



KPONG, EASTERN REGION, GHANA

**DETERMINANTS OF EARLY BOOKING AMONG PREGNANT WOMEN
AT KADE GOVERNMENT HOSPITAL KWAEBIBIREM MUNICIPALITY,
EASTERN REGION, GHANA**

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JUNE, 2026



KPONG, EASTERN REGION, GHANA

DEPARTMENT OF COMMUNITY HEALTH

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BY

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**A THESIS SUBMITTED TO THE DEPARTMENT OF COMMUNITY HEALTH, FACULTY
OF PUBLIC HEALTH, ENSIGN GLOBAL UNIVERSITY IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE MASTER OF PUBLIC HEALTH DEGREE**

JUNE, 2026

DECLARATION AND CERTIFICATION

I hereby declare that this thesis is an original work done by myself under the supervision of my supervisor. All materials and resources used have been duly referenced and acknowledged, and this work has not been presented in whole or part for the award of any degree elsewhere.

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DEDICATION

This study is wholeheartedly dedicated to my beloved husband awho has been a constant source of inspiration and support throughout the thesis. I am truly thankful for having you in my life.

To my Cherished Family, your constant support and belief in my capabilities were the cornerstone of this academic pursuit.

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LIST OF ABBREVIATIONS

ANC	Antenatal Care
ECG	Electrocardiogram
ENT	Ear, Nose, and Throat
FANC	Focused Antenatal Care
GHS	Ghana Health Service
GSS	Ghana Statistical Service
JSY	Janani Suraksha Yojana
KGH	Kade Government Hospital
LMICs	Low- and Middle-Income Countries
PHC	Population and Housing Census
REC	Research Ethics Committee
SHS	Senior High School
SVD	Spontaneous Vaginal Delivery
TBA	Traditional Birth Attendant
WHO	World Health Organization

ABSTRACT

Introduction

Early initiation of antenatal care (ANC) is essential for improving maternal and neonatal health outcomes through the timely detection and management of pregnancy-related complications. Despite its importance, many pregnant women delay their first ANC visit. This study assessed the challenges associated with early ANC booking among pregnant women attending Kade Government Hospital.

Methods

A descriptive cross-sectional study was conducted among 270 pregnant women attending the antenatal clinic at Kade Government Hospital. Participants were selected using stratified random sampling. Data were collected using a structured questionnaire and analyzed using descriptive statistics, Chi-square tests, and binary logistic regression at a 95% confidence level, with statistical significance set at $p < 0.05$.

Results

The study found that 46.3% (95% CI: 40.3%–52.3%) of respondents-initiated ANC within the recommended period, while 53.7% booked late. Although the majority of respondents (92.5%) had received ANC education, their overall knowledge regarding early ANC booking was moderate. Factors significantly associated with early ANC initiation included maternal age, employment status, marital status, parity, previous pregnancy experience, waiting time before receiving care, and the duration of ANC consultations. Women aged 35 years and above, single women, those with two to three children, and first-time pregnant women were significantly less likely to initiate ANC early. Conversely,

employed women, those who were attended to promptly, and those who spent adequate time with healthcare providers during ANC visits were significantly more likely to book early.

Conclusion:

Early ANC booking among pregnant women attending Kade Government Hospital remains below the recommended level. Both socio-demographic characteristics and health system factors significantly influence the timely initiation of ANC. Strengthening maternal health education, improving the quality and efficiency of ANC service delivery, and implementing targeted interventions for vulnerable groups are recommended to promote early ANC uptake and improve maternal and neonatal health outcomes.

Keywords:

Antenatal care, Early booking, Pregnant women, Maternal health, Health service utilization,
Logistic regression, Ghana, Kade Government Hospital

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Maternal health remains a major public health priority globally, particularly in low- and middle income countries (LMICs), where maternal and neonatal morbidity and mortality remain high. According to the World Health Organization, approximately 287,000 women died from pregnancy-related causes worldwide in 2020, with the majority of these deaths occurring in sub Saharan Africa. Most of these deaths are preventable through timely access to quality antenatal, delivery, and postnatal care services (World Health Organization, 2023). Antenatal care (ANC) plays a critical role in monitoring pregnancy, detecting complications early, providing preventive interventions, and preparing women for safe delivery.

Early antenatal care booking, defined as initiating ANC within the first trimester (before 12 weeks of gestation), is strongly recommended by the World Health Organization (WHO, 2016). Early attendance for antenatal care allows healthcare professionals to detect and treat pregnancy-related conditions such as anemia, high blood pressure disorders, and infections like HIV and malaria at an early stage. It also gives pregnant women access to important preventive interventions, including tetanus vaccination, malaria prevention treatment, nutritional supplements, and education on preparing for childbirth and recognizing potential pregnancy complications (WHO, 2016). Evidence shows that delayed ANC initiation is associated with increased risks of maternal and neonatal complications, including preterm birth, low birth weight, and maternal mortality (Moller et al., 2017).

Despite global recommendations and national strategies promoting early ANC attendance, many women in sub-Saharan Africa continue to initiate antenatal care after the first trimester. Studies in the region have reported late ANC booking rates ranging from 50% to 80%, with various socio demographic and health system factors contributing to delayed initiation (Tadesse, 2020). In Ghana, although overall antenatal care coverage is high, early booking remains a challenge. In Ghana, although antenatal care (ANC) coverage is high, timely initiation of ANC remains a challenge. According to the 2022 Ghana Demographic and Health Survey (GDHS), 65.1% of pregnant women-initiated ANC within the first trimester (≤ 12 weeks), while 34.9% booked after the recommended period, limiting the effectiveness of timely maternal health interventions (Ghana Statistical Service et al., 2023).

Previous studies in Ghana have identified several factors influencing the timing of ANC booking. These include low maternal education, unemployment, poverty, limited knowledge of early ANC, cultural beliefs, unplanned pregnancies, long distance to health facilities, and perceived poor quality of care (Gross et al., 2012; Manyeh et al., 2020). Additionally, partner support, health insurance coverage, and previous pregnancy experiences have been shown to influence ANC utilization patterns (Amo-Adjei et al., 2018). Health system challenges such as long waiting times, inadequate staffing, and negative provider attitudes also contribute to delayed ANC attendance (**Tessema et al., 2021**). In the Eastern Region of Ghana, and particularly within the Kwaebibirem Municipality, there is limited empirical evidence on the determinants of early ANC booking. Kade Government Hospital serves as a major referral facility for surrounding rural and semi-urban communities, yet anecdotal observations suggest that many pregnant

women initiate ANC late. The absence of local, facility based evidence makes it difficult for healthcare managers and policymakers to design targeted interventions that address the unique barriers faced by women in this setting.

Understanding the determinants of early antenatal care booking at Kade Government Hospital is therefore essential for improving maternal and neonatal health outcomes in the municipality. Identifying socio-demographic, economic, cultural, and health system-related factors influencing early booking will provide context-specific evidence to guide policy formulation, strengthen service delivery, and enhance maternal health interventions. The results of this study are anticipated to provide valuable evidence to inform and strengthen ongoing initiatives aimed at reducing maternal and newborn illness and deaths in Ghana.

1.2. Problem Statement

Maternal mortality continues to be a significant public health challenge, especially in sub-Saharan Africa, where many women still lose their lives each year due to preventable complications during pregnancy and childbirth (World Health Organization, 2023). To address this problem, the World Health Organization recommends that pregnant women begin antenatal care (ANC) during the first trimester, as early attendance is crucial for improving maternal and newborn health outcomes (WHO, 2016). Initiating ANC early enables healthcare providers to identify and treat potential pregnancy-related complications promptly while ensuring that women receive essential preventive and supportive healthcare services.

Although Ghana has achieved high overall ANC coverage, early initiation remains suboptimal. Reports from the Ghana Health Service indicate that a significant proportion of pregnant women begin ANC after the first trimester (Ghana Health Service, 2022).

