UNIVERSITY FOR DEVELOPMENT STUDIES

PREVALENCE AND FACTORS ASSOCIATED WITH ANTENATAL CARE UTILIZATION AND HEALTH FACILITY DELIVERY AMONG POSTNATAL WOMEN IN GAMBAGA MUNICIPAL, NORTHEAST REGION, GHANA

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2024

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BY

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THESIS SUBMITTED TO THE DEPARTMENT OF POPULATION AND REPRODUCTIVE HEALTH, SCHOOL OF PUBLIC HEALTH, UNIVERSITY FOR DEVELOPMENT STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PUBLIC HEALTH IN MATERNAL AND CHILD HEALTH

JULY, 2024

DECLARATION

Student

I hereby declare that this thesis is the result of my original work and that no part of it has been presented for another degree in this University or elsewhere:

Candidate:

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Supervisor

I hereby declare that the preparation and presentation of the thesis was supervised following the guidelines on supervision of thesis laid down by the University for Development Studies.

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ABSTRACT

World Health Organization's advice of antenatal care (ANC) for a safe pregnancy saves 10% to 20% of maternal and neonatal deaths. Health facility delivery (HFD) also improves maternal and child survival. But the majority of women still do not utilize ANC services or skilled birth attendants. This study examined the prevalence and factors associated with ANC utilization and HFD among postnatal women in Gambaga Municipal, Northeast Region, Ghana.

A cross-sectional descriptive study was conducted in a community setting on 165 postnatal women, who were selected using purposive sampling. Data were collected with the structured questionnaire and were analyzed with SPSS version 26.0 at $p < 0.05$ significance level.

Results show that 99% of the participants utilized ANC, and 74.6% had four and more visits. With respect to health Facility Delivery, 89.7% delivered in a health facility, and 10.3% delivered at home. Married women (98 out of 99), representing 99% of married women, were more likely to utilize ANC ($p = 0.033$, COR: 10.722, 95% CI: 1.219-94.334) and to deliver in a health facility ($p = 0.034$, COR: 1.978, 95% CI: 1.053-3.716). Women who followed traditional religious practices had higher chances of giving birth at home ($p < 0.001$, COR: 15.230, 95% CI: 5.226-44.380), while women who had tertiary education showed a higher tendency to deliver in a health facility ($p < 0.001$, COR: 0.479, 95% CI: 0.33-0.688).

The study recommends community education of ANC and HFD, expansion of CHPS compounds, and intensified training of healthcare providers. Engagement of religious and community leaders is important to overcome myths and promote skilled delivery. Strengthening these interventions supports Sustainable Development Goal (SDG) 3, which aims to reduce maternal mortality to fewer than 70 per 100,000 live births by 2030.

ACKNOWLEDGEMENT

This thesis would not have been possible without the guidance and assistance of several individuals who, in various ways, contributed to the preparation and completion.

I would like to express my deepest gratitude to my supervisor, Dr. Ahmad Sukerazu Alhassan, for his patience, motivation, guidance, and immense support throughout the writing of this thesis.

I am sincerely thankful to the study participants who, despite their busy schedules, took the time to be part of this study. I am truly grateful to them.

My thanks also go to the staff of the North East Municipal Health Directorate and heads of health facilities in the Municipality, particularly those at Gambaga Polyclinic, for their kind help and cooperation during the data collection period.

I owe a deep sense of gratitude to my colleague coursemates, especially Mr. Richard Kwaku Bawah, for his unwavering support and keen interest in this work from the beginning to the end. His timely suggestions, encouragement, and enthusiasm greatly helped me complete this thesis.

Lastly, I am profoundly grateful to my parents for their continuous support, encouragement, and genuine interest in my academic achievements.

DEDICATION

This study is wholeheartedly dedicated to my beloved parents.

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LIST OF ABBREVIATIONS

ANC	-	Antenatal Care
WHO	-	World Health Organization
SDG	-	Sustainable Development Goal
SSS	-	Sub-Sharan Africa
LMICs	-	Low- and Middle-Income Countries
FANC	-	Focused Antenatal Care
MMR	-	Maternal Mortality Ratio
HUM	-	Health Utilization Model
GHS	-	Ghana Health Service
HFD	-	Health Facility Delivery
SM	-	Safe Motherhood
USAID	-	United States Agency for International Development
NHIS	-	National Health Insurance Scheme
CHPS	-	Community-based Health Planning and Services
TBAs	-	Traditional Birth Attendants
PBF	-	Performance-Based Financing
ITNs	-	Insecticide-Treated Nets

IPTp	-	Intermittent Preventive Treatment in Pregnancy
SKBs	-	Skilled Birth Attendants
PNC	-	Postnatal care
RCH	-	Reproductive and Child Health
CWC	-	Child Welfare Clinic

CHAPTER ONE

INTRODUCTION

1.1. Background

The World Health Organization (WHO) recommends antenatal care (ANC) to ensure a safe and successful pregnancy (WHO, 2016). Maternal healthcare is recognized as an essential strategy for reducing maternal and neonatal mortality, with ANC alone decreasing neonatal mortality by 10% to 20% (UNICEF, 2014). Skilled delivery provided by professional birth attendants further enhances maternal and newborn outcomes, significantly lowering mortality rates (WHO, 2016). Empirical investigations of preventive services indicate that regular prenatal monitoring of women is crucial for mitigating birth-related complications, delivering supportive care, and promoting safer motherhood (Kifle et al., 2017). Conversely, inadequate utilization of prenatal healthcare services undermines the essential connection in the continuum of care, resulting in worse pregnancy and delivery outcomes (Lambon-Quayefio et al., 2014).

It has been established that professional birth attendants or medical facilities are effective strategies for reducing the number of maternal and neonatal deaths. Health facilities are outfitted with professional birth attendants, including nurses, doctors, and midwives, as well as facilities, logistics, and referral systems to help provide high-quality healthcare services during labor, delivery, and after childbirth (Bhowmik et al., 2019; Solnes et al., 2017). Additionally, skilled delivery attendants are trained in the care of obstetric issues (Munabi-Babigumira et al., 2019). In high-income countries, comprehensive maternal healthcare systems have achieved maternal mortality ratios as low as 2–4 per 100,000 live births (WHO, 2024), which starkly contrasts with the higher mortality rates observed in low- and middle-income countries. These global statistics underscore the urgent need to strengthen both ANC and skilled delivery services worldwide.

Developed countries have advanced maternal healthcare systems that ensure universal access to ANC and skilled delivery services. For example, in Sweden and Norway, maternal mortality ratios are as low as 2–4 per 100,000 live births (WHO, 2024). In contrast, many developing nations continue to face significant challenges, with maternal mortality ratios averaging as high as 533 per 100,000 live births in Sub-Saharan Africa (WHO, 2024). This stark disparity underscores the critical importance of strengthening maternal healthcare systems in developing countries through improved access to ANC and skilled delivery services.

ANC use has surged in LMICs since the WHO's 2002 introduction of the 'Focused' (Antenatal Care) (FANC) paradigm (WHO, 2016). Pregnant women should receive the necessary interventions at pre-arranged intervals during "reduced but goal-oriented" clinic consultations, which is the main purpose of this technique. At least 4 ANC visits should be planned for healthy women without any underlying pregnancy problems, and up to eight if there are any warning signs or birth-related diseases, according to the FANC model. However in Sub-Saharan Africa, the challenges to ANC and skilled delivery are profound. Many pregnant women in the region face limited healthcare accessibility due to long distances to health facilities, inadequate transportation networks, and insufficient infrastructure (WHO, 2016). Additionally, entrenched cultural beliefs and traditional practices often lead women to favor home deliveries or the services of traditional birth attendants over formal healthcare providers (UNICEF, 2014). Financial constraints further exacerbate these issues, as high out-of-pocket costs and limited health insurance coverage prevent many from accessing timely and quality maternal care (Rahman et al., 2017; Lambon-Quayefio et al., 2014).

In Ghana, maternal healthcare has seen improvements over the past decades, yet significant challenges remain. According to the Ghana Health Service (2023), 89% of pregnant women attend at least one

antenatal care (ANC) visit; however, only 64% complete the recommended four or more visits. Skilled delivery services also show regional disparities, with urban areas achieving higher utilization compared to rural regions, where as many as 21% of women still deliver at home (GHS, 2023). Factors such as socioeconomic status, educational level, cultural beliefs, and healthcare accessibility continue to influence ANC and skilled delivery utilization (Kyei-Nimakoh et al., 2016; Lambon-Quayefio et al., 2014). Consequentially, the World Bank (2024), reports that maternal mortality in Ghana has increased by 7.79% from 244 deaths per 100,000 live births in 2019 to 263 deaths per 100,000 live births in 2020, presumably as a result of inadequate prenatal care (Kyei-Nimakoh et al., 2016; Lambon-Quayefio et al., 2014). Therefore, if women are able to receive the early ANC check-up suggested by the WHO, Ghana can avoid greater maternal morbidity and associated mortality, which could also help Ghana achieve Sustainable Development Goal (SDG) 3 (Kyei-Nimakoh et al., 2016; Muhwava et al., 2016).

This study aims to examine the prevalence and determinants of ANC utilization and health facility delivery among postnatal women in Gambaga Municipality, Northeast Region, Ghana. By addressing gaps in existing research—particularly the limited focus on skilled delivery and the interplay of cultural, financial, and accessibility factors—this study seeks to provide a comprehensive understanding of maternal healthcare challenges and inform targeted interventions. Improving maternal healthcare aligns directly with Sustainable Development Goal (SDG) 3 (Good Health and Well-being). In particular, Target 3.1 seeks to reduce the global maternal mortality ratio to fewer than 70 per 100,000 live births by 2030 (WHO, 2016). Strengthening ANC and skilled delivery services is essential for achieving this target. Furthermore, Target 3.7 emphasizes universal access to sexual and reproductive healthcare services, including maternal care, which directly supports efforts to enhance both ANC and skilled delivery utilization. Additionally, SDG 5 (Gender Equality) plays a crucial role in empowering women and ensuring their access to quality

maternal healthcare, thereby contributing to improved health outcomes and overall societal well-being (Rahman et al., 2017).

1.2. Problem Statement

In Ghana, maternal health continues to be a significant public health concern. According to the Ghana Health Service (2020), while nearly 89% of expectant mothers go for at least a single antenatal care (ANC) visit, a significant majority fail to satisfy the threshold of four and more visits, and a large proportion of them continue to deliver at home. Maternal death in Ghana remains undesirably high due to reasons such as economic constraints, cultural beliefs, and poor access to healthcare facilities, which cumulatively result in avoidable deaths (Kyei-Nimakoh et al., 2016; Lambon-Quayefio et al., 2014). Not only do the magnitude and intensity of the issue bring about unfavorable health consequences on mothers and newborn babies, but they also create an enormous toll on the nation's healthcare system, thereby hindering Ghana from making advancements in the attainment of Sustainable Development Goal (SDG) 3.

Despite the known benefits of antenatal care (ANC) in reducing neonatal and maternal mortality (World Health Organization, 2016), previous studies in Ghana have focused primarily on ANC attendance, with too little emphasis being given to the utilization of skilled delivery services. Even though a number of studies have investigated the socioeconomic and educational determinants of antenatal care (ANC) utilization (Adjei et al., 2018; Boah et al., 2018; Ganle et al., 2015; Kyei et al., 2012), a significant gap in the existing literature is still present regarding an integrative examination covering both ANC use and facility delivery concurrently. In particular, there has been insufficient focus on grasping the synergistic effects of cultural, financial, and infrastructural obstacles—especially in rural areas such as the Gambaga Municipality.

Therefore, the study aims to examine the prevalence and determinants of ANC utilization and facility delivery among postnatal women in Gambaga Municipality, Northeast Region, Ghana. With this gap addressed, the study aims to fill the gap in knowledge about the determinants of maternal healthcare service utilization. The results are supposed to guide focused public health responses and policy actions that will improve service delivery and help achieve the reduction of maternal and neonatal mortality rates, thus consolidating Ghana's resolve towards Sustainable Development Goal Target 3.1 and Target 3.7.

1.3. Research Questions

1. What is the prevalence of ANC utilization and health facility delivery among postnatal women in Gambaga Municipal?
2. What are the maternal-level factors that influence the utilization of ANC and health facility delivery among postnatal women in Gambaga Municipal?
3. What is the healthcare delivery factors that influences ANC utilization and health facility delivery among postnatal women in Gambaga Municipal?
4. What are the sociocultural factors that influence ANC utilization and health facility delivery among pregnant women in Gambaga Municipal?

1.4. Study Objectives

1.4.1. General Objective

To determine the factors associated with ANC utilization and health facility delivery among postnatal women in the Gambaga Municipality of the Northeast Region of Ghana.

1.4.2. Specific Objectives

1. To assess the prevalence of antenatal care (ANC) utilization and health facility delivery (HFD) among postnatal women in Gambaga Municipal.
2. To examine the associations between maternal socio-demographic factors and the utilization of ANC services and HFD among postnatal women in Gambaga Municipal.
3. To evaluate the impact of healthcare delivery factors on ANC utilization and HFD among postnatal women in Gambaga Municipal.
4. To analyze the influence of maternal socio-cultural factors on the utilization of ANC services and HFD among postnatal women in Gambaga Municipal.

1.5. Study Significance

This study provides crucial insights into the determinants of antenatal care (ANC) and health facility delivery (HFD) adoption among postnatal women in Gambaga Municipal in the Northeast Region of Ghana, thus filling a significant knowledge gap in current literature. In its methodological design, the research improves the understanding of the socio-demographic and socio-cultural determinants that influence maternal health as well as the healthcare provision challenges that impact maternal health behavior. Using descriptive and inferential statistical methods, including chi-square tests and logistic regression, this study provides strong evidence that could inform future research activities and theoretical developments in the fields of maternal and reproductive health. Therefore, using this all-encompassing methodology, immensely enhances our understanding pertaining to the utilization of maternal healthcare services.

