera kathamangidwe ka magari, chounikira mimba ndinso mankwala. Fotokozani chomwe chinachitika.**
 10. **Zina (fotokozani)**

- V. Ngati unayenda kusikelo maulendo asanu ndi atatu kapena kuposera apo, fotokozerani bwino mwazifukwa izi pa zimene zinachititsa.
1. Kufupika kwa mtunda, mukutanthauza chani?
 2. Mukati kuopa mavuto, mukutanthauza chani?
 3. Kupezeka kwa zipangizo zofunikira zakusikelo, mukutanthauza chani?
 4. Kulimbikitsidwa ndi amuna anu, fotokozani chimachitika nchiyani?
 5. Kudziwa maulendo oyenera kupita kusikelo, mukutanthauza chiyani?
 6. Kuopa kukalipidwa kuchipatala panthawi yokachira, fotokozani mmatanthauza chiyani?
 7. Zovuta zomwe nnakumana nazo uchembere wa mmbuyomo, fotokozani chinachitika nchiyani?
 8. Zina, (fotokozani)
- VI. Ngati munayenda maulendo ochepera 8 kusikelo, fotokozani bwinobwino chomwe chinachitika malingana ndi mayankho ali mmusiwa.
1. Kutalika kwa mtunda. Kodi kuchoka kunyumba kwanu kufika kuchipatala ndi mtunda wautali motani? Nanga mumatenda nthawi yaitali bwanji kuti mukafikeko mukamayenda wapansi?
 2. Kuchepa kwa malo olandiliramo chithandizo. Mukutanthauza chiyani?
 3. Kusalandira chithandizo chokwanira, fotokozani mukutanthauza chiyani? Nanga chinachitika nchiyani?
 4. Kudikira nthawi yaitali kuti ulandire chithandizo chachipatala. Fotokozani mukutanthauza chiyani? Nanga inu mumatenga nthawi yaitali bwanji kuti mulandire chithandizochi kuchokera pa nthawi yomwe mwafika pamalopo?
 5. Kuchuruka kwa maulendo akusikelo. Mukutanthauza chiyani?
 6. Mavuto a zachuma maka choti uyendere popita kuchipatala. Fotokozani kuti mukutanthauza chiyani?
 7. Khalidwe loipa la ena mwa wogwira ntchito kuchipatalako. Fotokozani mukutanthauza chiyani?

- 8. Kusadziwa bwinobwino za maulendo oyenera kupita ku sikelo ya amayi woyembekezera. Mukutanthauza chiyani?**
- 9. Kusowa kwa zipangizo zogwiritsira ntchito kusikelo monga choyesera kathamangidwe ka magari, chounikira mimba ndinso mankwala. Fotokozani chomwe chinachitika.**
- 10. Zina (fotokozani)**

MATHERO A MAFUNSO ----- ZIKOMO KWAMBIRI.

Appendix VII: Ethical approval letter from Mzuzu University



Wishing you a successful implementation of your study.

Yours Sincerely,

Gift Mabwele

SENIOR RESEARCH ETHICS ADMINISTRATOR

For: CHAIRMAN OF MZUNIREC

Committee Address:

Secretariat, Mzuzu University Research Ethics Committee, P/Bag 201, Luwingu, Mzuzu 2; E-mail address: mzunirec@mzuni.ac.mw

Appendix VIII: Letter of request for permission from Salima District Hospital

Faculty of Health Sciences Office
Mzuzu University
Private bag 201
Luwinga
Mzuzu 2.
7th November, 2022.

The Director of Health and Social Services,
Salima District Hospital,
P. O. Box 53,
Salima.
Dear Sir/ Madam,

RE: PERMISSION TO CONDUCT A RESEARCH STUDY AT SALIMA DISTRICT HOSPITAL

I write this letter to seek permission to conduct a research study at Salima District Hospital. The title for my study is Perceptions of postnatal mothers about enablers of and barriers to early antenatal care initiation and contact times at Salima District Hospital.

I am a second year Masters student pursuing Master of Science in Nursing Education, Clinical Teaching focusing in Midwifery. I am required to carry out a research project in partial fulfillment of this program. The purpose of the study is to assess the Perceptions of postnatal mothers regarding enablers and barriers for early antenatal care initiation and contact times at Salima District Hospital

The results from this study will help the researcher understand women's point of view towards early ANC initiation and the recommended WHO ANC minimum number of contacts and the

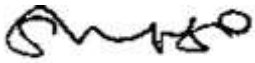
factors that are associated with this perception. In the end, this may help in effective implementation of the new ANC guidelines in Salima.

Attached is the research proposal for your approval.

The study is scheduled to take place within the month of February, 2023.

I'm looking forward to your favorable response.

Yours faithfully,



Sylvia Kumatso

Appendix IX: Letter of request for permission from Khombedza Health Center

Faculty of Health Sciences Office
Mzuzu University
Private bag 201
Luwinga
Mzuzu 2.
7th November, 2022.

The Facility In charge,
Khombedza Health Center,
P. O. Box 53,
Salima.
Dear Sir/ Madam,

RE: PERMISSION TO CONDUCT A PILOT STUDY AT KHOMBEDZA HEALTH CENTER

I write this letter to seek permission to conduct a pilot and pretest study at Khombedza Health Center. The title for my study is Perceptions of postnatal mothers about enablers of and barriers to early antenatal care initiation and contact times at Salima District Hospital.