Delayed booking limits opportunities for early intervention and may contribute to preventable adverse maternal and neonatal outcomes.

In the Kwaebibirem Municipality of the Eastern Region, there is limited facility-based evidence on the determinants of early ANC booking among pregnant women attending Kade Government Hospital. Without context-specific data, municipal health authorities and hospital management may be unable to design targeted interventions to improve timely ANC utilization. Therefore, there is a need to assess the determinants of early antenatal care booking among pregnant women attending ANC at Kade Government Hospital to generate evidence that will inform policy and strengthen maternal health services in the municipality.

1.3. Rationale of the Study

Initiating antenatal care in the first trimester plays a vital role in safeguarding the health of both the pregnant woman and her unborn child. Early attendance enables timely monitoring of pregnancy progress, early detection and treatment of potential complications, and access to key preventive measures such as iron supplementation, tetanus immunization, and maternal health education (WHO, 2016; Dowswell et al., 2021). In Ghana, many women still initiate ANC late, reducing opportunities for timely care and contributing to preventable maternal and neonatal morbidity and mortality (Ghana Health Service, 2022). Timely initiation of ANC allows healthcare providers to identify risk factors, offer essential interventions, and educate women on healthy behaviors, which collectively improve maternal and neonatal outcomes (Say et al., 2014). Promoting early ANC supports national efforts to reduce maternal and neonatal deaths and contributes directly to achieving global targets, including Sustainable Development Goal 3, which aims to reduce maternal

mortality and end preventable newborn deaths by 2030 (WHO, 2023). Understanding the challenges associated with early booking among pregnant women at Kade Government Hospital is therefore crucial, as it provides insights into barriers that delay timely care and informs context-specific strategies to enhance service delivery.

This study is justified as it will provide evidence on the determinants of early ANC booking, including the current rate of early initiation and the knowledge level among pregnant women at Kade Government Hospital. Findings will guide healthcare providers and policymakers in designing effective interventions to overcome barriers, improve ANC utilization, enhance maternal and neonatal health outcomes, and support progress toward national and global maternal and child health targets.

1.4. Research Questions

- 1. What is the rate of early booking among pregnant women attending ANC at Kade Government Hospital?**
- 2. What is the knowledge level of pregnant women on early booking ANC at Kade Government Hospital?**
- 3. What are the factors influencing early booking among pregnant women attending ANC at Kade Government Hospital?**

4. What is the level of utilization of skilled delivery services and reasons for delivery with traditional birth attendants (TBAs) among pregnant women at Kade Government Hospital.

1.5. General Objective

The general objective of this study is to determine the determinants of early booking among pregnant women at Kade Government Hospital

1.6. Specific Objectives

1. To identify the prevalence of early booking among pregnant women at Kade Government Hospital.
2. To assess the knowledge level among pregnant women at Kade Government Hospital.
3. To identify factors influencing early booking among pregnant women at Kade Government Hospital.
4. To assess the utilization of skilled delivery services and reasons for delivery with traditional birth attendants (TBAs) among pregnant women at Kade Government Hospital.

1.7 Conceptual Framework

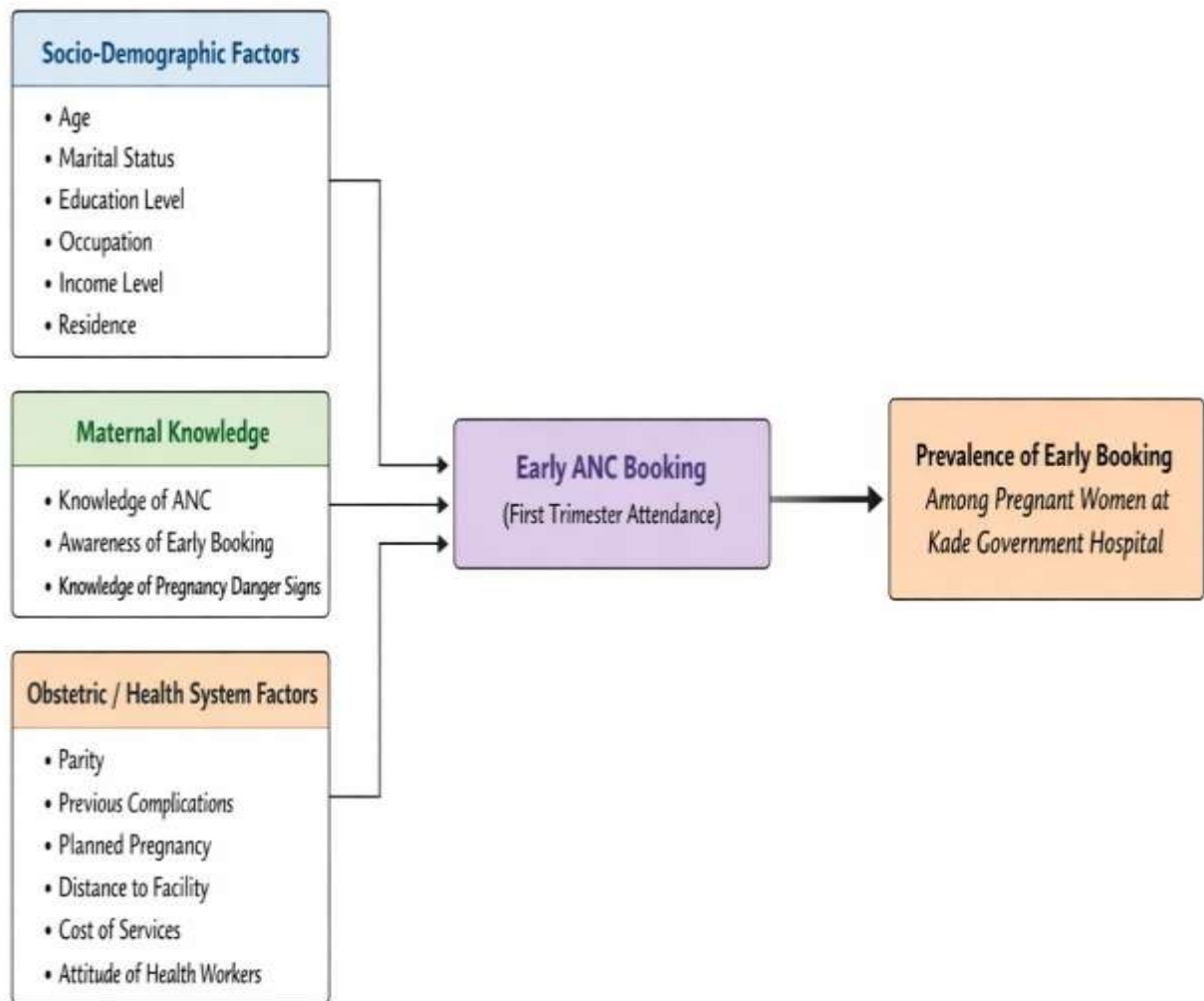
The conceptual framework guiding this study is derived from Andersen's Health Care Utilization Model, a widely used framework for understanding healthcare-seeking behavior. The model suggests that the use of health services is determined by three broad categories of factors: predisposing, enabling, and need factors. Predisposing factors include demographic and social characteristics, such as age, educational attainment, marital status, and occupation, which can influence an individual's decision to access healthcare services. Enabling factors refer to conditions that facilitate or hinder access to health services, including income, distance to health facilities, availability of services, and family support. Need factors include perceived or actual health needs that motivate individuals to seek care. These factors interact to influence the decision to utilize maternal health services such as antenatal care (ANC) (Ronald M. Andersen, 1968; Ronald M. Andersen, 1995).