From a policy perspective, the findings have important implications for the development of public health policy and intervention strategies. Policymakers and healthcare providers can use the evidence outlined in this research to design targeted interventions that address the identified

barriers to antenatal care (ANC) and high-fidelity data (HFD), such as cultural beliefs, financial constraints, and poor access to healthcare services. In addition, this research is consistent with Sustainable Development Goal (SDG) 3—Targets 3.1 and 3.7—by providing actionable advice to decrease maternal mortality to less than 70 per 100,000 live births, while also promoting universal access to high-quality maternal healthcare services. In addition, by highlighting the importance of education and empowerment (in line with SDG 5), this research supports wider efforts to promote gender equality and the empowerment of women through improved access to healthcare services.

The findings of this study are therefore expected to guide evidence-based policy, maximize resource allocation, and enhance the effectiveness of maternal health interventions in Ghana to ensure the wellbeing of mothers and neonates at both regional and local levels.

1.6. Organization of the Study

The study was composed of six sections. The study was introduced in Chapter 1 with the problem statement, research questions, goals, and importance of the investigation. In the second chapter, the theoretical and conceptual framework supporting the study was reviewed, along with the literature on ANC utilization and HFD on a national and international level. In Chapter 3, the research methodology used to achieve the study's goals was described in detail. Chapter 4 provided both a textual and tabular presentation of the study's results. In Chapter 5, the results were examined and contrasted with previous research. The study's limitations were covered, conclusions and recommendations were offered, and the study was summarized in the last chapter.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

Pregnancy can lead to complications such as eclampsia and obstructed labor, posing risks to both the mother and the fetus. The Ghana Health Service (GHS) initiated the National Safe Motherhood (SM) Program in 1995 with the goal of lowering maternal mortality and morbidity by enhancing the coverage and quality of maternal health services and raising community awareness of maternal health issues through ANC services (United States Agency for International Development (USAID), 2005).

A further review led to the adoption of Focused Antenatal Care which focused on one midwife to one patient. This was to ensure close monitoring of pregnant women with an increased number of ANC visits. A review of the Focused Antenatal Care approach found that the limited number of visits (four) was linked to increased perinatal death, maternal mortality, and low satisfaction rates among pregnant mothers (Souza et al., 2014; Vogel et al., 2014). In November 2016, the WHO prenatal care model was implemented by increasing the number of visits from four to eight. The term 'visits' was replaced with 'contacts' to reflect the greater interaction healthcare providers should have with pregnant women through the period of pregnancy (Tunçalp et al., 2017).

2.2. Theoretical and conceptual Frameworks

2.2.1. Theoretical Framework

The Health Belief Model was propounded by a social psychologist, Irwin Rosenstock in the early 1950s as part of a study on why people fail to accept disease prevention strategies. It therefore focuses on client compliance and healthcare practices (Polit & Beck, 2008). It would be utilized to guide the study in order to successfully address the topics to a logical conclusion. The theory,

which integrates psychological theories of goal-setting, decision-making, and social learning, holds that a person's decision to seek treatment is influenced by their perception of the threat posed by a health issue and the importance they place on taking action to reduce that threat (Hakim, 2018).

The model explains why some women who are pregnant choose to seek antenatal care early in their pregnancy to avoid health concerns while others choose to wait until later in their pregnancy or not at all until delivery or not. According to Bush & Iannotti (1990), the Health Belief Model is divided into six parts which explain the health-seeking behaviors of individuals (Bush & Iannotti, 1990).

Perceived Susceptibility deals with a person's perception of their likelihood of contracting an illness or condition is known as perceived susceptibility. People are more likely to engage in health-promoting behaviors if they believe they are at risk. In the instance of this study, pregnant women will seek ANC services or health facility delivery if they perceive they have a higher risk (susceptibility) to ill health during the period of pregnancy or have a higher suspicion of encountering birthing complications.

Perceived severity deals with the seriousness with which a person views the potential consequences of a health problem. If the consequences of a condition are seen as severe, an individual is more likely to take action to avoid it. Pregnant women in this instance are more likely to go for ANC services or deliver in a health facility if they perceive that there is going to be a serious challenge in their pregnancy or birthing process.

Perceived benefits include a person's conviction that the suggested course of action will effectively lower danger or seriousness. If a person believes that a specific action will effectively

prevent or treat an illness, they are more likely to engage in that behavior. In this case, pregnant women are more likely to use ANC services or give birth in a medical institution if they believe the advantages outweigh the risks of not using those services.

Perceived barriers are obstacles or costs (both tangible and psychological) that might prevent someone from adopting a new health behavior. These can include financial costs, side effects, inconvenience, and other factors. If the perceived barriers outweigh the perceived benefits, the individual is less likely to take action. The pregnant women in this instance perceived barriers or obstacles that could hinder their ANC utilization or health facility delivery.

Triggers that cause people to act are known as cues to action. Cues might be external (like media ads, doctor's reminder postcards, or recommendations from others) or internal (like symptoms). In the process of making decisions, cues to action can be extremely important. Pregnant women in this context may feel some waring events that may encourage them to seek ANC services while pregnant or delivery in a health facility when in labor.

Self-efficacy is the belief in one's own ability to carry out an action successfully. A higher propensity to take action relating to one's health is linked to higher levels of self-efficacy. In this view, pregnant women would want to seek ANC services or delivery in a health facility to enable them to manage any health issues that would render them incapacitated or dependent on other people to perform their activities of daily living.

The Health Belief Model functions as an efficient predictive instrument for preventive health behaviors yet receives criticism because it simplifies too much the multiple facets affecting human behavior. Critiques of HBM criticize its emphasis on cognitive variables like perceived severity and susceptibility because it dismisses the significance of habitual actions and social economic

conditions as well as emotional aspects of decision-making behaviors (Nor et al., 2025; Squires et al., 2024; Hagger, 2024). This criticism highlights the need to have a more sophisticated understanding of behavioral patterns.

2.2.2. The Health Utilization Model

Andersen's Health Utilization Model, also known as the Behavioral Model of Use of Health Services, was developed by Ronald M. Andersen in 1968. The main goal of Andersen's Health Utilization Model is to explain why people choose to use or not use healthcare services, with a desire to understand the variables that promote or limit both utilization and accessibility of these services. It is one of the most widely used frameworks to analyze and forecast patterns of healthcare utilization. Predisposing, enabling, and need factors are the three main constituents of this model that provide cumulative insights into patterns of healthcare utilization (Lengerke et al., 2014; Lederle et al., 2021). The HUM explains the three interacting factors that influence an individual's health-seeking behavior (ie. The predisposing factors, enabling factors, and the need for care) in the following manner:

The idea behind the predisposing factors is that different exposure levels make some persons more or less likely to require healthcare services. Predisposing factors include things like age, occupation, marital status, and degree of education.

The enabling factors are viewed as supportive resources, which can come from either an individual or the wider community. They include money, availability of health insurance, access to medical facilities and staff, and transportation, among others.

Need for care provides the rationale for why someone might use the ANC or health facility when pregnant or to deliver. Factors believed to influence an individual's need for care include an

individual's self-reported health status, chronic conditions, perceived risk, and the perceived severity of the condition.

Andersen's theory is highly significant, yet others criticize it since it does not incorporate cultural and psychological factors. The factors are critical in the comprehension of how various groups utilize healthcare. Experts believe the factors must be incorporated in order to render healthcare facilities accessible. The theory has been modified through incorporating various levels of analysis, which assists us in understanding healthcare utilization in various scenarios (Lengerke et al., 2014; Lederle et al., 2021).

2.2.3. Conceptual Framework

The current study uses an integrated conceptual framework based on the Health Belief Model (HBM) and Andersen's Healthcare Utilization Model to examine the determinants of antenatal care (ANC) utilization and health facility delivery (HFD) in postnatal women living in the Gambaga Municipal district of Ghana's Northeast Region.

The framework incorporates key constructs from the HBM—namely, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy—to explain the cognitive factors that influence a woman's decision to seek ANC and opt for skilled delivery services. Simultaneously, it draws on Andersen's model by integrating:

Predisposing Factors: such as a person's marital status, education level, and age.

Enabling Factors: Logistical and financial aspects, including healthcare facility accessibility and health insurance.

Need Factors: The established and measured necessity for maternal care services, in accordance with the severity of pregnancy complications.

2.2.4. Adaptations for the current study

For this research, the framework has been adapted to focus exclusively on determinants of maternal healthcare utilization, specifically ANC and HFD. This adaptation includes:

By focusing solely on maternal care, this method overlooks broader health behaviors (physical activity and nutritional status, for example) that lack a direct relationship with antenatal care and high-frequency data. By emphasizing the socio-cultural aspects, the model extends the comprehension of the perceived barriers and incentives for behavior by including the impact of the prevailing cultural customs and norms in the research setting. Focusing on the facilitators, considering the unique barriers concerned with accessing healthcare in rural areas like Gambaga Municipal.

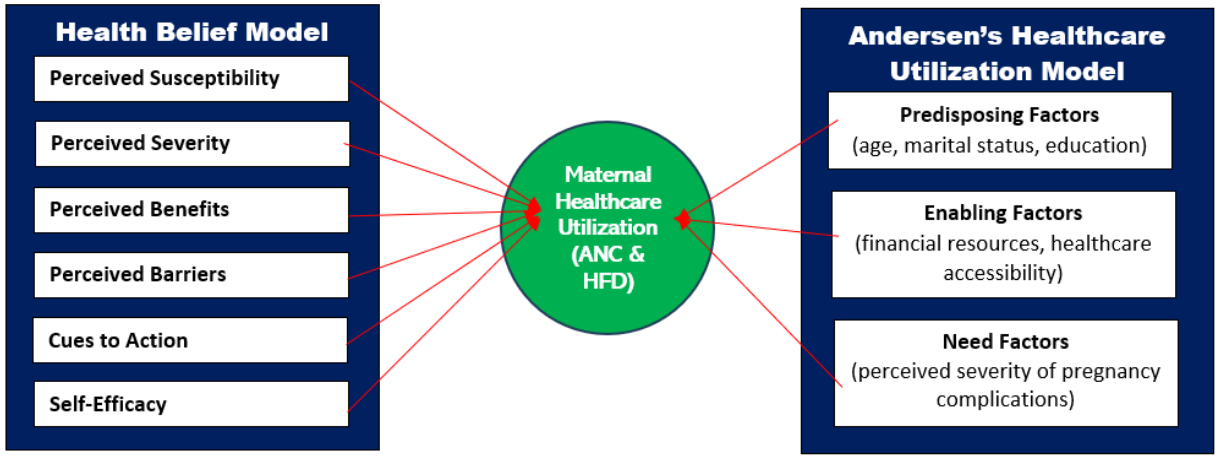

Figure 2.1: Conceptual Framework

Source: Adapted from Rosenstock's Health Belief Model & Andersen's Health Utilization Model

The merging of these two theories creates an all-encompassing conceptual framework that improves our understanding of utilization in mother and child healthcare. It postulates that both cognitive individual determinants, as outlined by the Health Belief Model, and system factors, as explained by Andersen's paradigm, simultaneously influence a woman's health-seeking behavior. The combined framework allows one to explore how sociodemographic, sociocultural, and

delivery system-related factors influence ANC and HFD. The findings obtained from the framework are critical to the development of evidence-based public health activities and policy interventions to reduce maternal and neonatal morbidity and mortality rates in Ghana.

Andersen's (1968) theory is used as the basis to examine how predisposing factors—demographic, educational, and cultural factors—combined with enabling factors, including access and available resources, and need factors, including both assessed and perceived needs, determine ANC and hospital delivery. In a complementary fashion, the Health Belief Model explains the cognitive determinants at the individual level, namely, perceived susceptibility, seriousness, benefits, and barriers, that affect health-seeking behavior. Together, these theoretical frameworks present an integrative account of the complex determinants of maternal healthcare in the Gambaga Municipality, and as such, is in keeping with the study goals and guiding the development of targeted intervention strategies (Saah et al., 2021). Therefore, it aligns well with the goal of the study, which is to evaluate the parameters related to the HFDs and the use of ANC.

2.3. The Concept of ANC

An average of 810 women worldwide pass away from pregnancy-related complications per day, making maternal mortality a significant public health concern (Ahinkorah et al., 2021). Around 295,000 maternal deaths from pregnancy and childbirth were reported by the World Health Organization in 2017; 94% of these deaths took place in LMICs, with 86% of those deaths occurring in Sub-Saharan Africa (SSA) and Southern Asia (WHO, 2023).

As stated in SDG 3, which seeks to lower the global maternal death ratio to fewer than 70 per 100,000 babies born alive by 2030, these alarming reports have led calls for further efforts to address the issue (WHO, 2016). Making timely use of prenatal care, which is crucial in SSA, is one way to get beyond this obstacle. The regular care given to expectant mothers from the time of

conception to the start of labor is known as antenatal care (Moller et al., 2017). The provision of health promotion and prevention services is made possible by enough ANC support (Dulla et al., 2017). In order to enhance health outcomes and enable a seamless transition into the postnatal phase, ANC seeks to safeguard and advance the health of the expecting mother and her unborn child.

All expectant mothers must obtain enough and prompt ANC care in order to ensure a positive conception experience. Since it aids in arranging subsequent visits, the first ANC visit scheduling is crucial (Tikmani et al., 2019). The previous WHO ANC Framework recommended that expectant mothers receive a minimum of four ANC visits (Adedokun & Yaya, 2020). However, in order to properly prepare a pregnant woman for a safe delivery process and prevent difficulties for either the mother or the child, the 2016 WHO update suggested at least eight encounters with ANC services under the new Focused Antenatal Care framework (Benova et al., 2018). The significance of comprehensive and person-centered care at every visit or interaction was further emphasized by the new framework (WHO, 2016). About 69% of pregnant women in SSA nations had at least one ANC visit despite these updated recommendations, suggesting that most expectant mothers do not meet the required number of visits or contacts because they present late (Adewuyi et al., 2018; Mkandawire et al., 2019).

With ANC starting in the first trimester, the World Health Organization recommends at least eight prenatal visits throughout pregnancy (WHO, 2016). But many women in developing countries don't live up to this standard (Gebremeskel et al., 2015).