I am a second year Masters student pursuing Master of Science in Nursing Education, Clinical Teaching focusing in Midwifery. I am required to carry out a research project in partial fulfillment of this program. The purpose of the study is to assess the Perceptions of postnatal mothers about enablers of and barriers to early antenatal care initiation and contact times at Salima District Hospital

The results from this study will help the researcher understand women's point of view towards early ANC initiation and the recommended WHO ANC minimum number of contacts and the

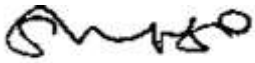
factors that are associated with this perception. In the end, this may help in effective implementation of the new ANC guidelines in Salima.

Attached is the research proposal for your approval.

The study is scheduled to take place within the month of February, 2023.

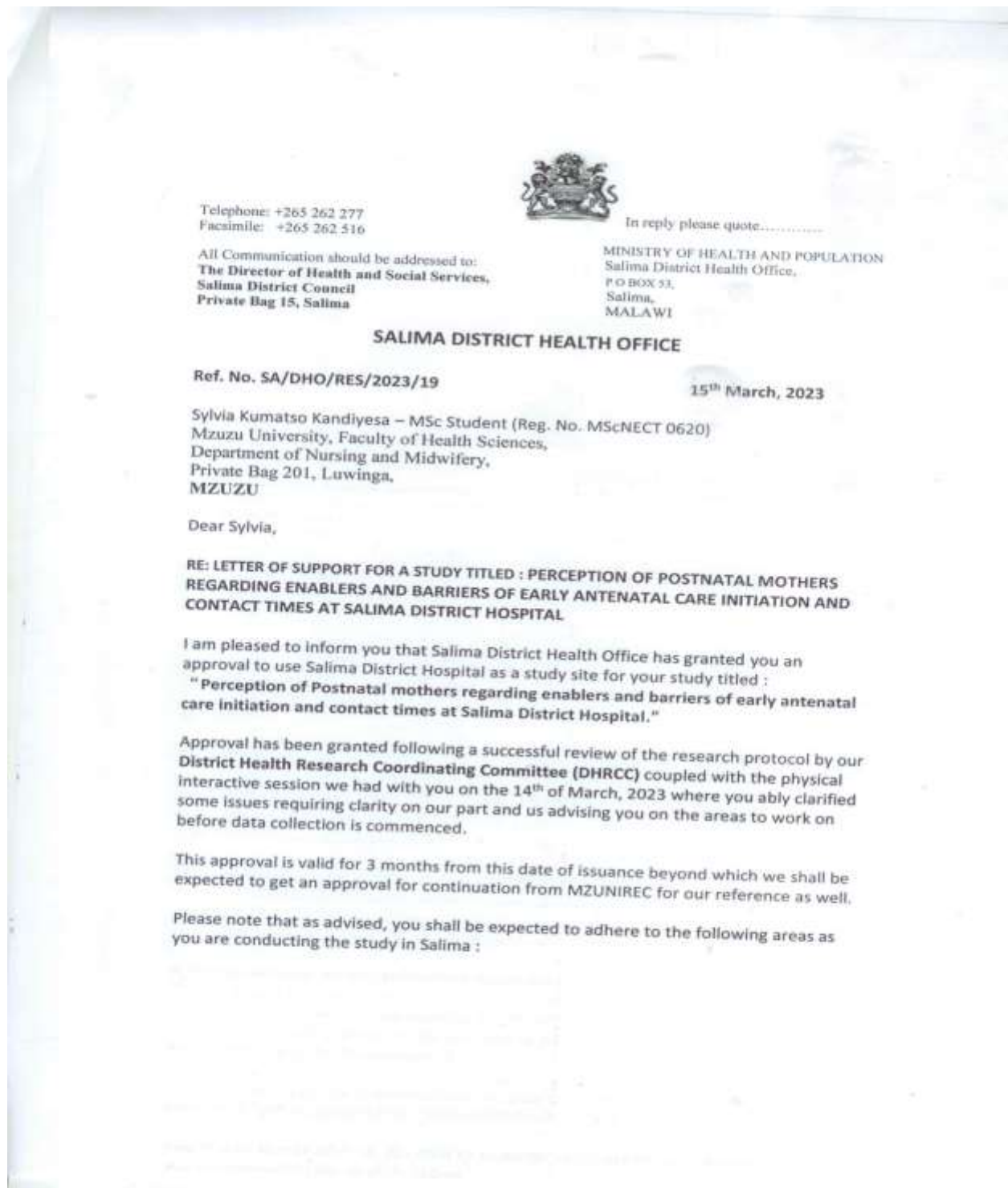
I'm looking forward to your favorable response.

Yours faithfully,



Sylvia Kumatso

Appendix X: Permission letter from Salima District Hospital



- ❖ Ensure that some of our district staff members are involved in the study for accountability purposes, preferably the Postnatal Ward In-charge.
- ❖ Make a presentation on preliminary results/findings to our District Research Team (DHRCC) for validation purposes before final results are disseminated elsewhere.

Additionally, you will also be expected to share the results of the study with us as soon as the report is out.

We wish you a successful study.



Reuben Chikadza (Salima DHRCC Chairperson) 0994208183
FOR: DIRECTOR OF HEALTH & SOCIAL SERVICES