In the context of antenatal care, several studies have shown that socio-demographic characteristics, maternal knowledge, and obstetric factors significantly influence the timing of ANC initiation. For example, research using the Ghana Maternal Health Survey 2017 reported that age, education level, wealth status, and place of residence were significantly associated with early ANC initiation. Women with higher education and better economic status were more likely to initiate ANC in the first trimester than those with lower socioeconomic status (Ghana Statistical Service, Ghana Health Service, & ICF International, 2018; Bright Ameyaw et al., 2021).

Similarly, studies conducted in other sub-Saharan African countries found that knowledge of antenatal care services, previous pregnancy experience, planned pregnancy, and advice from health professionals influence early booking among pregnant women. Women who

are knowledgeable about the benefits of antenatal care and those who receive counseling from healthcare providers are more likely to initiate ANC early in pregnancy (World Health Organization, 2016; Samuel Manyeh et al., 2020).

Based on this framework, the present study categorizes determinants of early ANC booking into three main groups: socio-demographic factors, maternal knowledge factors, and obstetric/health system factors, which influence the likelihood of pregnant women initiating ANC within the first trimester at Kade Government Hospital.



Conceptual framework (Adapted from the Andersen Health Care Utilization Model by Ronald M. Andersen, 1968) showing determinants of early antenatal care (ANC) booking among pregnant women at Kade Government Hospital

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

Early booking for antenatal care (ANC) is a critical component in ensuring positive maternal and fetal health outcomes. It allows for the timely identification and management of potential health issues, the provision of necessary interventions, and the opportunity for health education that can promote better health practices during pregnancy. This literature review will explore the importance of early ANC booking, trends in ANC booking rates globally and regionally, and the significance of studying these trends within the context of Kade Government Hospital. This section reviewed related literature, drawing on peer review articles such as: thesis, policy documents, conference proceedings, government documents and urban plans.

2.2 Overview of the Importance of Early Antenatal Care (ANC) Booking

The foregoing discussion highlights that early ANC booking is more than just a medical recommendation; it is a widely accepted global maternal health strategy. Its importance is underscored by the Safe Motherhood Initiative and further reinforced through international frameworks such as the MDGs and SDGs, which prioritize improvements in maternal and newborn health. The World Health Organization has consistently emphasised that the first ANC contact should occur within the first trimester, preferably before 12 weeks of gestation, to ensure early detection and prevention of pregnancy-related complications (WHO, 2016; WHO, 2022). Similarly, UNICEF highlights early ANC as a critical

component of quality maternal and newborn care and universal health coverage (UNICEF, 2023).

The literature strongly indicates that early ANC attendance enhances screening for pre-existing and pregnancy-related conditions such as hypertension, diabetes, anaemia, and infections, while facilitating timely preventive interventions including iron and folic acid supplementation, malaria prophylaxis, HIV testing, and immunization (WHO, 2016; Palamuleni, 2024). Evidence further suggests that early initiation significantly reduces the risk of adverse pregnancy outcomes such as miscarriage, preterm birth, and low birth weight (Amoako et al., 2021; BMC Pregnancy and Childbirth, 2023). Moreover, women who begin ANC in the first trimester are more likely to complete the recommended number of ANC contacts, thereby improving monitoring and birth preparedness (Kenya DHS analyses, 2025; Frontiers Global Women's Health, 2025).

Despite strong policy commitments, delayed ANC initiation remains widespread across sub-Saharan Africa due to socio-economic, cultural, and health system barriers. Education level, wealth status, parity, and access to information consistently emerge as significant determinants of early ANC uptake (Frontiers Global Women's Health, 2025; Malawi maternal health research, 2024). These findings underscore persistent inequities in maternal healthcare utilization.

In Ghana, although free maternal healthcare policies under the National Health Insurance Scheme have improved overall ANC attendance, a substantial proportion of women still initiate care after the first trimester. Early ANC attendance in Ghana has been associated with maternal age, educational attainment, wealth index, religion, and regional disparities

(recent Ghana Maternal Health Survey analyses, 2024). Rural–urban gaps further reflect differences in accessibility, transportation, financial barriers, and health literacy.

Therefore, it can be deduced that while early ANC booking is internationally recognised as a cornerstone of maternal and neonatal health improvement (WHO, 2016; WHO, 2022), translating global policy into optimal practice requires context-specific, facility-based evidence. Addressing socio-economic inequities, strengthening health education, and improving accessibility are critical to enhancing early ANC uptake and achieving maternal and neonatal health targets in Ghana and similar settings.

2.3 Trends in ANC Booking Rates

Globally, antenatal care (ANC) utilization has improved significantly over the past three decades; however, the timing of the first ANC visit remains a major challenge in many settings. According to the World Health Organization, early initiation of ANC allows timely detection and management of pregnancy-related complications, provision of preventive interventions such as iron supplementation, tetanus immunization, and health education, and improved birth preparedness. Despite progress in overall coverage, the proportion of women initiating ANC early remains suboptimal, particularly in low- and middle-income countries. Recent global estimates indicate that although most pregnant women attend at least one ANC visit and about 65% attend four or more visits, a much smaller proportion initiate care within the first trimester, highlighting persistent gaps in timely access to maternal healthcare (WHO, 2023; UNICEF, 2022). In high-income countries, early ANC booking rates are consistently high, often exceeding 85–90%. This trend is largely attributed to well-developed healthcare systems, universal health coverage, high levels of maternal education, and early pregnancy recognition. Countries in Europe

and North America have also benefited from technological advances such as digital appointment systems, telemed, and access to early pregnancy testing, which facilitate prompt healthcare-seeking behaviour. Over time, these settings have demonstrated sustained improvements in early ANC attendance with minimal disparities across population groups (WHO, 2020; OECD, 2022).

In contrast, low- and middle-income countries continue to experience delayed initiation of ANC despite increased overall coverage. In sub-Saharan Africa, early ANC booking remains below 50% in many countries. Although modest improvements have been observed over the past decade through interventions such as community health outreach, health insurance schemes, and task shifting strategies, progress has been slow and uneven. Structural challenges including poverty, limited access to healthcare facilities, long distances, poor transportation, unintended pregnancies, and low maternal health literacy continue to contribute to delayed ANC initiation (Ekholuenetale et al., 2020; Tessema et al., 2021). In West Africa, trends in early ANC booking reflect the broader sub-Saharan African context. Several countries have recorded gradual increases in early booking due to maternal health policies such as free maternal healthcare, expansion of primary healthcare services, and community health worker programmes (**Manyeh et al., 2020**) Nevertheless, disparities persist between urban and rural populations. Urban women are more likely to initiate ANC early due to better access to health facilities, higher levels of education, and greater exposure to health information. Rural populations continue to face barriers related to cost, distance, and sociocultural practices that delay care seeking (**Anarfi et al., 2019**)

In Ghana, maternal health indicators have improved over the years, but early ANC booking remains suboptimal. National estimates suggest that early ANC attendance ranges between 45% and 55%, with variations across regions and socioeconomic groups. Women residing in urban areas, those with higher education, and those from wealthier households are more likely to initiate ANC early compared to rural and less educated women (Ameyaw et al., 2021; Ghana Statistical Service, 2023). Government interventions such as the free maternal healthcare policy under the

National Health Insurance Scheme, expansion of the Community-based Health Planning and Services program, and intensified maternal health education have contributed to gradual improvements. However, persistent inequalities in access and utilization remain. Regional disparities continue to influence ANC booking patterns in Ghana. Rural and semi-urban districts, including those in the Eastern Region, often report lower early booking rates due to transportation challenges, long distances to healthcare facilities, and limited awareness about early pregnancy care. Cultural practices such as delayed disclosure of pregnancy, fear of social stigma, and reliance on traditional care providers further contribute to late initiation of ANC (Ganle et al., 2020; Manyeh et al., 2020). Family and community influences also play a significant role, as pregnant women may depend on advice from older relatives who may not perceive early ANC as necessary (Duah et al., 2018; Adjei et al., 2016).