2.4. Prevalence of antenatal care (ANC) utilization and health facility delivery (HFD)

2.4.1. The Level of ANC Utilization Among Postnatal Women

Antenatal care or Focused ANC according to the WHO's new recommendation is set for a pregnant woman to have at least four contacts during pregnancy and should be initiated in the first trimester of pregnancy (Souza et al., 2015; Vogel et al., 2014). The majority of women (80%) in poor countries now receive at least one ANC check-up, indicating notable advancements in ANC utilization (Abubakari & Abiiro, 2018; Kanu et al., 2014). Similarly, almost all women received at least one ANC visit between 2011 and 2017, and the percentage of women who received four or more visits rose dramatically across all locations (Tikmani et al., 2019).

Approximately 72% of women in Sub-Saharan Africa receive their initial ANC examination following the first trimester of pregnancy (WHO, 2016). Additionally, between 2009 and 2013, about 98% of Sierra Leonean women visited ANC during their most recent pregnancy, with 89% undergoing four or more visits, according to Kanu et al. (2014). Furthermore, Abubakari and Abiiro (2018) found that ANC had a coverage rate of over 99%, with nearly 81% of nursing women attending postnatal and child care clinics in three Northern Ghanaian districts having visited ANC four or more times. In addition, Adu et al. (2018) looked at data from the 2014 Ghana Demographic and Health Survey and found that most respondents (89.2%) had four or more prenatal visits, while just a small percentage had less than four (10.8%), irrespective of marital status. Between 2006 and 2011, the percentage of women in Ghana's Upper East Region who received appropriate ANC attendance increased from 49.3 to 49.98%, and between 2017 and 2018, it reached 58.61% (Duodu et al., 2022).

Conversely, some research has shown that ANC use has been less than ideal in other areas. For instance, ANC underutilization was found to be 46.5% prevalent in Nigeria, according to a study

(Adewuyi et al., 2018). Just 40% of expectant mothers in low- and middle-income nations obtain the necessary four prenatal care visits, according to WHO (2016). Additionally, only 25% of pregnant women in Rwanda start treatment within the WHO-recommended timeframe, despite the country's nearly universal ANC coverage (Mkandawire et al., 2019). Additionally, only 31.7% of the 85% of respondents who had at least one ANC visit in Ghana throughout the study period had their initial visit during their first trimester, according to Amoah et al. (2016). Numerous factors, such as pregnant women's level of ANC knowledge, distance, family support, socioeconomic status, cultural beliefs, financial constraints, accessibility, and the availability of medical facilities or healthcare providers, are linked to the suboptimal and delayed utilization of ANC services (Anis et al., 2022; Gebremeskel et al., 2015; Shahabuddin et al., 2015).

Ghana has more ANC services available nationwide than the global average for the four previously advised visits (WHO, 2016). However, given that some pregnant women, especially in rural regions, are unable to get ANC treatment, there may still be regional and rural-urban discrepancies in service delivery and utilization (Saaka & Akuamoah-Boateng, 2020). According to a study by Duodu et al. (2022), characteristics like higher levels of formal education, health insurance coverage, increasing household affluence, and urban residency had a significant impact on adequate or optimal ANC attendance. Based on the research that is currently available, pregnant women who are enrolled in the National Health Insurance Scheme (NHIS) have a higher likelihood of using ANC services than those who are not (Dixon et al., 2014). Additionally, ANC visits are more common among pregnant women with formal education who reside in Ghana's urban districts and are wealthier than those who are not, come from lower-income families, or live in rural areas (Asamoah et al., 2017). Additionally, the degree of ANC service consumption is influenced by the number of children and the accessibility of transportation (Alibhai et al., 2022).

The decision of pregnant women to utilize antenatal care (ANC) services is strongly influenced by their knowledge of these services and their awareness of the significant benefits they provide for both the mother and her unborn child. Research has consistently shown that a lack of awareness about the importance of ANC is a major reason why many pregnant women do not seek these services (Konje et al., 2018; Fagbamigbe & Idemudia, 2015; Vogel et al., 2014). For example, a qualitative study exploring the reasons for low ANC uptake in low- and middle-income countries revealed that many women perceive pregnancy as a natural process that does not require additional care or attention (Fagbamigbe & Idemudia, 2015). Additionally, pregnant women in a different survey thought that only people with illnesses or disorders with clear symptoms should visit hospitals and use healthcare services. A considerable portion of pregnant women in central Ethiopia did not attend ANC, according to Birmeta et al. (2013), because they did not view pregnancy as a disorder and hence did not perceive the necessity to seek medical attention during pregnancy. In this sense, women's inability to acquire and use health treatments—particularly ANC services and health facility delivery—is mostly due to a lack of information. The analysis by Baruah et al. (2016) supports the aforementioned findings by showing that some women did not seek prenatal care because they did not think they needed to see a doctor while pregnant.

A Tanzanian study examining the link between knowledge of pregnancy danger signs and healthcare-seeking behavior found that individuals aware of these signs were more likely to visit health facilities than those unaware of any danger signs (Mwilike et al., 2018). This suggests that pregnant women attending ANC sessions are more inclined to use other health services due to the information they acquire during these visits. Similarly, a cross-sectional study conducted among pregnant women in Western Jamaica revealed a strong correlation between awareness of ANC

services and the number of ANC visits. Women with a high level of knowledge were more likely to have four or more visits compared to those with limited knowledge (Respress et al., 2017).

Additionally, a thorough knowledge of maternal health issues was found to be a major predictor of competent birth delivery by Ogboghodo et al. (2019). According to a study conducted in Amritsar, Punjab, most postpartum moms (97.9%) knew that pregnant women should have an antenatal checkup, but only 55.2% knew that the minimum amount of antenatal checkup needed during pregnancy was necessary (Kaur et al., 2018). In Ghana's Ashanti area, a research found that roughly 14% of expectant mothers knew nothing about antenatal care, compared to 17% who knew poorly and 69% who knew very well (Iyanda et al., 2018). Once more, Ogunba & Abiodun (2017) found no discernible correlation between prenatal clinic attendance and knowledge among postpartum moms in South Western Nigeria.

Duodu et al. (2022) observed that women living in urban areas were more likely to attend at least eight ANC sessions during pregnancy compared to their rural counterparts. This finding is consistent with studies conducted in Ghana and other developing countries (Anis et al., 2022; Shahabuddin et al., 2015). In many developing nations, low utilization of ANC services has been linked to several factors, including limited access to healthcare facilities, poor road infrastructure, traditional beliefs that discourage seeking medical care, and unfavorable working conditions for healthcare providers in rural areas (Dixon et al., 2014).

In comparison to women in Kintampo (33.2%) and Dodowa (33.7%) in the former Brong Ahafo and Greater Accra Regions, Sakeah et al. (2017) found that 35.6% of women in Navrongo, in the Upper East Region, regularly frequent ANC clinics. Additionally, they found that the Upper East Region's rural areas have more community health-based planning services (CHPS) compounds

than rural areas in other parts of Ghana. This finding may have contributed to the Upper East Region's rising ANC service utilization (Sakeah et al., 2017).

2.4.2. Health Facility Delivery Among Postnatal Women

An average of 810 women worldwide pass away from pregnancy-related causes per day, making maternal mortality a persistent public health concern (Ahinkorah et al., 2021). Most of these fatalities take place in LMICs, particularly in Southern Asia and SSA (Anaba et al., 2022; Saaka & Akuamoah-Boateng, 2020). The high rates of maternal and child deaths are attributed to several factors with the greater challenges being accessibility to health infrastructure and skilled birth deliveries (Anaba et al., 2022; Saaka & Akuamoah-Boateng, 2020).

Health facility delivery, where skilled medical professionals oversee childbirth in a healthcare setting, plays a critical role in improving maternal and newborn health outcomes. Access to health facilities is essential for reducing maternal and neonatal mortality rates (Ahinkorah et al., 2021; Kabir et al., 2020; Ogboghodo et al., 2019). Skilled birth attendants are equipped to manage complications during delivery, provide immediate care for newborns, and ensure both mother and child receive necessary postnatal care (Ahinkorah et al., 2021; WHO, 2016). The presence of trained medical personnel significantly decreases the risks of postpartum hemorrhage, sepsis, and delivery asphyxia (Ameh & van den Broek, 2015; Salam et al., 2014).

One of the main factors influencing HFD is socioeconomic level. Due to greater financial resources and knowledge availability, women from higher socioeconomic backgrounds are more likely to give birth in medical facilities (Rahman et al., 2021; Tamirat et al., 2020). On the other hand, even when services are formally free, poorer women's ability to pay for them and travel to medical facilities is limited by their financial situation (Dahab & Sakellariou, 2020).

Studies have shown that women with higher levels of education are more likely to understand the benefits of expert attendance at birth and to overcome cultural and traditional barriers (Sakeah et al., 2017; Mwilike et al., 2018; Vogel et al., 2014). Educated women are better able to follow recommended health behaviors, seek the right medical care, and make informed health decisions (Alibhai et al., 2022; Anis et al., 2022).

According to another research, cultural norms and beliefs have a big impact on how health facilities operate (Gebremeskel et al., 2015). Traditional beliefs in many communities favor home births with TBA support over delivery at medical facilities (Ganle et al., 2014). The influence of elders and family members, mistrust of formal healthcare institutions, and the perception of cultural insensitivity of healthcare professionals are frequently the origins of these ideas (Dunjana, 2020; Rafizadeh, 2021; Sripad et al., 2022). Community-based therapies that honor and incorporate cultural values with contemporary medical procedures are necessary to overcome these cultural barriers (Rafizadeh, 2021; Sripad et al., 2022).

HFD is significantly influenced by the accessibility and availability of medical facilities. Long commutes to medical facilities, bad road conditions, and a lack of transportation choices considerably lower the probability of medical facility deliveries in rural and isolated places (Dickson et al., 2016; Kifle et al., 2017). Women are deterred from using these treatments by the fact that health institutions in these locations are frequently underfunded and lack necessary supplies, equipment, and qualified staff (Anaba et al., 2022; Asamoah & Agardh, 2017).

Women's decisions to give birth in medical facilities are influenced by the standard of treatment they receive (Joshi et al., 2014; Kruk et al., 2016). Important considerations are the perceived and real quality of care, which includes the courteous treatment of medical staff, facility cleanliness, medication availability, and overall service effectiveness (Bohren et al., 2014; Solnes et al., 2017).

Negative experiences discourage women from opting to give birth at a health institution, including mistreatment, lengthy wait times, and subpar facilities (Kruk et al., 2016).

Policies, infrastructure, and the ability of the health personnel are all important components of the health system that support the delivery of healthcare facilities (Ameh & van den Broek, 2015; Chagolla et al., 2018; Kruk et al., 2016). Health facility deliveries can be increased by implementing effective health policies that offer financial incentives, lower out-of-pocket costs, and guarantee universal access to maternal health services (Souza et al., 2013). Delivering high-quality maternal health services requires strengthening the health infrastructure and increasing the ability of healthcare personnel (Dahab & Sakellariou, 2020; Solnes et al., 2017; Tamirat et al., 2020).

Health facility deliveries have increased as a result of a number of beneficial interventions (Salam et al., 2014; Sharma & Vir, 2023). Health facility delivery attitudes have been successfully changed by community-based education and awareness initiatives that use culturally relevant messaging and engage local leaders (Faye et al., 2017). The use of maternal health care, including deliveries at health facilities, has also grown as a result of financial incentives like conditional cash transfers and voucher programs (Baruah & Boruah, 2016; Sakeah et al., 2017; Tamirat et al., 2020).

The Performance-Based Financing (PBF) program's implementation in Rwanda has also improved the delivery of healthcare facilities. Based on performance metrics, such as the quantity of deliveries made by health facilities, the PBF program offers financial incentives to healthcare providers. This strategy has raised the use of medical facilities for birthing and enhanced the quality of maternal health services (Basinga et al., 2011).

HFD in Ghana has increased dramatically since the CHPS strategy was put into place (Johnson et al., 2015). The CHPS effort has decreased maternal and newborn mortality rates and increased access to trained birth attendants by bringing healthcare facilities closer to rural populations and incorporating community members in health planning (Adu & Owusu, 2023; Johnson et al., 2015).

Significant obstacles still exist in encouraging pregnant women to give birth in a medical facility in spite of these efforts (Ahinkorah et al., 2021; Bohren et al., 2014). Progress is nonetheless hampered by enduring socioeconomic disparities, cultural hurdles, and deficiencies in the architecture of the health system. A multifaceted strategy is needed to address these issues, one that involves empowering women via education, bolstering health systems, and involving communities in health promotion initiatives (Benova et al., 2018).

One of the most important aspects of mother and newborn health is HFD. Several factors influence the utilization of health facilities for childbirth, including socioeconomic status, educational attainment, cultural beliefs, accessibility to facilities, quality of services, and the overall characteristics of the health system. Health facility deliveries have been proven to increase with the use of effective interventions such financial incentives, community-based education programs, and health system improvement. However, in order to enhance maternal health outcomes, tackling the enduring obstacles and challenges calls for consistent work and an all-encompassing strategy.

2.5. Maternal socio-demographic factors and the utilization of ANC services and HFD

Pregnant women's use of ANC and birth in a medical facility are significantly influenced by maternal-level variables. Maternal age, parity, location of residence, cultural views, socioeconomic level, educational achievement, prior obstetric history, and other sociodemographic traits are important determinants. For instance, Doku et al. (2012) discovered that women between the ages of 25 and 34 are more likely than those between the ages of 15 and

24 to have an early ANC visit. Once more, they found that women are more likely to have a trained medical professional assist with their birth if they are older. Chubike and Constance (2013) found that women between the ages of 25 and 34 had the highest rates of competent attendants, health facility delivery, and ANC attendance.

Additionally, Joshi et al. (2014) found a positive correlation between older women's attendance at ANC and their age. In their study, Adewuyi et al. (2018) found a correlation between Nigerian women's use of ANC and maternal age. They also observed a significant disparity in the use of ANC between urban and rural populations. Once more, ANC underutilization was much more common (61.1%) among those living in rural areas than it was among people living in urban areas (22.4%). Lack of access to cash and lack of companionship to medical services were shown to be important contributors to the disparity. According to Dixon et al. (2014), pregnant women in Ghana who were enrolled in the NHIS had a higher likelihood of using ANC services than those who were not.

Cohabiting women and single women were found to be 43% and 61% less likely, respectively, than married women to use ANC services, according to a study conducted in rural Ghana (Sakeah et al., 2017). Additionally, Ziblim et al. (2018) discovered a significant correlation between ANC use and married status. Women who were not married, divorced, widowed, or separated were more likely to use ANC services poorly than married women, according to a Rwandan study. Likewise, Nuamah et al. (2019) discovered a strong correlation between ANC use and marital status. In Ghana's forest area, it was shown that cohabiting mothers were more likely than married mothers to visit ANC. In a study of teenagers in Ghana, Sekyere and Freda (2021) discovered that there was no significant correlation between marital status and ANC attendance. Of the adolescents who

were single, 66 (58.9%) made four or more ANC visits, 16 (43.2%) cohabitated, and 15 (48.4%) were married.

Regarding women's educational attainment as a determinant of ANC use and delivery in health facilities, some research suggests that there is no meaningful correlation between mothers' educational attainment and their awareness of ANC services (Adu et al., 2018; Maluleke, 2017). On the contrary, other studies indicate that education accounts for mothers' propensity to attend and use prenatal and health delivery services (Baruah & Beeva 2016; Anis et al., 2022; Shahabuddin et al., 2015). According to a study conducted by Baruah and Beeva (2016), around 50% of educated women had three or more ANC encounters, while approximately 40% of illiterate mothers had between 1 and 3 ANC contacts.

Further analysis shows that women with lower levels of education in the lowest wealth quintile still use traditional medicine for maternal and child health services in Eritrea. Additionally, the three indicators of maternal health service utilization antenatal services, skilled birth attendance, and postpartum services—rose significantly with increased maternal education (Habtom, 2017). According to research, women who have completed more education are more likely to recognize the value of these services and successfully navigate health systems (Kaur et al., 2018; Ogboghodo et al., 2019; Ogunba & Abiodun, 2017). Additionally, ANC visits were more common among pregnant women with formal education who resided in Ghana's urban districts and were wealthier than those who were not, were from lower-income families, or lived in rural areas (Asamoah et al., 2014). According to a study by Baruah and Beeva (2016), pregnant women who had husbands with post-secondary degrees were more supportive of their health, including the use of ANC.

Women from higher socio-economic backgrounds often have better access to healthcare services due to financial stability, which enables them to afford transportation and medical costs (Adewuyi

et al., 2018; Kaur et al., 2018; Mwilike et al., 2018). According to the studies, the availability of financial resources allows women to overcome significant barriers that impede access to healthcare compared to those who are poor. For instance, transportation costs can be prohibitive in rural areas where health facilities are far apart and public transportation is scarce or unreliable. Women with adequate financial means can afford private transportation, reducing delays and the physical strain associated with reaching distant health centers (Atuhaire & Mugisha, 2020; Birmeta et al 2013). Additionally, financial stability ensures that women can afford the indirect costs associated with healthcare visits, such as child care and lost income from time taken off work, which are often overlooked but critical for ensuring consistent use of health services (Sripad et al., 2022).

Furthermore, financial stability enables women to cover direct medical costs, including consultation fees, diagnostic tests, medications, and any necessary follow-up treatments. In many low-income settings, out-of-pocket expenses for healthcare can be substantial, deterring women from seeking necessary care (Kaur et al., 2018; Mwilike et al., 2018). Access to better healthcare facilities, often private and perceived as offering higher quality care, is also more feasible for wealthier women (Bohren et al., 2014; Joshi et al., 2014). These facilities may provide more comprehensive and timely services compared to public health centers, which are often under-resourced and overcrowded. Consequently, women from higher socio-economic backgrounds are more likely to receive adequate ANC and opt for health facility deliveries, contributing to better maternal and neonatal health outcomes. Financial stability thus not only enhances access to services but also improves the overall quality and consistency of care received during pregnancy and childbirth (Kruk et al., 2016; Sripad et al., 2022; Solnes et al., 2017).

Again, in some communities, traditional beliefs may favor home births with traditional birth attendants, as these practices are deeply rooted in cultural norms and trusted local traditions (Dada,

2019; Sialubanje et al., 2015). This preference reduces the likelihood of using formal healthcare services, often due to a mistrust of modern medical practices and perceived cultural insensitivity of healthcare providers (Ganle et al., 2014). Addressing these maternal-level factors through educational campaigns can enhance the utilization of ANC and HFD, ultimately improving maternal and neonatal health outcomes.

2.6. Impact of healthcare delivery factors on ANC utilization and HFD

Improving maternal health is essential for advancing women's development. However, limited access to and utilization of maternity care, particularly in rural areas, continues to leave many women at risk and receiving inadequate care. Over the past decade, maternal health has improved significantly due to better maternal and childcare practices, increased access to affordable, high-impact public health interventions such as oral rehydration therapy and vaccinations for mothers and children, and enhanced nutritional practices (Sharma & Vir, 2023; WHO, 2021). According to the WHO, targeted strategies such as iron and folic acid supplementation for pregnant and postpartum women, vitamin A supplementation for both children and postpartum women, malaria prevention measures like insecticide-treated nets (ITNs) and intermittent preventive treatment during pregnancy (IPTp), and dietary supplementation for pregnant or nursing mothers have contributed to improved health outcomes for both mothers and children (WHO, 2016; 2021).

Despite these improvements, approximately 500,000 women—the majority of whom reside in developing nations—die during pregnancy, childbirth, or within a few weeks after giving birth (WHO, 2023). In addition to social, economic, and cultural factors, as well as the accessibility and affordability of healthcare, these are partly caused by the underutilization of maternal healthcare services (Tsawe, 2014). The complete range of maternal health therapies is not available to

pregnant women in low-resource settings, and rural and impoverished populations are disproportionately affected by these treatments.

It has been demonstrated that focused ANC improves maternal health outcomes by facilitating early illness detection and treatment. For instance, identifying and treating high blood pressure can help avoid eclampsia and drastically lower mortality. Anaemia detection and treatment have also been demonstrated to improve maternal outcomes (Jenkinson et al., 2016). By offering preventative health services including newborn tetanus vaccination, HIV and hepatitis screening, and malaria prophylaxis, attending ANC is known to aid augment healthcare during pregnancy (Vasconcelos et al., 2022).

The assistance of a trained birth attendant during delivery is also considered maternal care. Important challenges including failing to identify delivery problems and ensuring timely referrals result in the loss of many mothers and newborns (Mwilike et al., 2018). Professionals (midwives, physicians, nurses, and other healthcare providers) are present during skilled delivery. Additionally, it entails a supportive setting that has the tools, drugs, and supplies required for the successful and efficient care of obstetric problems (Nuamah et al., 2019). One of the most crucial interventions for lowering pregnancy-related fatalities and disability in developing nations is the presence of skilled birth attendants (SBAs) in the community, which may contribute to a decrease in maternal mortality (Nuamah et al., 2019). A WHO report claims that by increasing the percentage of births assisted by qualified experts, Egypt's maternal death rate has decreased by 50%. However, expert attendance during birth is only possible when health systems are functioning, which includes prompt referral procedures, well-equipped facilities, transportation,

and medical staff who are suitably qualified and motivated (Nuamah et al., 2019). These elements are absent from the health systems of the majority of developing nations (Kruk et al., 2016).

According to Chagolla et al. (2018), non-hospital or skilled birth delivery and monitoring are thought to be the cause of over 60% of maternal deaths that take place during the post-postpartum phase, which lasts for 42 days after delivery. According to Chagolla et al. (2018), the three main causes of maternal mortality during the postpartum phase are hemorrhage, infections, and hypertensive diseases. These diseases, along with other potentially fatal or incapacitating problems that call for prompt medical attention, can be identified with the aid of routine postnatal care (PNC). Additional information and services, like as nutrition for mothers and children, vaccinations, cleanliness, and sanitation, can also be provided during PNC. Less than 30% of women in developing nations, according to Langlois et al. (2015) and Somefun and Ibisomi (2016), receive PNC.

The use of maternal health services in Ghana has improved over time, claim Abubakari et al. (2018). Alongside a surge in ANC visits, the percentage of deliveries at health facilities rose from 57% in 2008 to 73% in 2014. However, in places with more rural communities, these advantages are minimal.

2.7. Sociocultural Factors that Influence ANC Utilization and Healthcare Delivery

The complex interaction of sociocultural factors influences the use of antenatal care and the provision of healthcare. These elements, which are ingrained in both personal and societal standards, are crucial in deciding whether expectant mothers seek and obtain appropriate treatment (Dada, 2019; Dunjana, 2020). The delivery of health facilities and the use of ANC services are greatly impacted by cultural norms and beliefs. Traditional beliefs in many communities prefer

home births delivered by traditional birth attendants (TBAs) over delivery in medical facilities (Saaka & Akuamoah-Boateng, 2020; Sialubanje et al., 2015). According to Ganle et al. (2015), these customs are frequently based on historical and cultural norms that consider delivery to be a natural occurrence that is best handled in the community. Furthermore, some cultural views could include a preference for familiar, community-based treatment and mistrust of professional healthcare systems. For instance, because TBAs are seen to understand local customs and provide individualized care, their presence during childbirth is desired in some South Asian and African cultures (Bohren et al., 2014).

Pregnant women's decisions on ANC and births in medical facilities are significantly influenced by their family and social networks. Women's decision to seek official healthcare services is frequently influenced by the counsel and viewpoints of family members, especially male partners and elders (Sialubanje et al., 2015). Important health choices, notably those pertaining to childbirth, are made by husbands or older family members in many patriarchal countries. Depending on their awareness and acceptance of contemporary healthcare methods, this can either make it easier or harder for them to access ANC and medical services (Moyer et al., 2013). Dada (2019) found that the most significant factors influencing the choice of ANC and the delivery location were the husband's decision or preference for ANC and privacy. The study involved reproductive women in Nigeria.

Socioeconomic status and educational attainment are closely linked to sociocultural factors that influence ANC utilization. Education empowers women to make informed health decisions and overcome cultural barriers to seeking care (Birmeta et al., 2013). It showed that because education seems to be a significant mediator, women in higher socioeconomic categories are more likely than those in lower socioeconomic groups to use maternity healthcare services (Baruah & Boruah,

2016; Habtom, 2017; Ziblim et al., 2018). According to a study by Akeju et al. (2016), pregnant women's health-seeking behavior was significantly influenced by their level of education. The study involved women from four local governments in Ogun State, Nigeria. Nevertheless, it seems that cultural norms shape women's education, diminishing their independence and their capacity to decide or take part in family or domestic decision-making. In a study, Sakeah (2017) discovered that maternal healthcare utilization was strongly correlated with the educational attainment of both women and their husbands, but that there was a modest correlation between healthcare utilization and women's autonomy. This disparity is often exacerbated by cultural norms that deprioritize women's health in favor of other household needs (Ahinkorah et al., 2018).

The use of ANC and delivery at health institutions are also impacted by the perceived quality of care provided there. Women are deterred from getting formal care by negative views of healthcare quality, including worries about rude treatment, invasions of privacy, and subpar facilities (Bohren et al., 2015). On the other hand, increased use rates are encouraged by favorable experiences and confidence in the healthcare system. Thus, ANC utilization and births at health facilities can be greatly increased by interventions targeted at enhancing the quality of care and guaranteeing courteous and culturally sensitive treatment (Kruk et al., 2016; Solnes et al., 2017).

ANC behaviors are strongly influenced by health views and knowledge regarding pregnancy and childbirth. Pregnancy is not considered a medical condition in certain cultures unless difficulties occur (Pell et al., 2013). In many LMICs, including Nigeria, women's access to health facility delivery services has been restricted by societal views and demands for urgent and specialized care (Okeshola & Sadiq, 2013). This belief results in inadequate or postponed ANC visits and deliveries in medical facilities. ANC uptake and health facility delivery rates can be increased by health

education initiatives that challenge these misconceptions and offer factual information on maternal health (Zamawe et al. 2016).

It takes a variety of approaches to address the sociocultural elements that affect ANC use. Attitudes regarding ANC and delivery at health facilities can be successfully changed by community-based health education initiatives that incorporate culturally relevant messaging and engage local leaders (Faye et al., 2017). In order to improve maternal health outcomes, policies that support women's education and socioeconomic empowerment are also essential. Furthermore, improving the standard of care at medical facilities and making sure that culturally sensitive procedures are followed will boost public confidence in the healthcare system and promote more use of ANC services and delivery in medical facilities (Souza et al., 2014).

The use of ANC and delivery in health facilities by pregnant women is significantly influenced by sociocultural variables. Health-seeking habits are influenced by a variety of factors, including cultural views, family influence, women's autonomy, socioeconomic status, perceived quality of care, and health knowledge. Reducing mother and newborn mortality rates and improving maternal health outcomes can be achieved by addressing these issues with focused treatments and policies.

CHAPTER THREE

METHODOLOGY

This section outlined the research approach used in conducting the study. It covered aspects such as the study design, study population, sampling and sample size, sampling methods, data collection instrument, procedure for data collection, reliability considerations, generalizability, data management, and data analysis.

3.1. Study Area

The current study was conducted in the Gambaga Municipal in the Northeast region of Ghana. The Northeast Region is located in the northern part of Ghana which was recently created as part of the sixteen administrative regions, with Nalerugu being the region's capital town. The region has a total population of 658,946. East Mamprusi municipal is the most populous district in the region with a total population of 188,006 (GSS, 2021). The region shares boundaries with the Upper East region to the north, the Northern region to the south, the Eastern Ghana-Togo international border to the east, and the Upper West region to the west. The region comprises six districts, and has a low population density, with the predominant languages being Tampulma, Bimoba, Mampruli, Kusasi, konkomba, or Dagbani. Islam, Christianity, and the African Traditional region are the commonly practiced faiths.