At the district and facility levels, evidence on trends in early ANC booking remains limited due to inadequate routine data analysis and documentation. Available studies from similar district hospitals in Ghana suggest that early booking rates fluctuate depending on factors

such as health education campaigns, outreach services, and community engagement strategies. Facilities serving predominantly rural populations often report lower early ANC attendance compared to urban settings. Health system factors such as long waiting times, shortages of healthcare providers, and limited resources can also discourage early attendance (Anarfi et al., 2019).

2.4 Knowledge Levels of Pregnant Women on Early Booking

Awareness and understanding of the importance, timing, and advantages of early antenatal care (ANC) booking play a significant role in shaping maternal healthcare-seeking behavior. Women who possess adequate knowledge are better equipped to appreciate the value of initiating ANC in the first trimester, identify potential danger signs during pregnancy, and seek timely medical attention to promote positive maternal and neonatal outcomes. Globally, improving maternal knowledge has been identified as a key strategy for promoting early ANC attendance and improving pregnancy outcomes. According to the World Health Organization, maternal education and awareness are central components of quality antenatal care and are essential for reducing maternal and neonatal morbidity and mortality (WHO, 2023; UNICEF, 2022). Women who are well informed about ANC services are more likely to initiate care early and adhere to recommended schedules.

Studies across low- and middle-income countries show that inadequate knowledge about the appropriate timing and benefits of ANC remains a major barrier to early booking. Many women are unaware that ANC should begin within the first trimester and often believe that care is only necessary when pregnancy complications occur. Recent research in sub-Saharan Africa indicates that limited awareness of early ANC is associated with delayed booking, particularly among women with low levels of formal education and poor access

to health information (Ekholuenetale et al., 2020; Tessema et al., 2021). Furthermore, misconceptions such as the belief that pregnancy should not be disclosed early, fear of stigma, and reliance on traditional care practices contribute to delayed initiation of ANC.

In Ghana, maternal knowledge has been shown to significantly influence early ANC utilisation. Studies indicate that women who receive health education through community health workers, mass media, and antenatal outreach programs are more likely to initiate ANC early. However, despite national health promotion efforts, knowledge gaps persist, particularly among rural and less educated populations. Recent Ghanaian studies have reported that a substantial proportion of pregnant women lack adequate knowledge about the recommended timing of ANC, the number of visits required, and the benefits of early booking (Ameyaw et al., 2021; Manyeh et al., 2020).

These gaps contribute to delayed initiation and reduced utilisation of maternal health services.

Factors such as a woman's age, education, number of previous births, and economic status can greatly affect her level of maternal health knowledge. In particular, women with higher educational attainment are generally more aware of the importance of early ANC attendance, better able to identify pregnancy-related danger signs, and more likely to access care in a timely manner. Conversely, adolescents, multiparous women, and those with low educational backgrounds often have limited knowledge and may delay booking due to previous pregnancy experiences or perceived low risk (BMC Pregnancy and Childbirth, 2023; Frontiers in Global

Women's Health, 2024). These findings highlight the need for targeted health education interventions for vulnerable groups.

In addition, access to information sources such as media, mobile health platforms, and community based education programs has been shown to improve knowledge and early ANC utilization. Recent studies demonstrate that exposure to maternal health messages through radio, television, and digital health interventions significantly increases awareness of early ANC and improves timely attendance. Community-based health strategies, including the Community-based Health Planning and Services (CHPS) program in Ghana, have also contributed to improved knowledge and early booking by bringing health education closer to households (Ghana Statistical Service, 2023; WHO, 2022).

Despite these efforts, gaps in knowledge remain due to persistent structural and socio-cultural barriers. Limited access to education, poverty, gender inequality, and inadequate counselling during previous pregnancies continue to influence knowledge and behaviour. Furthermore, poor quality of communication between healthcare providers and pregnant women may reduce understanding and retention of maternal health information (Afulani et al., 2021; Bohren et al. 2020). Strengthening interpersonal communication and respectful maternity care has therefore been recommended as an important strategy to improve maternal knowledge and service utilization.

In the context of the Eastern Region and Kwaebibirem Municipality, limited research exists on the knowledge level of pregnant women regarding early ANC booking. Anecdotal evidence from healthcare providers suggests that many women attending Kade Government Hospital initiate ANC late due to inadequate awareness of the recommended timing and benefits of early booking. This highlights the need for context-specific research to assess

knowledge levels and identify gaps in maternal education. Understanding these knowledge gaps will inform the development of targeted interventions, including health education, community engagement, and behavioural change strategies to improve early ANC booking and maternal health outcomes.

2.5 Factors Influencing Early Booking

A variety of factors influence early antenatal care (ANC) booking among pregnant women, including socio-economic status, educational level, cultural beliefs, accessibility of health services, and previous experiences with healthcare systems. Women with higher educational attainment and those from relatively affluent households are more likely to initiate ANC early because they are more aware of the benefits of timely maternal care and are better able to overcome financial and logistical barriers (Ameyaw et al., 2021; Banchani & Tenkorang, 2021). In contrast, women with lower socio-economic status often delay booking due to limited resources, competing priorities, and lack of awareness. Cultural beliefs and social norms also shape perceptions of pregnancy and the perceived necessity of early care, which can either facilitate or delay ANC attendance (Aziato & Omenyo, 2018; World Health Organization, 2022). Understanding these factors among pregnant women attending Kade Government Hospital is essential for designing context-specific interventions to improve early ANC utilization.

2.5.1 Socio-Demographic Factors

Socio-demographic characteristics such as age, education, income, and marital status significantly influence early ANC booking. Younger women, particularly adolescents and first-time mothers, often experience delayed booking due to lack of knowledge, fear of

stigma, or misconceptions about pregnancy (Banchani & Tenkorang, 2021; Ameyaw et al., 2021). Conversely, older women tend to initiate ANC earlier due to previous pregnancy experiences and greater awareness of pregnancy-related risks. Educational level is consistently identified as one of the strongest predictors of early ANC attendance. Women with higher education are more likely to understand the importance of early booking and adhere to recommended maternal health practices (Ghana Statistical Service, 2023; Banchani & Tenkorang, 2021). Income level also influences the ability to access healthcare, particularly in rural and peri-urban settings where transportation costs and indirect expenses can delay care. Additionally, married women are more likely to book early compared to unmarried women due to increased emotional, social, and financial support from partners and family members (Ameyaw et al., 2021). Regional disparities also exist, with urban women generally reporting earlier booking due to better healthcare access and information compared to rural populations.

2.5.2 Availability and Accessibility of ANC Services

Availability and accessibility of ANC services remain key determinants of early booking. Geographical distance to health facilities, transportation challenges, and financial constraints significantly influence the timing of the first ANC visit (Kanyangarara et al., 2021; World Health Organization, 2022). In many low- and middle-income countries, women who live far from health facilities or lack reliable transportation often delay care. Evaluating these logistical barriers among pregnant women attending Kade Government Hospital is important in understanding local patterns of ANC utilization. Furthermore, perceived and actual quality of care strongly influences healthcare-seeking behaviour. Women are more likely to seek early care in facilities where healthcare providers

demonstrate professionalism, respectful maternity care, and effective communication (Bohren et al., 2020). Health system factors such as waiting time, staff attitude, availability of essential medicines, and privacy also play a critical role in shaping women's decisions. Community outreach programs, maternal education initiatives, and national health policies promoting maternal health have been shown to improve early booking in several African countries.

2.5.3 Quality of Care and Previous Experiences with Healthcare Services

The quality of care and women's previous experiences with health services significantly affect early ANC booking. Positive previous encounters, including respectful treatment, timely services, and effective communication, increase the likelihood of early booking in subsequent pregnancies (Bohren et al., 2020; Downe et al., 2020). In contrast, negative experiences such as disrespect, abuse, poor communication, and long waiting times discourage early utilization of maternal health services. Trust in healthcare providers and the health system plays a crucial role in maternal health seeking behaviour. Therefore, improving patient-provider relationships, strengthening respectful maternity care, and enhancing the overall quality of services at Kade Government Hospital may increase early ANC attendance.

2.5.4 Healthcare Policies and Their Impact on Early Booking

Healthcare policies play a major role in promoting early ANC attendance. Policies that improve affordability, accessibility, and awareness of maternal health services have been associated with increased early booking rates. In Ghana, the implementation of the free maternal healthcare policy under the National Health Insurance Scheme has improved

access to ANC and facility-based delivery (Ghana Health Service, 2022). Similarly, the World Health Organization recommends that pregnant women initiate ANC within the first trimester, and countries that integrate this guideline into national programs often observe improved early booking. Community-based education, outreach services, and health promotion strategies further enhance awareness and encourage timely care (**Anarfi et al., 2019**). However, the effectiveness of such policies depends largely on community awareness and implementation at the facility level.

2.5.5 Cultural and Societal Factors

Cultural and societal norms significantly influence early ANC booking in many African settings, including Ghana. Traditional beliefs may encourage secrecy during early pregnancy due to fear of spiritual attacks, social stigma, or miscarriage. As a result, some women delay ANC until the pregnancy becomes visible (Aziato & Omenyo, 2018; Banchani & Tenkorang, 2021). Patriarchal decision-making structures also affect women's autonomy in seeking healthcare. In some households, husbands or elder family members determine when and where a woman seeks care. Cultural reliance on traditional birth attendants and herbal remedies further contributes to delayed booking. Addressing these barriers requires culturally sensitive approaches, community engagement, and involvement of local leaders in maternal health promotion.

2.6 Studies Identifying and Analyzing Factors in Different Regions

Studies across Ghana and sub-Saharan Africa have consistently identified socio-economic status, knowledge, distance to healthcare facilities, and cultural beliefs as major determinants of early ANC booking. In Northern Ghana, lack of awareness about the

importance of early ANC was a key barrier (Nyarko & Tahiru, 2018). Similarly, research in the Ashanti Region found that education, socio-economic status, and proximity to health facilities significantly influenced early booking (Ameyaw et al., 2021). In urban areas such as Accra, health education campaigns and media awareness have improved early booking, although disparities persist in rural communities. Studies in the Volta Region also highlighted the role of traditional birth attendants and community leaders in shaping maternal healthcare decisions (Aziato & Omenyo, 2018). Evidence from the Western and Eastern Regions suggests that cultural beliefs, fear of stigma, and reliance on alternative care remain significant barriers. These findings emphasize the need for context-specific interventions at Kade Government Hospital.

2.7 Common Barriers to Early Booking

Despite the recognized importance of early ANC, multiple barriers continue to hinder timely attendance. Financial constraints remain a major obstacle, particularly among low-income households where transportation and indirect costs limit access (Kanyangarara et al., 2021). Logistical challenges such as long distances, poor road networks, and inadequate transport systems are also common in rural areas, including parts of the Eastern Region. Informational barriers such as poor knowledge and misconceptions about pregnancy and ANC timing contribute to delayed booking. Studies in Nigeria, Kenya, and Ghana have reported similar findings, highlighting the influence of socio-economic status, distance to health facilities, and limited awareness (Ameyaw et al., 2021; Ochako et al., 2016). Addressing these barriers is critical for improving maternal and neonatal outcomes.

2.8 Interventions and Strategies to Improve Early Booking

Several interventions have been implemented globally and in Africa to improve early ANC attendance. The focused antenatal care model recommended by the World Health Organization emphasizes early risk assessment, preventive care, and individualized maternal health education.

Community health worker outreach, home visits, and health education programs have been shown to increase early booking in many low-resource settings (Aborigo et al., 2021). In Ghana, community-based health planning and services (CHPS) initiatives have played a key role in improving maternal health service utilization. Financial incentives, awareness campaigns, and male involvement strategies have also been effective in promoting early ANC attendance. Strengthening these interventions at Kade Government Hospital and its catchment communities could improve early booking rates and maternal outcomes.

2.9 Chapter Summary

In summary, early antenatal care booking remains a critical strategy for improving maternal and neonatal health outcomes. Evidence indicates that socio-demographic, cultural, economic, health system, and policy factors significantly influence the timing of ANC initiation. Although Ghana has made progress in improving maternal healthcare utilization, early booking remains suboptimal, particularly in rural and underserved areas. This study therefore aims to assess the rate of early ANC booking among pregnant women attending Kade Government Hospital, evaluate their knowledge of early booking, and identify factors influencing timely ANC attendance. The findings will contribute to evidence-based interventions aimed at improving maternal and neonatal health outcomes in the study area.

CHAPTER THREE

3.0 METHODOLOGY Introduction

This chapter outlines the methods used to conduct the study, including the study design, area, population, sampling, data collection, analysis, and ethical considerations.

3.1 Study Type/Design

This study employed a descriptive cross-sectional design to assess challenges associated with early antenatal care (ANC) booking among pregnant women attending Kade Government Hospital. The design involved the collection of data from a defined population at a single point in time, allowing for the description of the prevalence of early ANC booking and the examination of associations between early booking and selected socio-demographic, obstetric, knowledge-related, and health system factors without manipulating variables or establishing follow-up. It was appropriate for this study because it provided a practical, cost-effective, and time-efficient means of simultaneously measuring the outcome and associated factors during routine ANC visits, while minimizing attrition and enabling the inclusion of a sizeable sample within the study period. However, despite its usefulness in determining prevalence and identifying associations, the design does not permit causal inference or determination of temporal relationships, and responses may be affected by recall or social desirability bias due to self-reporting. Nonetheless, it was suitable for achieving the study objectives by providing a snapshot of early ANC booking practices and their associated factors in the study setting.

3.2 Study Area/Study Site

This study took place at the Kade Government Hospital (KGH), a prominent public medical facility in the Kwaebibirem Municipality of Ghana's Eastern Region. Located approximately 25 kilometers east of the regional capital, Koforidua, Kwaebibirem stands out as a key commercial and industrial hub among the region's 26 districts. The municipality shares its borders with both the New Abirem and Denkyembour municipalities. According to projections based on the 2021 Ghana Statistical Service (GSS) population census, the municipality serves an estimated population of 121,698 residents.

Kade Government Hospital, located in Kade, began operating in 1985 as a Health Centre and continues to respond to the health needs of the people. Over time, the health centre expanded into a hospital as the population grew. On average, the hospital handles between 100 and 150 outpatient visits each day. The facility is staffed by a dedicated medical team consisting of seven medical doctors, five physician assistants, approximately 100 nurses and midwives, and two dentists, alongside a visiting gynecologist. To support this patient load, the hospital provides a comprehensive range of clinical services, including outpatient and inpatient care, specialized dental and Ear, Nose, and Throat (ENT) clinics, as well as essential diagnostic services such as ultrasound, electrocardiograms (ECG), and laboratory testing. Kade Government Hospital, provide integrated maternal and child health services that span from early pregnancy through postpartum and childhood. Antenatal care (ANC) services include early booking, routine monitoring (e.g., blood pressure, lab tests, malaria prevention), health education, and counseling to ensure healthy pregnancies. Skilled professionals manage deliveries, offer emergency obstetric care, and provide postnatal follow-ups focusing on breastfeeding, hygiene, danger sign recognition and family

planning. Child health services encompass immunizations, growth monitoring, illness management, and nutrition counseling. These hospitals work closely with CHPS compounds and community health volunteers to support outreach, ensure service continuity, and enhance access.

3.3 Study Population

The study population consisted of pregnant women attending antenatal care (ANC) at Kade Government Hospital. This specific population is chosen because these women are actively engaged in prenatal care and can provide valuable insights into early booking practices.