3.2. Study Design

A quantitative research approach was employed to assess the factors associated with ANC utilization and HFD in Gambaga Municipal, Northeast Region. A community-based descriptive cross-sectional study design was used. This approach was therefore used because it sought to explain the health-seeking behavior of pregnant women in terms of ANC utilization and health facility delivery. This design was appropriate for the study as it allowed the researcher to measure

the level of ANC utilization and HFD among pregnant and postnatal mothers in Gambaga Municipal and identify factors related to either utilization or non-utilization.

3.3. Study Population

The target population for the study was postnatal mothers who received pregnancy and labor-related healthcare services within the Gambaga Municipal health facilities.

3.3.1. Inclusion Criteria

The research targeted postnatal women aged between 18 and 45 years from the Gambaga Municipality. This particular age bracket was chosen as it covers most women within the given region of reproductive age and actively pursuing maternal and child health services (Bhattacharya & McCall, 2023; Afia et al., 2022).

Again, breastfeeding women who had received postnatal services from day 3 and above were included in this study. Additionally, only postnatal mothers who resided in the Gambaga Municipality during the period of data collection were eligible to participate.

3.3.2. Exclusion Criteria

Postnatal mothers with medical complications that hindered them from participating in the study. The 15 to 17 years' range was excluded because they have more chances of experiencing unwanted pregnancies; social stigmas and psychological problems related to these may lead to noncompliance and refusal to provide data, compromising the validity of the dataset as a whole (Muthelo et al., 2024). Lucas et al., (2019), agrees that, the fear of judgment may deter these young mothers from participating in studies, compromising the quality of data collected. Similarly, 46 to 49 years old was excluded from research owing to the higher prevalence of chronic reproductive health complications and ailments that may interfere with findings in relation to the wider

community. Seidu et al., (2024) concurs that, older mothers are at increased risk for conditions such as hypertension, diabetes, and other chronic illnesses, which can complicate postnatal care outcomes. Additionally, postnatal mothers with medical conditions that prevented them from participating in the study were also excluded.

3.4. Sample Size Determination

Data from the Gambaga Municipal Health Directorate indicated that between January and June 2024, 241 women had received postnatal services after day 3 of delivery at various health facilities within the Gambaga Municipality. Using Slovin's (1960) formula with a 95% confidence interval, the sample size for the study setting was calculated to be 165 postnatal women.

The calculation of the sample size is shown below.

$$n = \frac{N}{1 + N(e)^2}$$

Where;

n= Sample size

N= The number of women who had received postnatal services from day 3 of delivery.

e= Precision desired

Therefore;

N= 241

e= 0.05

$$n = \frac{N}{1+N(e)^2}$$

$$n = \frac{241}{1+241\ (0.05)^2}$$

n= 150.39

Adding a 10% non-response rate to the study, thus;

= (10/100) x 150.39

= 15.039

=150+15.039

=165.039

~165

Therefore, the sample size for the study was 165.

3.5. Sample and Sampling Procedure

A purposive sampling technique was used to recruit the study participants due to the specific category of the target population required for the study. This technique allowed the researcher to include participants with the necessary experience on the topic under study. The researcher visited health facilities in the municipality to collect contact information of women who visited the reproductive and child health (RCH) or child welfare clinics (CWCs) for maternal and child health services. Additionally, the researcher visited traditional birth attendants (TBAs) to gather data on clients who came to their centers for delivery and post-delivery services. Using this information, the principal investigator and research assistants traced the participants to their homes to recruit them into the study. The principal investigator and research assistants also placed phone calls to participants who were not available at home to administer the questionnaire. Furthermore, a Google form was developed and shared with participants who used smartphones and were able to read and write.

3.6. Study Instrument

The research tool consisted of a structured questionnaire with four sections A-D. Eight questions examining different variables were included in Section A, which looked at the maternal

(sociodemographic) aspects of postpartum mothers. Questions about the degree of ANC use and hospital delivery among postpartum moms were recorded in Section B. The two sections of this component were ANC utilization (three questions) and health facility utilization (two questions). Seven questions with "yes" or "no" answers were included in Section C, which examined the health facility-level parameters related to ANC utilization and health facility delivery. portion D, the last portion, examined the sociocultural elements affecting postpartum mothers' use of ANC and delivery in medical facilities. Six questions in all were included in this section, five of which had "yes" or "no" answers and one of which had "positive" or "negative" answers.

3.7. Data Collection Procedure

Permission was obtained from the District Health Director and the Gambaga Municipal Assembly through an ethical clearance letter from the institutional review board of the University for Development Studies before data collection began. A face-to-face interaction was used in the data collection using an online google form, with the researcher and the three (3) research assistants. Three trained field assistants, skilled in data collection methods, were employed to gather the data. The study information sheet was shared with participants, outlining the purpose of the study, the risks, benefits, and ethical considerations. Participants were required to provide their consent before the questionnaire was administered. All respondents were required to answer questions written in English. For respondents who could not read or write, questions were posed in the local dialect, and written responses were provided in English.

3.8. Credibility and Quality of Assurance

Before the actual data collection date, a pilot study was carried out. At least 10 study participants who met the inclusion criteria were interviewed beforehand. This was crucial as it allowed the researcher to determine whether any components of the guides needed to be changed, modified, or

eliminated. Additionally, the researcher independently coded the data into SPSS version 26 and performed data cleaning to ensure the data set was free from biases. A reliability analysis was conducted in the SPSS environment, yielding a Cronbach's alpha coefficient of 0.82, which indicates good internal consistency. Based on feedback from the pre-test, ambiguous questions were reworded purposely for clarity. These steps ensured that the questionnaire was both reliable and valid, thereby enhancing the credibility and quality of the data collected.

3.9. Study Variables

3.9.1. Dependent Variable

The study's primary dependent variables were:

1. **Level of Antenatal Care (ANC) Attendance:** This variable assesses the frequency of ANC visits during pregnancy. The categories and corresponding codes are:
    - **Less than four visits:** Coded as 1.
    - **Four or more visits:** Coded as 2.
    - **Instrument Question:** "How many times did you attend ANC during your most recent pregnancy?"
2. **Health Facility Delivery:** This variable indicates the place of delivery. The categories and corresponding codes are:
    - **Non-health facility delivery: Coded as 1.**
    - **Health facility delivery: Coded as 2.**
    - **Instrument Question: "Where did you deliver your most recent child?"**

3.9.2. Independent Variables

The independent variables included:

- **Socio-Demographic Characteristics:**

- **Age:** Measured in completed years. Instrument Question: "What is your age?"
- **Marital Status:** Categorized as:
  - Single: Coded as 1
  - Married: Coded as 2
  - Divorced: Coded as 3
  - Widowed: Coded as 4
  - **Instrument Question:** "What is your current marital status?"
- **Level of Education:** Categorized as:
  - No formal education: Coded as 1
  - Primary education: Coded as 2
  - Secondary education: Coded as 3
  - Tertiary education: Coded as 4
  - **Instrument Question:** "What is your highest level of education?"
- **Occupation:** Classified based on employment status and type of occupation. Instrument Question: "What is your current occupation?"
- **Ethnic Group:** Identified based on self-reported ethnicity. Instrument Question: "What is your ethnic group?"
- **Religious Affiliation:** Categorized based on self-reported religion. Instrument Question: "What is your religious affiliation?"
- **Sex of Household Head:** Indicates whether the household head is male or female. Instrument Question: "Who is the head of your household?"

- **Maternal Factors:**

- **Parity:** Number of previous pregnancies. Instrument Question: "How many times have you been pregnant?"
- **Previous Pregnancy Complications:** History of any complications in prior pregnancies. Instrument Question: "Did you experience any complications in your previous pregnancies?"

- **Health Facility-Related Factors:**
  - **Distance to Health Facility:** Measured in kilometers from the respondent's residence. Instrument Question: "How far is the nearest health facility from your residence?"
  - **Availability of Transportation:** Assessed based on respondents' access to transportation to health facilities. Instrument Question: "Do you have access to transportation to the health facility?"
  - **Quality of Care:** Perceived quality of services at the health facility. Instrument Question: "How would you rate the quality of care at the health facility?"

3.10. Data Analysis

A Microsoft Excel file with the gathered data from the Google Form was downloaded and cleaned. Statistical Package for Social Sciences (SPSS) version 26.0 was then used to export the cleaned data for coding and analysis. Analysis that was both descriptive and inferential was done. Charts and tables were used to present the results. The dependent variables (ANC utilization and health facility delivery) and the independent variables (respondents' sociodemographic characteristics and maternal and health facility-level factors) were tested using inferential statistics like chi-square and binary logistic regression, while descriptive statistics like mean and median were used to analyze socio-demographic variables. Statistical significance was considered at $p<0.05$.

3.11. Ethical Considerations

The researcher obtained an introductory letter dated 19/04/24 from the University for Development Studies Board of Ethics (see Appendix B). Additionally, the Gambaga Municipal Assembly and the District Health Director granted permission. Before the interview started, each respondent was informed of the study's goals, advantages, and potential dangers before their consent was requested. Without any kind of pressure, each response was allowed to freely choose their course of action. Instead of using respondents' names or titles, codes were assigned to their responses to maintain the confidentiality and anonymity of their identities and responses.

CHAPTER FOUR

RESULTS

The study's findings on the variables linked to postpartum women's use of prenatal care and delivery at health facilities in the Gambaga Municipality of Ghana's Northeast Region are presented in this chapter. In particular, it looks at the extent to which postpartum women use ANC and give birth in a health facility, the maternal factors that influence these outcomes, the factors related to healthcare delivery that influence these outcomes, and the sociocultural factors that influence these outcomes.

4.1. Maternal Sociodemographic Characteristics

Out of the 165 responses received, the majority of postnatal mothers, 64 (38.8%), were between the ages of 18 and 27, while the smallest group, 45 (27.3%), were between 38 and 45 years. The mean age of the respondents was 31 years (SD ±8.551). Most respondents, 76 (46.1%), had received tertiary education, with the fewest, 14 (8.5%), having only primary education. A significant majority, 99 (60.0%), of the respondents were married, while the smallest group, 7 (4.2%), were separated or divorced. A slight majority, 55 (33.3%), of the respondents were gainfully employed, while the fewest, 8 (4.8%), were students. Regarding ethnic groups, the majority, 85 (51.5%) belonged to the Mole Dangbani, while the least, 10 (6.1%), were Akan. However, a significant proportion, 45 (27.3%), of the respondents belonged to other ethnic groups including Ewe, Dagarti, Kassen, Kusassi, Zabarima, Frafra, Hausa, Bulsa, Sisala, Bimoba, Waala, and Busanga. The majority, 88 (53.3%), of the respondents were affiliated with the Islamic religion, while the fewest, 15 (9.1%), practiced traditional religion. A significant majority, 126 (76.4%), of the respondents indicated that they were household heads. Additionally, a significant

majority, 111 (67.3%), of the respondents indicated that their household size was five or more individuals. Details of the results are presented in Table 4.1.

Table 4.1: Maternal Sociodemographic Characteristics

	Frequent (n)	Percentage (%)
Age group (years) Meran (SD)	**31 (±8.551)**	
18-27	64	38.8
28-37	56	33.9
38-45	45	27.3
Educational background		
No formal education	23	13.9
Primary	14	8.5
JSS/JHS	20	12.1
SSS/SHS	32	19.4
Tertiary	76	46.1
Marital status		
Single	42	25.5
Married	99	60.0
Cohabiting	17	10.3
Separated/Divorced	7	4.2
Occupation		
Student	8	4.8
Public/Cicil servant	55	33.3
Self-employed	52	31.5
Unemployed	50	30.3
Ethnic group		
Mole Dagbani	85	51.5
Guan	11	6.7
Akan	10	6.1
Gurma	14	8.5
Others (specify)	45	27.3
Religious affiliation		
Islam	88	53.3
Christianity	62	37.6
Traditionalist	15	9.1
Sex of household head		
Male	126	76.4
Female	39	23.6
Household size		
≤4	54	32.7
≥5	111	67.3

4.2. Prevalence of ANC Utilization Among Postnatal Women

A significant majority, 160 (97.0%), of the respondents indicated that they had utilized ANC services during their current pregnancy. Among these 160 respondents, most, 123 (74.6%), received four or more ANC services before delivery. A slight majority, 81 (49.1%), received their services in a hospital, while the remaining 79 (47.9%) received their services in either a clinic or through community-based health planning and services (CHPS). This is presented in Table 4.2.

Table 4.2: ANC Utilization

	Frequency (n)	Percentage (%)
Utilized ANC		
Yes	160	97.0
No	5	3.0
Number of times utilized		
<4	37	22.4
>4	123	74.6
Where were the services received?		
Hospital	81	49.1
Clinic/CHPS	79	47.9

4.3. Maternal Sociodemographic Factors Influencing ANC Utilization

The respondents' marital status ($\chi^2 = 8.152$, $p = 0.043$), ethnic group ($\chi^2 = 13.750$, $p = 0.017$), and religious affiliations ($\chi^2 = 4.936$, $p = 0.026$) were statistically significant factors influencing ANC utilization among postnatal mothers. Married respondents were 10.722 times more likely to utilize ANC services during pregnancy compared to those who were not married [COR: 10.722, 95% CI: 1.219-94.334, $p = 0.033$]. Postnatal mothers practicing traditional religion were 0.265 times less likely to utilize ANC services during pregnancy compared to those who answered "no" [COR: 0.265, 95% CI: 0.074-0.946, $p = 0.041$]. Further details are presented in Table 4.3.