3.3.1 Inclusion Criteria

The study included pregnant women attending antenatal care (ANC) at Kade Government Hospital who were willing to participate and provided informed consent. Eligible participants were pregnant women aged 15 years and above. For participants below 18 years, assent was obtained in addition to consent from a parent or guardian in accordance with ethical guidelines. Additionally, the study incorporated pregnant women who had not yet commenced antenatal care (ANC) services when the data was gathered.

3.3.2 Exclusion Criteria

Pregnant women with high-risk pregnancies who have been advised by a healthcare professional to follow a specific booking schedule. Pregnant women who are not attending ANC at Kade Government Hospital. Also, pregnant women who are unable to provide informed consent.

3.4 Sample Size Determination

The sample size is estimated using Cochran's formula based on the following assumptions:

- The estimated proportion of early antenatal care (ANC) booking was assumed to be 50% ($p = 0.5$) because there is limited recent facility-level data on the prevalence of early ANC initiation among pregnant women attending Kade Government Hospital. This assumption helps to avoid underestimating the required sample size and is widely recommended in epidemiological and public health research when the true prevalence of an outcome is unknown (Ghana Statistical Service, 2023; Ameyaw et al., 2021).
- A 95% confidence level is used ($Z = 1.96$).
- The margin of error is 5% ($e = 0.05$).
- The total population of pregnant women attending ANC at Kade Government Hospital is approximately 1,400.

Initial Sample Size (n_0) for an Infinite Population $n_0 = (Z^2 * p * (1 - p)) / e^2$

$$= (1.96^2 \times 0.5 \times 0.5) / 0.05^2 = (3.8416 \times 0.25) / 0.0025$$

$$= 0.9604 / 0.0025 = 384.16$$

Adjusted Sample Size (n) for Finite Population ($N = 1400$) $n = n_0 / (1 + (n_0 - 1)/N)$

$$= 384 / (1 + (383 / 1400)) = 384 / (1 + 0.2736)$$

$$= 384 / 1.2736 = 301.5$$

However, due to time constraints, logistical considerations, and resource limitations, the study will recruit a sample size of 250 pregnant women attending antenatal care at Kade Government Hospital. A sample size of 250 remains adequate for facility-based cross-sectional studies.

This sample size remains comparable to several facility-based maternal health studies in sub Saharan Africa, which commonly use sample sizes between 200 and 400 participants (Manyeh et al., 2020; Ameyaw et al., 2021). Recruiting 250 participants will therefore still provide reasonable statistical precision for estimating proportions and conducting regression analysis to identify determinants of early ANC booking.

3.5 Methods of Collecting Data

Data for this study was collected using a structured interviewer-administered questionnaire. The instrument was adapted from previously validated tools used in sub-Saharan Africa to assess early antenatal care (ANC) booking and maternal healthcare utilization, and comprised predominantly closed-ended questions with a few open-ended items to allow further explanation where necessary (Afulani et al., 2021; World Health Organization, 2020). It was organized into five sections covering socio-demographic characteristics; obstetric and reproductive history; knowledge of early ANC booking, including recommended timing and benefits; factors influencing timing of ANC initiation such as socio-cultural, financial, and personal determinants; and health system or accessibility factors including distance, cost, waiting time, and perceived quality of care. Data collection was conducted at the antenatal clinic of Kade Government Hospital during routine clinic days, where eligible participants were identified with support from midwives and clinic staff. Interviews were conducted in a private setting within the clinic to ensure

confidentiality, administered in English or translated into Twi based on participant preference, with trained research assistants ensuring linguistic accuracy and cultural appropriateness; each session lasted approximately 20–30 minutes.

3.6 Data Processing and Analysis

After data collection, all completed questionnaires were checked daily for completeness, consistency, and accuracy to minimize errors and missing data. Data cleaning involved identifying and correcting incomplete responses, verifying consistency between related questions (e.g., matching ANC booking time with gestational age), and detecting implausible or out-of-range values. Questionnaires with substantial missing information on key variables such as timing of ANC booking were excluded, while minor missing responses were handled appropriately through logical checks and review of related responses. Double-entry verification was also performed after data entry into Statistical Package for the Social Sciences (SPSS) version 26 to reduce data entry errors and ensure accuracy (Afulani et al., 2021; World Health Organization, 2022). For data processing and analysis, variables were carefully defined and categorized prior to analysis. The outcome variable, timing of antenatal care (ANC) booking, was classified as early booking (first trimester: ≤ 12 weeks gestation) and late booking (second and third trimester: > 12 weeks), in line with World Health Organization recommendations (WHO, 2020). Socio-demographic variables such as age were categorized into groups (17–24, 25–29, 30–34, and ≥ 35 years), educational level (no formal education, primary, JHS/middle school, SHS/secondary, and higher), and marital status (single, married, divorced, widowed). Obstetric variables were also clearly defined: parity was categorized as no child, 1 child, 2–3 children, and ≥ 4 children; gravidity was grouped as 0–1, 2–

3, and ≥ 4 pregnancies; and history of previous pregnancy was classified as yes or no. Knowledge of early ANC booking was assessed using a composite scoring system, where correct responses were assigned one point. Total scores were computed and categorized into low, moderate, and high knowledge using predetermined cut-off points. Health service utilization variables such as number of ANC visits, place of ANC attendance, and waiting time were also categorized into meaningful groups for analysis. Bivariate analysis using the chi-square test was conducted to examine associations between early ANC booking and independent variables including socio-demographic, obstetric, knowledge, and health system factors. Variables significant at $p < 0.05$ were entered into a multivariable logistic regression model to identify independent predictors while controlling for confounding. Adjusted odds ratios (aORs) with 95% confidence intervals (CIs) were reported. Findings were presented in tables, charts, and narrative form and interpreted in relation to existing maternal health literature and the Ghanaian context.

3.7 Ethical Considerations

Ethical clearance was sought from the Ensign Global College University Review Ethics Committee (REC) ENSIGN/IRB/EL/SN-320/02. Administrative approval for the study was officially obtained from the Medical Superintendent of the Kade Government Hospital. Furthermore, eligible participants provided written informed consent after receiving a detailed explanation of the study's potential risks and benefits. It was explicitly communicated to all participants that involvement was entirely voluntary, that they retained the right to withdraw from the study at any stage without penalty, and that opting out would in no way compromise the quality of care or service delivery they received at the facility.

3.8 Limitations of the Study

1. Some respondents may have misunderstood certain questions despite interviewer clarification, affecting response accuracy.
2. The study did not include qualitative data, limiting deeper understanding of underlying reasons for early or late ANC booking.
3. Time and resource constraints influenced the sample size, which may affect the precision of some estimates
4. The study was conducted in a single facility, which limits generalizability to the wider population outside Kade Government Hospital.
5. The cross-sectional design prevents determination of causal relationships between variables and early ANC booking.

3.9 Validity

Content Validity: This questionnaire was developed through a comprehensive review of relevant literature and in close consultation with the Ghana Health Service Reproductive and Child Health Unit, Eastern Regional Directorate. It is designed to thoroughly address all key factors associated with early antenatal care booking

Construct Validity: Pre-testing and factor analysis was conducted to ensure the questionnaire accurately measures the constructs of interest. The factor analysis results demonstrated that all items loaded appropriately onto their respective constructs, with factor loadings exceeding the acceptable threshold of 0.50. This indicated that the

questionnaire items had good internal structure and adequately measured the intended constructs.

3.10 Reliability

- 1. Internal Consistency:** The reliability of the questionnaire was assessed using Cronbach's alpha to ensure consistent responses across items within each section.
- 2. Test-Retest Reliability:** The questionnaire was administered to a small sample of participants twice, at a two-week interval, to assess the stability of responses over time.

CHAPTER FOUR

4.0 RESULTS

4.1 Demographic Characteristics of participants

The socio-demographic profile of the study's 270 participants is detailed in Table 1. The mean age of the respondents was 29.01 years (SD = 6.48). The majority of respondents were aged 25–29 years 105 (38.9%), followed by those aged 30–34 years 61 (22.6%), while 17–24 years accounted for 56 (20.7%). Respondents aged ≥ 35 years were 48 (17.8%). Regarding educational level, most respondents had SHS/Secondary education 142 (52.6%), while 92 (34.1%) had higher education. A smaller proportion had JHS/Middle School education 25 (9.3%), while 7 (2.6%) had pre-primary or no formal education and 4 (1.4%) had primary education. In terms of ethnicity, the majority of respondents were Akan 202 (74.8%). Other ethnic groups included Ewe 23 (8.5%), Ga 21 (7.8%), Krobo 10 (3.7%), and Hausa 8 (3.0%), while Dagomba 2 (0.7%), Mole-Dagbani 2 (0.7%), Fante 1 (0.4%), and Guan 1 (0.4%) constituted smaller proportions.

With respect to employment status, most respondents were not employed 224 (82.9%), while 46 (17.1%) were employed. In terms of occupation, the majority were traders or engaged in business 145 (53.7%), followed by salary workers 79 (29.3%), unemployed respondents 29 (10.7%), and farmers 17 (6.3%). Regarding monthly income, most respondents earned more than GHC 500 173 (64.1%), while 74 (27.4%) earned GHC 300–490. A smaller proportion earned less than GHC 100

17 (6.3%), while 6 (2.2%) earned GHC 100–290. In terms of religion, the majority were Christians 250 (92.6%), while 20 (7.4%) were Muslims. With respect to marital status, most respondents were married 183 (67.8%), followed by single respondents 74 (27.4%), while widowed respondents were 7 (2.6%) and divorced respondents were 6 (2.2%). Regarding the number of living children, most respondents had 2–3 children 163 (60.4%), followed by those with one child 62 (23.0%). Respondents with ≥ 4 children were 38 (14.0%), while 7 (2.6%) reported having no children.

Table 1. Socio-demographic Characteristics of Respondents

Characteristics	Frequency	Percentage	
	[N-270]		[%]
Age (years)			
17–24	56	20.7	
25–29	105	38.9	
30–34	61	22.6	
≥ 35	48	17.8	
Mean $\pm$ SD	29.01 $\pm$ 6.48		
Level of Education			
Pre-Primary/None	7	2.6	
Primary	4	1.4	
JHS/Middle School	25	9.3	
SHS/Secondary School	142	52.6	

Higher	92	34.1	
Ethnicity			
Akan/Fante	203	75.2	
Ga/Krobo	31	11.5	
Ewe	23	8.5	
Hausa/Mole-Dagbani/Dagomba	12	4.4	
Guan	1	0.4	
Employment Status			
Yes	46	17.1	
No	224	82.9	
Occupation			
Farmer	17	6.3	
Salary Worker	79	29.3	
Trader/Business	145	53.7	
Unemployed	29	10.7	

Frequency

Percentage

Characteristics		[N-270]		[%]
Monthly Income (GHS)				
<100	17		6.3	
100–290	6		2.2	
300–490	74		27.4	
>500	173		64.1	

Religion				
Christian	250		92.6	
Muslim	20		7.4	
Marital Status				
Divorced	6		2.2	
Married	183		67.8	
Single	74		27.4	
Widowed	7		2.6	
Number of Living Children				
No Child	7		2.6	
1 Child	62		23.0	
2–3 Children	163		60.4	
≥4 Children	38		14.0	

4.2 Partner Characteristics of Respondents

Table 2 presents the partner characteristics of respondents. Regarding partners' educational level, more than half, 98 (53.6%), had Junior High School or Middle School education, while 69 (37.7%) had higher education. Only 16 (8.7%) had Senior High School or Secondary School education. With respect to occupation, most partners were salary workers, 73 (40.0%), followed by farmers, 64 (35.0%), and traders or business workers, 44 (24.0%). Very few were artisans, 1 (0.5%), or unemployed, 1 (0.5%).

Table 2 Partner Characteristics of Respondents

Characteristics	Frequency	Percentage
	N = [183]	(%)
Partner's Educational Level		
JHS/Middle School	98	53.6
SHS/Secondary School	16	8.7
Higher	69	37.7
Partners Occupations		
Artisan	1	0.5
Farmer	64	35.0
Salary Worker	73	40.0
Trader/Business	44	24.0
Unemployed	1	0.5

4.3 Obstetric Characteristics of Respondents

The obstetric features of the respondents are shown in Table 3. According to the findings, 173 (64.1%) of the respondents did not have a child under one year old, whereas 97 (35.9%) did. In terms of first pregnancy, 168 (62.2%) said they had previously been pregnant, whereas 102 (37.8%) said the index pregnancy was their first. Almost half of the respondents, 128 (47.4%), reported having been pregnant two or three times. 56 (20.7%) had been pregnant zero to once (including miscarriage), whereas 86 (31.9%) had four or more pregnancies.

Table 3 Obstetric Characteristics of Respondents

Characteristics	Frequency	Percentage
	N = [270]	(%)
Do you have a child under 1 year		
Yes	97	35.9
No	173	64.1
Was this your first pregnancy		
Yes	102	37.8
No	168	62.2
How many times have you been pregnant(including miscarriage)		
0 – 1	56	20.7
2 – 3	128	47.4
≥ 4	86	31.9

4.4 Utilization of Antenatal Care Services

Table 4 presents the utilization of antenatal care services among the respondents. Most respondents (248, 92.5%) reported receiving antenatal care and skilled delivery education, while 20 (7.5%) did not. Among those who received the education, the majority indicated that it was provided by midwives, 177 (71.4%), followed by nurses, 68 (27.4%), and a small proportion by community health workers, 3 (1.2%). All respondents, 270 (100.0%), reported attending antenatal clinic during their pregnancy. In terms of the number of ANC visits, most respondents, 197 (73.0%), attended the clinic five to seven times, while 54 (20.0%) attended eight or more times and 19 (7.0%) attended two to four times. Regarding the place of ANC attendance, more than half of the respondents, 154 (57.1%), attended ANC at a health centre. This was followed by hospitals, 92 (34.1%), and CHPS compounds, 23 (8.4%). Only one respondent (0.4%) reported attending ANC at home or with a

traditional birth attendant. With respect to the timing of the first ANC visit, more than half of the respondents, 145 (53.7%), initiated ANC late, while 125 (46.3%) reported early booking.

Table 4 Utilization of Antenatal Care Services

Characteristics	Frequency	Percentage
	N = [270]	(%)
Did you receive ANC and SD education		
No	20	7.5
Yes	248	92.5
If yes, who provided it		
CHW	3	1.2
Midwife	177	71.4
Nurse	68	27.4
Did you attend ANC clinic		
Yes	270	100.0
No	0	0.0
How many times did you attend antenatal clinic		
2 – 4	19	7.0
5 – 7	197	73.0
≥ 8	54	20.0
Where did you attend ANC		
CHPS	23	8.4
Health Centre	154	57.1

Hospital	92	34.1
TBA/Home	1	0.4
What was your gestational age at first ANC visit		
Late Booking	145	53.7
Early Booking	125	46.3

4.5 Utilization of Skilled Delivery Services

Table 5 presents the utilization of skilled delivery services among the respondents. More than half of the respondents, 145 (53.7%), delivered their last child at a health centre, while 95 (35.2%) delivered at a hospital. A smaller proportion, 25 (9.2%), delivered at a CHPS compound, and 5 (1.9%) reported delivering at home or in a spiritual setting. Regarding assistance during delivery, the majority of births were assisted by midwives, 176 (65.2%). Doctors assisted 60 (22.2%) of the deliveries, while nurses assisted 25 (9.3%). A small number of deliveries were assisted by community health workers, 7 (2.6%), and traditional birth attendants, 2 (0.7%). Among the respondents who delivered with the assistance of a traditional birth attendant (n = 2), both indicated that the delivery was planned.