Table 4.3: Association Between Maternal Sociodemographic Factors and ANC Utilization

	ANC Utilization		χ^2 (*p*-value)	COR (95% C.I) *p*-value
	Yes	No		
Age group (years)				
18-27	64 (100%)	0 (0.0%)		
28-37	53 (94.6%)	3 (5.4%)		
38-45	43 (95.6%)	2 (4.4%)	3.338 (0.188)	0.426 (0.127-1.434) 0.168)
Educational background				
No formal education	22 (95.7%)	1 (4.3%)		
Primary	14 (100%)	0 (0.0%)		
JSS/JHS	20 (100%)	0 (0.0%)		
SSS/SHS	32 ((100%)	0 (0.0%)		
Tertiary	72 (94.7%)	4 (5.3%)	3.488 (0.480)	0.772 (0.369-1.615) 0.492
Marital status				
Single	38 (90.5%)	4 (9.5%)		
Married	98 (99.0%)	1 (1.0%)		
Cohabiting	17 (100%)	0 (0.0%)		
Separated/Divorced	7 (100%)	0 (0.0%)	**8.152 (0.043)**	**10.722 (1.219-94.334) 0.033***
Occupation				
Student	8 (100%)	0 (0.0%)		
Public/Cicil servant	51 (92.7%)	4 (7.3%)		
Self-employed	51 (98.1%)	1 (1.9%)		
Unemployed	50 (100%)	0 (0.0%)	5.398 (0.145)	2.454 (0.824-7.307) 0.107
Ethnic group				
Mole Dagbani	85 (100%)	0 (0.0%)		
Guans	11 (100%)	0 (0.0%)		
Akan	10 (100%)	0 (0.0%)		
Gurma	14 (100%)	0 (0.0%)		
Others (specify)	40 (88.9%)	5 (11.1%)	**13.750 (0.017)**	6.782 (6.782-6.782) -
Religious affiliation				
Islam	88 (100%)	0 (0.0%)		
Christianity	58 (93.5%)	4 (6.5%)		
Traditionalist	14 (93.3%)	1 (6.7%)	**4.936 (0.026)**	**0.265 (0.074-0.946) 0.041***

Footnote: *** p <0.001, ** p<0.01, * p<0.05

4.4. Healthcare delivery factors

Almost all the respondents, 160 (97.0%), agreed that the health facilities where they received ANC and PNC services were clean and comfortable. A significant majority, 122 (73.9%), indicated that

the waiting time at the ANC clinics was too long, and an equal number reported the same for PNC clinics. Furthermore, the majority, 160 (97.0%), stated that they received ANC and PNC services from skilled health professionals. Additionally, 101 (61.2%) of the respondents mentioned that the distance from their house to a health facility affected their ANC utilization. A significant majority, 158 (95.8%), also indicated that the attitude of health personnel affected their ANC utilization. Further details are presented in Table 4.4.

Table 4.4: Healthcare delivery factors influencing ANC attendance and HFD

	Frequency (n)	Percentage (%)
The waiting area of the health facility is clean and comfortable		
Yes	160	97.0
No	5	3.0
The waiting time at the ANC is long		
Yes	122	73.9
No	43	26.1
Had ANC services from skilled personnel		
Yes	160	97.0
No	5	3.0
Had PNC services from skilled personnel		
Yes	160	97.0
No	5	3.0
The waiting time at the PNC is long		
Yes	122	73.9
No	43	26.1
The distance of the health facility is far from my house		
Yes	101	61.2
No	64	38.8
The attitude of health professionals is good		
Yes	158	95.8
No	7	4.2

4.4.1. Healthcare Factors Influencing ANC Utilization

Receiving ANC services from skilled health professionals was statistically significant for postnatal mothers' utilization of ANC services ($\chi^2 = 16.500$, $p < 0.001$). However, a binary logistic regression

did not show a significant association. Additionally, no association was found between health facility-related factors and postnatal mothers' utilization of ANC services during pregnancy. This is presented in Table 4.5.

Table 4.5: Association Between Healthcare Factors and ANC Utilization

	ANC utilization		χ^2 (p-value)	COR (95% C.I) *p*-value
	Yes	**No**		
The waiting area of the health facility is clean and comfortable	**Ref**			
Yes	155 (96.9%)	5 (3.1%)		
No	5 (100%)	0 (0.0%)	0.161 (0.688)	0.969 (0.942-0.996) 0.690
The waiting time at the ANC is long				
Yes	120 (98.4%)	2 (1.6%)		
No	40 (93.0%)	3 (7.0%)	3.082 (0.079)	0.222 (0.036-1.378) 0.106
Had ANC services from skilled personnel				
Yes	160 (100)	0 (0.0%)		
No	0 (0.0%)	5 (100%)	**16.500 (<0.001)*** **	-
Had PNC services from skilled personnel				
Yes	155 (96.9%)	5 (3.1%)		
No	5 (100%)	0 (0.0%)	0.161 (0.688)	0.969 (0.942-0.996)-
The waiting time at the PNC is long				
Yes	120 (98.4%)	2 (1.6%)		
No	40 (93.4%)	3 (7.0%)	3.082 (0.079%)	0.222 (0.036-1.378) 0.106
The distance of the health facility is far from my house				
Yes	99 (98.0%)	2 (2.0%)		
No	61 (95.3%)	3 (4.7%)	0.977 (0.323)	2.434 (0.395-14.986) 0.337
The attitude of health professionals is good				
Yes	153 (96.8%)	5 (3.2%)		
No	7 (100%)	0 (0.0%)	0.228 (0.633)	0.968 (0.941-0.996) -

Footnote: *** p <0.001, ** p<0.01, * p<0.05

4.4.2. Health Facility Delivery

Out of the 165 respondents, the majority, 148 (89.7%), delivered in a health facility and were attended by skilled birth attendants (health professionals). Only 17 (10.3%) of the respondents

delivered at home, and among these, the majority, 14 (8.5%), were assisted by traditional birth attendants (TBAs), while 3 (1.8%) were assisted by their neighbors. Further details are presented in Table 4.6.

Table 4.6: Health Facility Delivery

	Frequency (n)	Percentage (%)
Where delivered		
Home/TBA	17	10.3
Health facility	148	89.7
Who delivered your baby?		
TBA	14	8.5
Neighbors	3	1.8
Health professional	148	89.7

4.4.3. Healthcare Factors Influencing Health Facility Delivery

Respondents who received ANC services from skilled health professionals ($\chi^2 = 27.103$, $p < 0.001$) and women who perceived health professionals to have good attitude ($\chi^2 = 8.383$, $p = 0.004$) were all statistically significant to their delivery in a health facility.

Women who did not received ANC services from skilled health professionals were 0.022 times less likely to deliver in a health facility compared to those who did [COR: 0.022, 95% CI: 0.002-0.213, $p = 0.001$]. Additionally, respondents who perceived health professionals not to have good attitude towards them were 0.130 times less likely to deliver in a health facility compared to those who did [COR: 0.130, 95% CI: 0.026-0.638, $p = 0.012$]. This is presented in Table 4.7.

Table 4.7: Association Between Healthcare Factors and Health Facility Delivery

	Health Facility Delivery		χ^2 (p-value)	COR (95% C.I) p-value
	Health Facility	Home/TBA		

The waiting area of the health facility is clean and comfortable				
Yes	144 (90.0%)	16 (10.0%)		
No	4 (80.0%)	1 (20.0%)	0.525 (0.469)	0.444 (0.047-4.222) 0.480
The waiting time at the ANC is long				
Yes	108 (88.5%)	14 (11.5%)		
No	40 (93.0)	3 (7.0%)	0.696 (0.404)	1.728 (0.472-6.333) 0.409
Had ANC services from skilled personnel				
Yes	144 (90.0%)	16 (10.0%)		
No	4 (80.0%)	1 (20.0%)	0.525 (0.469)	0.444 (0.047-4.222) 0.480
Had PNC services from skilled personnel				
Yes	147 (91.9%)	13 (8.1%)		
No	1 (20.0%)	4 (80.0%)	**27.103 (<0.001)*** **	**0.022 (0.002-0.213) 0.001** **
The waiting time at the PNC is long				
Yes	107 (87.7%)	15 (12.3%)		
No	41 (95.3%)	2 (4.7%)	2.010 (0.156)	2.874 (0.629-13.123) 0.173
The distance of the health facility is far from my house				
Yes	88 (87.1%)	13 (12.9%)		
No	60 (93.8%)	4 (6.3%)	1.858 (0.173)	2.216 (0.689-7.123) 0.182
The attitude of health professionals is good				
Yes	144 (91.1%)	14 (8.9%)		
No	4 (57.1%)	3 (42.9%)	**8.383 (0.004)***	0.130 (0.026-0.638) **0.012** **

Footnote: *** p <0.001, ** p<0.01, * p<0.05

4.5. Impacts of Maternal socio-cultural factors on ANC utilization and HFD

Out of the 165 respondents, the majority, 137 (83.0%), indicated that their partners had positive attitudes toward their ANC utilization and health facility delivery. A significant majority, 112 (67.9%), stated that their cultural beliefs and practices did not affect their ANC utilization and health facility delivery. Additionally, 122 (73.9%) of the respondents reported that their family members did not influence their decision to utilize ANC services or deliver in a health facility. A significant majority, 131 (79.4%), of the respondents believed that a woman could make her own decision about whether to go for ANC services or deliver in a health facility. A significant majority, 144 (87.3%), of the respondents indicated that they were involved in the decision-making process

for selecting a place for delivery. Furthermore, the majority, 131 (79.4%), of the respondents indicated that they had never experienced or feared social stigma or discrimination that affected their decision to use ANC services or deliver in a health facility. This data is presented in Table 4.8.

Table 4.8: Maternal Sociocultural Factors and the utilization of ANC services and HFD

	Frequency (n)	Percentage (%)
What is your partner's attitude towards ANC and health facility delivery?		
Positive	137	83.0
Negative	28	17.0
Do the cultural beliefs and practices of your community influence your decisions regarding antenatal care and delivery location?		
Yes	53	32.1
No	112	67.9
Do family members, particularly your husband or elderly relatives, influence your decision about attending ANC and choosing a place for delivery?		
Yes	43	26.1
No	122	73.9
Can a woman make her own decision to attend ANC or go to a health facility to deliver?		
Yes	131	79.4
No	34	20.6
Were your opinion taken before selecting a delivery place?		
Yes	144	87.3
No	21	12.7
Have you ever experienced or feared social stigma or discrimination that has affected your decision to seek antenatal care or deliver at a health facility?		
Yes	34	20.6
No	131	79.4

4.5.1. Sociocultural Factors Influencing ANC Utilization

In the Chi-Square test and bivariate logistics regression there were no significant maternal sociocultural variables in maternal ANC utilization. Further details are presented in Table 4.9.

Table 4.9: Sociocultural Factors Influencing ANC Utilization

	ANC utilization		χ^2 (p-value)	COR (95% C.I) *p*-value
	Yes	No		
What is your partner's attitude towards ANC and health facility delivery?				
Positive	134 (97.7%)	3 (2.2%)		
Negative	26 (92.9%)	2 (7.1%)	3.436 (0.200)	0.291 (0.046-1.829) 0.188
Do the cultural beliefs and practices of your community influence your decisions regarding antenatal care and delivery location?				
Yes	52 (98.1%)	1 (1.9%)		
No	108 (96.4%)	4 (3.6%)	1.926 (0.556)	0.519 (0.057-4.762) 0.562
Do family members, particularly your husband or elderly relatives, influence your decision about attending ANC and choosing a place for delivery?				
Yes	41 (95.3%)	2 (4.7%)		
No	119 (97.5%)	3 (2.5%)	0.517 (0.606)	1.935 (0.312-11.991) 0.478
Can a woman make her own decision to attend ANC or go to a health facility to deliver?				
Yes	128 (97.7%)	3 (2.3%)		
No	32 (94.1%)	2 (5.9%)	2.667 (0.584)	0.375 (0.060-2.339) 0.294
Were your opinion taken before selecting a delivery place?				
Yes	140 (97.2%)	4 (2.8%)		
No	20 (95.2%)	1 (4.8%)	1.750 (1.000)	0.571 (0.061-5.372) 0.625
Have you ever experienced or feared social stigma or discrimination that has affected your decision to seek antenatal care or deliver at a health facility?				
Yes	34 (100%)	0 (0.0%)		
No	126 (96.2%)	5 (3.8%)	0.370 (1.040)	-

4.5.2. Maternal Factors Influencing Health Facility Delivery

In the Chi-square test, maternal education (χ^2 = 26.719, $p < 0.001$), maternal marital status (χ^2 = 4.690, $p = 0.030$), occupation (χ^2 = 18.359, $p < 0.001$), ethnic group (χ^2 = 49.455, p <0.001), and maternal religious affiliation (χ^2 = 86.731, $p < 0.001$) were all statistically significant to pregnant women delivery in a health facility.

Bivariate logistics regression showed that women with no formal education were 0.479 times less likely to deliver in a health facility compared to those with tertiary education [COR: 0.479, 95% CI: 0.33-0.688, $p < 0.001$]. Married respondents were 1.978 times more likely to deliver in a health facility compared to those who were not married [COR: 1.978, 95% CI: 1.053-3.716, $p = 0.034$]. Respondents who identified as traditionalists were 15.230 times more likely to deliver at home or with a TBA compared to those who practiced Islam or Christianity [COR: 15.230, 95% CI: 5.226-44.380 $p <0.001$]. This is presented in Table 4.10.

Table 4.10: Association Between Maternal Sociodemographic Factors and HFD

	Health Facility Delivery		χ^2 (*p*-value)	COR (95% C.I) *p*-value
	Health Facility	**Home/TBA**		
Age group (years)				
18-27	59 (92.2%)	5 (7.8%)		
28-37	50 (89.3%)	6 (10.7%)		
38-45	39 (86.7%)	6 (13.3%)	0.887 (0.642)	1.346 (0.722-2.508) 0.349
Educational background				
No formal education	14 (60.9%)	9 (39.1%)		
Primary	13 92.9%)	1 (7.1%)		
JSS/JHS	17 (85.0%)	3 (15.0%)		
SSS/SHS	30 (93.7)	2 (6.3%)		
Tertiary	74 (97.4%)	2 (2.6%)	**26.719 (<0.001)*** **	**0.479 (0.33-0.688) (<0.001)*** **
Marital status				
Single	41 (97.6%)	1 (2.4%)		
Married	88 (88.9%)	11 (11.1%)		
Cohabiting	13 (76.5%)	4 (23.5%)		
Separated/Divorced	6 (85.7%)	1 (14.3%)	**4.690 (0.030)***	**1.978 (1.053-3.716) 0.034***
Occupation				
Student	8 (100%)	0 (0.0%)		
Public/Cicil servant	54 (98.2%)	1 (1.8%)		
Self-employed	39 (75.0%)	13 (25.0%)		
Unemployed	47 (94.0%)	3 (6.0%)	**18.359 (<0.001)*** **	1.415 (0.792-2.528) 0.241
Ethnic group				
Mole Dagbani	81 (95.2%)	4 (4.7%)		
Guans	10 (90.9%)	1 (9.1%)		
Akan	10 (100%)	0 (0.0%)		
Gurman	5 (35.7%)	9 (64.3%)		

Others (specify)	42 (93.3%)	3 (6.7%)	**49.455 (<0.001)*** **	1.290 (0.987-1.687) 0.062
Religious affiliation				
Islam	85 (96.6%)	3 (3.4%)		
Christianity	60 (96.8%)	2 (3.2%)		
Traditionalist	3 (20.0%)	12 (80.0%)	**86.731 (<0.001)*** **	15.230 (5.226-44.380) **(<0.001)*** **

Footnote: *** p <0.001, ** p<0.01, * p<0.05

4.5.3 Sociocultural Factors Influencing Health Facility Delivery

Following a Chi-Square test, respondent partner's attitude (χ^2 = 0.022, p < 0.001), cultural beliefs (χ^2 = 48.000, p < 0.001), family members (χ^2 = 32.143, p < 0.001), women making their own decisions (χ^2 = 0.051, p < 0.001), women's opinions in selecting a place for delivery (χ^2 = 0.056, p < 0.001), and women had ever experienced fear or stigma (χ^2 = 13.745, p < 0.001) were found to be significant in influencing maternal health facility delivery.

In the bivariate analysis partners of pregnant women who had positive attitude towards ANC were more likely to encourage their wives to deliver in a health facility [COR: 44.667, 95% CI: 11.429-174.563, p < 0.001]. Pregnant women who did not have believe in their cultural beliefs were more likely to deliver in a health facility [COR: 0.021, 95% CI: 0.003-0.163, p < 0.001]. Pregnant women whose family members, particularly their husband did not have influence on their decision were more likely to deliver in a health facility [COR: 0.031, 95% CI: 0.007-0.144, p < 0.001]. Pregnant women who believed women could take their own decision were more like to deliver in a health facility [COR: 19.655, 95% CI: 5.849-66.046, p < 0.001]. Pregnant women whose opinions were considered in the selection of a delivery place were more likely to deliver in a health facility [COR: 0.056, 95% CI: 0.018-0.177, p < 0.001]. Finally, pregnant women who have never been stigmatized were more likely to deliver in a health facility compared to those who had ever

been stigmatized or had some fears of attending a health facility [COR: 0.073, 95% CI: 0.023-0.027, $p < 0.001$]. This is presented in Table 4.11.

Table 4.11: Sociocultural Factors Influencing Health Facility Delivery

	Health Facility Delivery		χ^2 (p-value)	COR (95% C.I) *p*-value
	Health Facility	Home/TBA		
What is your partner's attitude towards ANC and health facility delivery?				
Positive	**134 (97.8%)**	3 (2.2%)		
Negative	14 (50.0%)	14 (50.0%)	0.022 **(<0.001)*** **	44.667 (11.429-174.563) **(<0.001)*** **
Do the cultural beliefs and practices of your community influence your decisions regarding antenatal care and delivery location?				
Yes	37 (69.8)	16 (30.2%)		
No	111 (99.1%)	1 (0.9%)	48.000 **(<0.001)*** **	0.021 (0.003-0.163) **(<0.001)*** **
Do family members, particularly your husband or elderly relatives, influence your decision about attending ANC and choosing a place for delivery?				
Yes	28 (65.1%)	15 (34.9%)		
No	120 (98.4%)	2 (1.6%)	**32.143 (<0.001)*** **	**0.031 (0.007-0.144) (<0.001)*** **
Can a woman make her own decision to attend ANC or go to a health facility to deliver?				
Yes	127 (96.9%)	4 (3.1%)		
No	21 (61.8%)	13 38.2%)	0.051 **(<0.001)*** **	19.655 (5.849-66.046) **(<0.001)*** **
Were your opinion taken before selecting a delivery place?				
Yes	137 (95.1%)	7 (4.9%)		
No	11 (52.4%)	10 (47.6%)	0.056 **(<0.001)*** **	0.056 (0.018-0.177) **(<0.001)*** **
Have you ever experienced or feared social stigma or discrimination that has affected your decision to seek antenatal care or deliver at a health facility?				
Yes	22 (64.7%)	12 (35.3%)		

No	126 (96.2%)	5 (3.8%)	13.745 **(<0.001)*** **	0.073 (0.023-0.027) **(<0.001)*** **

Footnote: *** p <0.001, ** p<0.01, * p<0.05

4.6. ANC Utilization and Health Facility Delivery

From the chi-square test, the number of ANC visits was statistically significant in influencing pregnant women's delivery in a health facility (χ^2 = 26.732, p < 0.001). However, in the bivariate regression analysis, it was not significant. Further details are presented in Table 4.12.

Table 4.12: Association between ANC Utilization and Health Facility Delivery

	Health Facility Delivery		χ^2 (p-value)	COR (95% C.I) *p*-value
	Health Facility	**Home/TBA**		
Utilized ANC				
Yes	144 (90.0%)	16 (10.0%)	0.444 (1.000)	2.250 (0.237-21.376) 0.480
No				
Number of times utilized				
≤3	25 (67.6%)	12 (32.4%)	26.732 **(<0.001)*** **	0.521 (0.052-5.179%) 0.578
≥5				
Where were the services received?				
Hospital	78 (96.3%)	3 (3.7%)		
Clinic/CHPS	66 (83.5%)	13 (16.5%)	7.562 (0.023)	6.500 (0.546-77.324) 0.138

Footnote: *** p <0.001, ** p<0.01, * p<0.05

CHAPTER FIVE

DISCUSSION

The results of the study are discussed in this chapter in light of the body of current literature. The study's overarching goals—namely, the variables linked to postpartum women's use of prenatal care and delivery at health facilities in the Gambaga Municipality in Ghana's Northeast Region—form the basis of the conversation. In particular, it discusses the extent to which postpartum women use ANC and give birth in a health facility, the maternal factors that influence these outcomes, the factors related to healthcare delivery that influence these outcomes, and the sociocultural factors that influence these outcomes.

5.1. The Prevalence of ANC Utilization Among Pregnant Women

According to the study's findings, the vast majority of participants used ANC services during their current pregnancy, and the majority of them had five or more ANC visits before birth. As already established from existing literature, the WHO recommends that pregnant women have at least four antenatal care (ANC) visits, starting in the first trimester, a guideline supported by this finding (Souza et al., 2015; Vogel et al., 2014). In developing countries, where approximately 80% of women attend at least one ANC visit, the high utilization rate observed in this study aligns with the significant progress reported in ANC uptake (Abubakari & Abiiro, 2018; Kanu et al., 2014).

The results of the study also support patterns found in previous research, like Tikmani et al. (2019), which shown that between 2011 and 2017, the percentage of women who received at least 4 ANC visits grew dramatically across all sites. However, the fact that 72% of women in SSA receive their first ANC checkup after the first trimester (WHO, 2016) indicates that the late introduction of ANC remains an issue in the region, even though the overall rate of ANC service consumption is high.

According to the study's findings, more ANC services are provided than the global average during the four recommended visits (WHO, 2016). This finding is consistent with recent research from Ghana, like Abubakari and Abiiro (2018), who found that around 81% of nursing mothers in Northern Ghana had made at least four ANC visits. Adu et al. (2018) reported that 89.2% of respondents had four or more prenatal visits, which lends more credence to this. Similar encouraging patterns may be seen in the Upper East Region of Ghana's ANC attendance, which has been steadily improving, according to Duodu et al. (2022).

The study does, however, also point out certain concerning aspects. A significant percentage of respondents, 79 (47.9%), received their services at clinics or through CHPS, but a small majority, 81 (49.1%), received their services in a hospital. According to some research, this distribution suggests possible obstacles to receiving hospital-based care, which could be brought on by elements including socioeconomic status, cultural beliefs, and distance (Anis et al., 2022; Gebremeskel et al., 2015; Shahabuddin et al., 2015).

The study's conclusions, which are in line with regional and worldwide trends, show a generally good trend in the region's use of ANC services. To guarantee fair access to high-quality maternal healthcare, they further highlight the necessity of ongoing initiatives to remove obstacles to early and regular ANC attendance, especially in rural and underserved areas.

5.2. Health Facility Delivery Among Postnatal Women

The study's findings indicate that while only 10.3% of respondents gave birth at home, mainly with the help of TBAs, a sizable majority, 89.7%, gave birth in a medical facility with the help of trained birth attendants. This high percentage of deliveries at health facilities is consistent with earlier research emphasizing the importance of SBAs in lowering maternal and newborn mortality (Ahinkorah et al., 2021; Kabir et al., 2020; Ogboghodo et al., 2019).

In LMICs like SSA and Southern Asia, where maternal mortality is still a major public health concern, these studies highlight the vital role that accessibility and availability of health facilities play in encouraging health facility deliveries (Anaba et al., 2022; Saaka & Akuamoah-Boateng, 2020). According to the study's findings, the high rate of health facility deliveries observed was made possible by the majority of respondents' access to medical facilities staffed by qualified professionals.

According to the study, the vast majority of respondents who were employed and had more education chose to give birth in a medical institution. The delivery of health facilities is significantly influenced by socioeconomic level and educational attainment. Because they have more money and are more aware of the advantages of expert birth attendance, women from higher socioeconomic origins and those with more education are more likely to give birth in medical facilities (Rahman et al., 2021; Tamirat et al., 2020; Sakeah et al., 2017). These factors may have had an impact on the high number of respondents who gave birth in medical facilities, indicating that the population selected may have had comparatively superior socioeconomic and educational profiles.

Women's decisions to give birth in medical facilities are greatly influenced by the standard of care they receive there, including the courteous treatment of medical staff, cleanliness, and the availability of necessary medications and equipment (Joshi et al., 2014; Kruk et al., 2016). The high percentage of deliveries at medical facilities in the study indicates that respondents thought the standard of care in the medical facilities where they choose to give birth was sufficient.

Numerous initiatives have demonstrated potential in increasing deliveries to health facilities, including community-based education programs, financial incentives through free maternal care, health insurance, and strengthening of the health system. For example, Ghana's CHPS program

has greatly increased rural communities' access to trained birth attendants (Johnson et al., 2015; Adu & Owusu, 2023). The impact of such interventions may be reflected in the high percentage of HFDs in our study, underscoring the need for consistent efforts to remove obstacles to HFDs. The results of the study highlight the benefits of socioeconomic and educational variables, health facility accessibility, and successful interventions in improving health facility births.

5.3. Maternal Factors that Influence ANC Utilization and Health Facility Delivery

The study's findings point to a number of maternal-level characteristics that affect postpartum moms' use of prenatal care services and delivery in medical facilities.

With a mean age of 31, the majority of the postpartum moms in this study were between the ages of 18 and 27. This is in line with research by Chubike and Constance (2013) and Doku et al. (2012), which showed that women between the ages of 25 and 34 are more likely to use trained birth attendants and attend ANC. According to earlier research, older women may have more experience or a greater perceived need for medical care throughout pregnancy, which may increase their likelihood of seeking ANC and giving birth in a health institution (Joshi et al., 2014; Adewuyi et al., 2018). The study's younger age distribution may be indicative of a demographic trend in which younger women are increasingly seeking maternal health services, either as a result of improved access to healthcare or more health awareness.

Compared to those without higher education, a sizable percentage of respondents had this level of education, and they were less likely to give birth in a medical institution. This result is in contrast to earlier research, which typically suggests that more educational attainment is linked to increased use of maternal health care, such as ANC use and delivery in medical facilities (Baruah & Beeva 2016; Shahabuddin et al., 2015; Habtom, 2017).

The study found that marital status significantly influenced both HFD and ANC utilization. Married women were more likely than their unmarried counterparts to attend ANC services and deliver in a healthcare facility. This aligns with research suggesting that married women are more likely to access maternal healthcare, likely due to greater family and partner support and encouragement (Sakeah et al., 2017; Ziblim et al., 2018; Nuamah et al., 2019). According to these studies, being married offers a type of financial and social support that makes it easier to get health care.

The study does not specifically examine how socioeconomic position affects the provision of healthcare facilities, even though it shows that a sizable percentage of respondents had gainful employment. Higher socioeconomic position, on the other hand, is consistently linked to greater access to healthcare services because it allows women to afford medical expenses and transportation (Adewuyi et al., 2018; Kaur et al., 2018). This financial ability frequently enables women to get beyond obstacles that prevent them from accessing healthcare.

In line with earlier research highlighting the influence of cultural beliefs on the use of maternal health services, the study discovered that respondents who identified as traditional religious were more likely to give birth at home or with a TBA (Dada, 2019; Sialubanje et al., 2015; Ganle et al., 2014). Mistrust of contemporary medical procedures and cultural norms can have a big impact on women's decisions to give birth in a medical institution.

One noteworthy conclusion was that a sizable majority of respondents had male household heads with larger households, which may have an impact on how often they used ANC. Accessing maternal health services may be hampered by having more domestic duties and serving as the head of the household, since juggling these obligations might reduce the amount of time and money available for care.

The results of the study shed important light on the maternal-level variables influencing ANC use and delivery in medical facilities. Some findings support the body of literature already in existence, while others point to changing patterns in the use of maternal health services.

5.4. Healthcare Factors that Influence ANC Utilization and Health Facility Delivery

The study's findings shed light on postpartum mothers' perceptions of the caliber and availability of ANC and PNC services as well as the variables affecting their use of medical facilities for births.

Nearly all respondents (97.0%) concurred that the medical facilities where they received PNC and ANC services were hygienic and welcoming, and a comparable percentage said that they were attended to by qualified medical personnel. This is in line with earlier research that highlights the value of a hygienic and welcoming setting as well as knowledgeable staff in promoting the utilization of maternal health services (WHO, 2021; Nuamah et al., 2019). Because they can handle obstetric problems and guarantee prompt referrals, skilled birth attendants (SBAs) are essential for lowering maternal mortality and improving outcomes (Nuamah et al., 2019; Mwilike et al., 2018).

Long wait times at ANC and PNC clinics were mentioned by a sizable majority of respondents, which may deter people from using these services. This is in line with the findings of Chagolla et al. (2018) and Kruk et al. (2016), who emphasize that boosting maternal health treatment usage requires functional health systems, including effective service delivery and the availability of medical personnel. Furthermore, 95.8% of respondents stated that the attitude of medical staff had an impact on the use of ANC. Previous research have shown that positive contacts with health practitioners are critical to promoting maternal health services usage among women (Ganle et al., 2014; Kruk et al., 2016).

According to the survey, 61.2% of participants stated that their use of ANC was impacted by the distance between their houses and a medical facility. This result is consistent with earlier research showing that geographic accessibility is a major deterrent to using healthcare, especially in low-resource and rural areas (Tsawe, 2014; Kruk et al., 2016). Enhancing the use of maternal health services requires expanding access to medical facilities via improved transportation and more widely dispersed healthcare infrastructure.

Giving birth in a medical setting was substantially correlated with receiving ANC services from qualified healthcare providers. Respondents were more likely to give birth in a medical facility if they got expert treatment. This bolsters the claim made by earlier research that the presence of qualified medical personnel can lower mother and newborn mortality and increase the use of health facility births (Nuamah et al., 2019; WHO, 2021).

The study emphasizes how many variables affect the use of maternal health services. Although accessibility, staff attitudes, and care quality are important elements, they interact with more general social, economic, and cultural variables. A comprehensive strategy is needed to address these issues, one that increases the operational capability of health systems, improves the abilities and dispositions of medical staff, and guarantees that all women, especially those living in underserved and rural areas, have access to healthcare.

5.5. Sociocultural Factors that Influence ANC Utilization and Healthcare Delivery

The vast majority of respondents (83.0%) said that their spouses were supportive of their use of ANC and delivery in a medical institution. This is encouraging because it goes against some research that claims male partners frequently make healthcare decisions in patriarchal countries, which can help or hurt access to official healthcare services (Moyer et al., 2013). The study's

partners' positive attitudes point to a change in male partners' responsibilities toward ones that are more supportive, which can improve the use of maternal health services.

Additionally, the vast majority of respondents claimed that their cultural customs and beliefs had little bearing on their use of ANC or delivery in medical facilities. This finding is in contrast to research (Saaka & Akuamoah-Boateng, 2020; Sialubanje et al., 2015) that highlights the important influence of cultural beliefs on healthcare utilization, where traditional practices and a preference for community-based care—often with traditional birth attendants—are common. The opinions of the respondents might suggest that formal healthcare services are becoming more widely accepted or that traditional methods are having less of an impact on maternal health decisions.

According to the majority of respondents, family members had little effect over their choice to give birth in a medical facility or use ANC services. This finding also deviates from earlier research that highlights the significant impact of family, particularly male and elderly family members, on women's health decisions (Sialubanje et al., 2015). 79.4% of respondents thought a woman could make her own decisions regarding ANC and delivery, indicating a high degree of claimed autonomy. In order to improve maternal health outcomes, this result points to a good trend toward women's empowerment and autonomy in healthcare decisions (Birmeta et al., 2013; Akeju et al., 2016).

79.4% of respondents said they had never encountered or feared societal stigma or discrimination influencing their decision to use ANC services or give birth in a medical institution, and a sizable majority (87.3%) of respondents participated in the decision-making process when choosing a delivery location. These results are positive and imply that initiatives to lessen stigma and encourage women's involvement in healthcare decisions have been successful. This is in contrast

to other research that frequently identifies fear of discrimination and social stigma as obstacles to using maternal health services (Okeshola & Sadiq, 2013; Ahinkorah et al., 2018).

According to the study's findings, pregnant women are increasingly supported by their partners, are less influenced by familial and cultural constraints, and have more control over their healthcare choices. These modifications are consistent with earlier research that supports community-based health education initiatives and laws that support women's education and socioeconomic empowerment as successful means of enhancing maternal health outcomes (Faye et al., 2017; Souza et al., 2014).

CHAPTER SIX

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

This section of the study summarizes the findings of the study in relation to the specific objectives. It also presents the conclusions drawn from the study's findings. Additionally, it offers recommendations based on the study's results aimed at improving maternal health, with a particular focus on enhancing maternal ANC utilization as well as HFD where they could have access to skilled birth attendants.

6.1. Summary

The study focused on the factors influencing ANC utilization and HFD among postnatal women in the Gambaga Municipality of the Northeast Region of Ghana. Out of 165 respondents, the majority (38.8%) were between the ages of 18 and 27, and most had received tertiary education. The significant majority (60%) were married, and a slight majority (33.3%) were gainfully employed. Regarding ethnic distribution, the Mamprusi's were the largest group (38.2%), and most respondents (53.3%) were affiliated with the Islamic religion. A significant portion (67.3%) of the respondents had a household size of five or more individuals.

A substantial majority of respondents (97%) utilized ANC services during their pregnancy, with most attending five or more ANC sessions. The majority delivered in a health facility, attended by skilled birth attendants, with only a small fraction (10.3%) delivering at home. Marital status, ethnic group, and religious affiliations were statistically significant factors influencing ANC utilization. Married women were more likely to use ANC services and give birth in a healthcare facility, while those practicing traditional religions were more likely to give birth at home or with a traditional birth attendant. Education also played a key role, with women holding tertiary education being more likely to deliver in a health facility.

Most respondents agreed that health facilities were clean and comfortable, though long waiting times were a concern. The attitude of health personnel was noted as a significant factor affecting ANC utilization. The involvement of skilled health professionals in providing ANC services was a critical factor influencing pregnant mothers' utilization of ANC services and their likelihood of delivering in a health facility.

6.2. Conclusion

The study revealed that sociocultural and personal factors such as marital status, education, and religious affiliation significantly influence ANC utilization and HFD among postnatal women in the Gambaga Municipality. The high rate of ANC utilization and HFDs indicate a positive trend toward better maternal health practices. However, the challenges of long waiting times at health facilities and the negative attitudes of health personnel can hinder the optimal utilization of maternal healthcare services. Therefore, interventions to improve maternal health outcomes should consider these factors to enhance access and quality of care.

6.3. Recommendations

Based on the findings in the study, the following recommendations are put forward to stakeholders:

For the academic community

1. Future research should explore the complex interplay of socio-demographic and socio-cultural determinants of ANC utilization and health facility delivery using larger, more diverse samples.
2. Researchers should design and test inclusive models incorporating both cognitive aspects, including perceived benefits and drawbacks, and structural aspects, including economic factors and availability, to guide targeted interventions.

3. Longitudinal studies allow one to explore how practices in maternal health evolve based on the response to policy and infrastructure change over time.

For the policymaking community

1. Decision-makers in the health field should focus on expanding and developing the infrastructure in the area of maternal health, including the construction and strengthening of CHPS centers, in the hope to increase rural populations' access.
2. Initiate targeted activities to overcome economic and logistical challenges, in the form of subsidized public transport and enhanced health-care services to pregnant women.
3. Encourage religious and community leaders to participate in public health activities to reduce cultural misconceptions and promote the benefits of seeking delivery and antenatal services in health facilities.
4. It is essential to align maternal health programs with the Sustainable Development Goals (SDG 3 and SDG 5), specifically by working to reduce maternal mortality to less than 70 deaths per 100,000 live births (SDG 3.1) and ensuring universal access to high-quality maternal health services (SDG 3.7).
5. Initiate public health activities to raise awareness about the importance of regular and timely visits to ANC clinics, as well as the benefits related to delivery in a health facility attended by qualified birth attendants.
6. Initiate community-based educational activities to eliminate misconceptions and cultural misperceptions related to mother's health and foster positive health-seeking behaviors.
7. Build community support systems that help pregnant women overcome economic, logistical, and emotional barriers, in order to provide an environment conducive to pregnancy and safe delivery.

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APPENDICES

Appendix A: Study Instrument and Consent Form

UNIVERSITY FOR DEVELOPMENT STUDIES
DEPARTMENT OF POPULATION AND REPRODUCTIVE HEALTH
QUESTIONNAIRE
INFORMATION SHEET RESPONDENTS

Dear participants,

My name is "**Agnes Akendoba**", from the **Department of Population and Reproductive Health**, University for Development Studies. I am conducting a study on the topic ***"Prevalence and Factors Associated with Antenatal Care Utilization and Health Facility Delivery among Postnatal Women in Gambaga Municipal, Northeast Region, Ghana***". I would be grateful if you could find time to answer the questionnaire for this study. The study is solely for research purposes and participation is voluntary and refusal to participate does not involve any penalty. All the answers you will give will be confidential and will not be shared with anyone but for academic purposes only. You are at liberty to stop your participation at any point in time. I, however, ask you to sign a consent before the beginning of the interview.

Thank you

RESPONDENT'S CONSENT FORM

I have had the details of the study explained to me. My questions have been answered to my satisfaction, I understand and may ask further questions anytime.

I have decided to be part of the study on the condition that under no circumstances should any reference to my actual identity in relation to my contribution or participation or any be made known to other persons outside this study as promised by the researcher.

Respondent's signature/Thumbprint ……..... Researcher's signature……

Date…….

IDENTIFICATION

Interviewer's name: …… Date of interview: ……/……../……

Name of Community/Locality: …… Questionnaire Number: __ __ __

SECTION A: MATERNAL LEVEL FACTORS (DEMOGRAPHICS)			
1	How old are you?	……	
2	Highest level of education attained by respondent	[ ] No formal education [ ] Primary [ ] JSS/JHS [ ] SSS/SHS [ ] Tertiary	
3	Marital status	[ ] Single [ ] Married [ ] Cohabitation [ ] Widowed [ ] Separated/Divorced	
4	Occupation of respondent	[ ] Student [ ] Public/Civil servant [ ] Self-employed [ ] Unemployed	
5	Which ethnic group do you belong to? (Circle one).	[ ] Dagomba [ ] Mamprusi [ ] Gonja [ ] Akan (twi) [ ] Konkomba (Likpakpa) Other, specify	
6	Religion	[ ] Islam [ ] Christianity [ ] Traditionalist Other (specify)	
7	Sex of household head	[ ] Male	[ ] Female
8	Household size	[ ] 4 or less	[ ] 5 or more
SECTION B: ANC UTILIZATION AND HEALTH FACILITY DELIVERY			
ANC UTILIZATION			
9	Did you attend ANC during your most recent pregnancy	[ ] Yes	[ ] No
10	How many times did you attend ANC during your last pregnancy?	[ ] 3 or less visits	[ ] 4 or more visits
11	Which health facility did you utilize?	[ ] Hospital	[ ] Clinic
HEALTH FACILITY DELIVERY			
12	Where did you deliver your baby?	[ ] Home/TBA	[ ] Health facility
13	Who attended to you during delivery?	[ ] TBA	[ ] Neighbors [ ] Health professional
SECTION C: HEALTH FACILITY-RELATED FACTORS			

14	The waiting area of the health facility is clean and comfortable	[ ] Yes	[ ] No
15	The waiting time at the ANC is long	[ ] Yes	[ ] No
16	Had ANC from a skilled provider	[ ] Yes	[ ] No
17	Had PNC from a skilled provider	[ ] Yes	[ ] No
18	The waiting time at the PNC is long	[ ] Yes	[ ] No
19	The distance of the health facility from the house is far	[ ] Yes	[ ] No
20	The attitude of health professionals is good	[ ] Yes	[ ] No
SECTION D: SOCIOCULTURAL FACTORS			
21	What is your partner's attitude towards ANC and health facility delivery?	[ ] Positive	[ ] Negative
22	Do your cultural beliefs and practices in your community influence your decisions regarding antenatal care and delivery location?	[ ] Yes	[ ] No
23	Do family members, particularly your husband or elderly relatives, influence your decision about attending ANC and choosing a place for delivery?	[ ] Yes	[ ] No
24	Can a woman make her own decision to attend ANC or go to a health facility to deliver?	[ ] Yes	[ ] No
25	Were your opinion taken before selecting a delivery place?	[ ] Yes	[ ] No
26	Have you ever experienced or feared social stigma or discrimination that has affected your decision to seek antenatal care or deliver at a health facility?	[ ] Yes	[ ] No

Appendix B: Introductory Letter

UNIVERSITY FOR DEVELOPMENT STUDIES
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19/04/2024

The Regional Director of Health Service
North East Regional Health Directorate
Nalerigu
North East Region.

LETTER OF INTRODUCTION
AGNES AKENDOBA UDS/MCH/0008/22

This is to introduce to you **MS. Agnes Akendoba**, a level 600 MPH student in the Department of Population and Reproductive Health, School of Public Health of the University for Development Studies. **Ms. Akendoba** is currently working on the thesis titled: ***PREVALENCE AND FACTORS ASSOCIATED WITH ANTENATAL CARE UTILIZATION AND HEALTH FACILITY DELIVERY AMONG POSTNATAL WOMEN IN GAMBAGA MUNICIPAL, NORTHEAST REGION, GHANA*** . **Ms. Akendoba** wants to have access to Health Facilities in the Northern Region to enable her carry out this important academic exercise.

I would be grateful if you could provide her with this information and any other assistance she may need.

Thank you.

OFFICE OF THE DEAN
SCHOOL OF PUBLIC HEALTH
UNIVERSITY FOR DEV'T
STUDIES, TAMALE

.....

Mrs. Eleanor Araba Antwi
SAR/ School Officer
(For Dean, SPH)