Table 5 Utilization of Skilled Delivery Services

Characteristics	Frequency	Percentage
	N = [270]	(%)
Where did you deliver your last child?		
CHPS	25	9.2
Health Centre	145	53.7
Home/Spiritual	5	1.9
Hospital	95	35.2
Who assisted during delivery		
CHW	7	2.6
Doctor	60	22.2
Midwife	176	65.2
Nurse	25	9.3
TBA	2	0.7
If TBA, was it planned (n=2)		
Yes	2	100.0
No	0	0.0

4.6 Reason for Delivery with TBA

Figure 1 presents the reasons given by respondents who delivered with a traditional birth attendant. Cultural beliefs were the most commonly reported reason, mentioned by 2 respondents. Other reasons reported included fear of caesarean section, high cost of facility delivery, long distance to a health facility, and absence of a nearby health facility, each reported by 1 respondent. However, transportation challenges, lack of privacy, bad attitude of staff, and absence of difficulty in previous births were not reported as reasons for delivery with a traditional birth attendant.

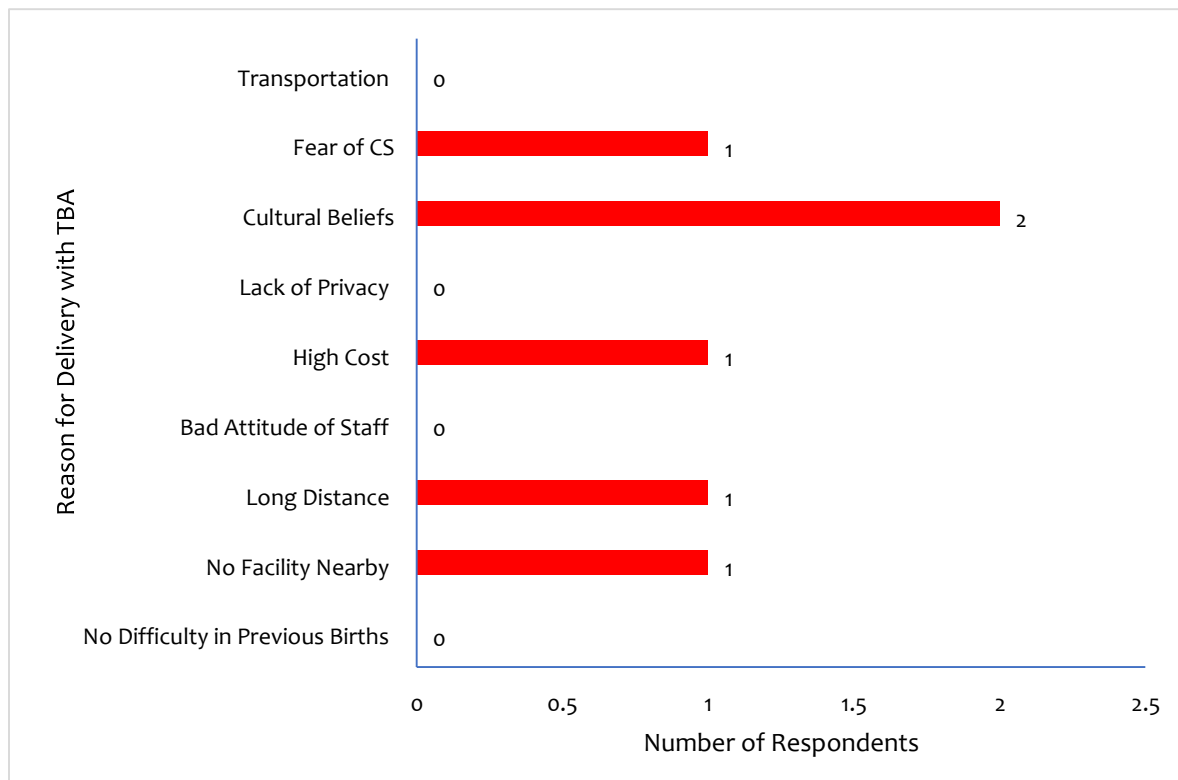


Figure 1. Reason for Delivery with Traditional Birth Attendant (TBA)

4.7 Knowledge Level of Respondents Regarding Antenatal Care and Skilled Delivery

Figure 2 shows the knowledge level of respondents regarding antenatal care and skilled delivery services. Nearly half of the respondents, 48.5%, had a moderate level of knowledge. About 27.1% demonstrated a high level of knowledge, while 24.4% had a low level of knowledge.

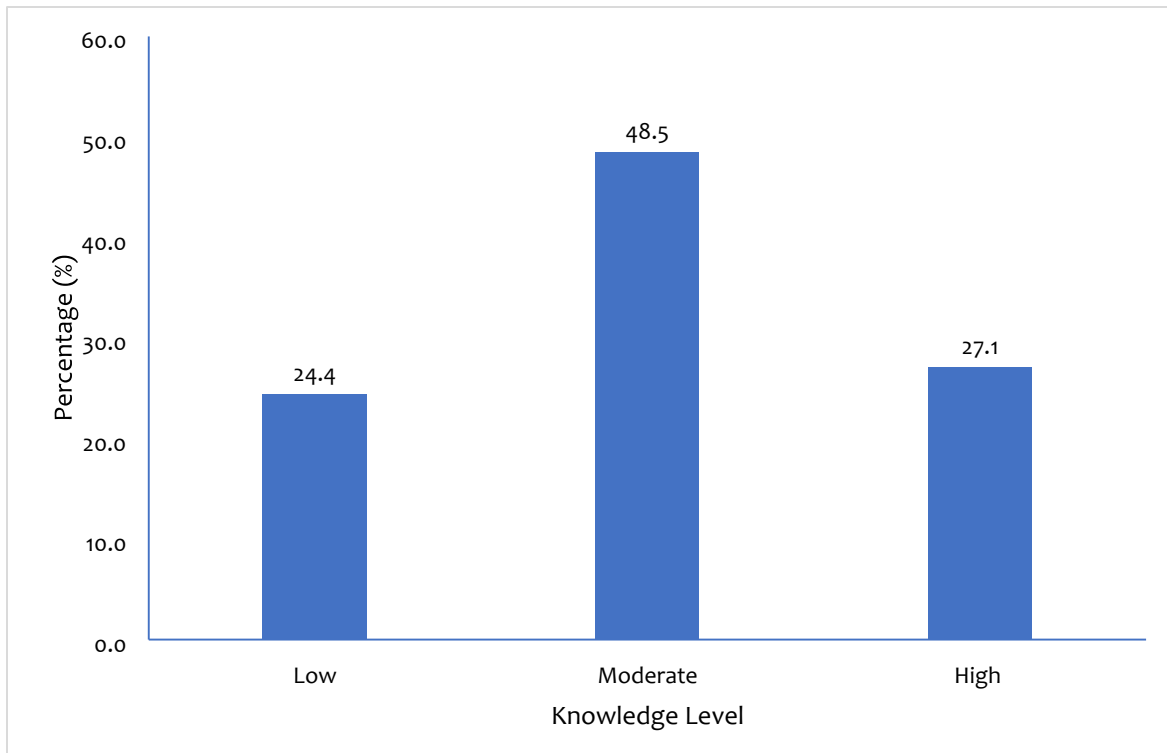


Figure 2. Knowledge Level of Respondents Regarding Antenatal Care and Skilled Delivery

4.8 Rate of Early Booking among Respondents

Figure 3 presents the timing of the first antenatal care (ANC) booking among the respondents. More than half of the respondents, 145 (53.7%), initiated ANC late, while 125 (46.3%) reported early ANC booking. The estimated proportion of respondents who initiated early ANC booking was 46.3% [95% CI: 40.3%–52.3%], indicating that less than half of the respondents commenced antenatal care within the recommended early period.

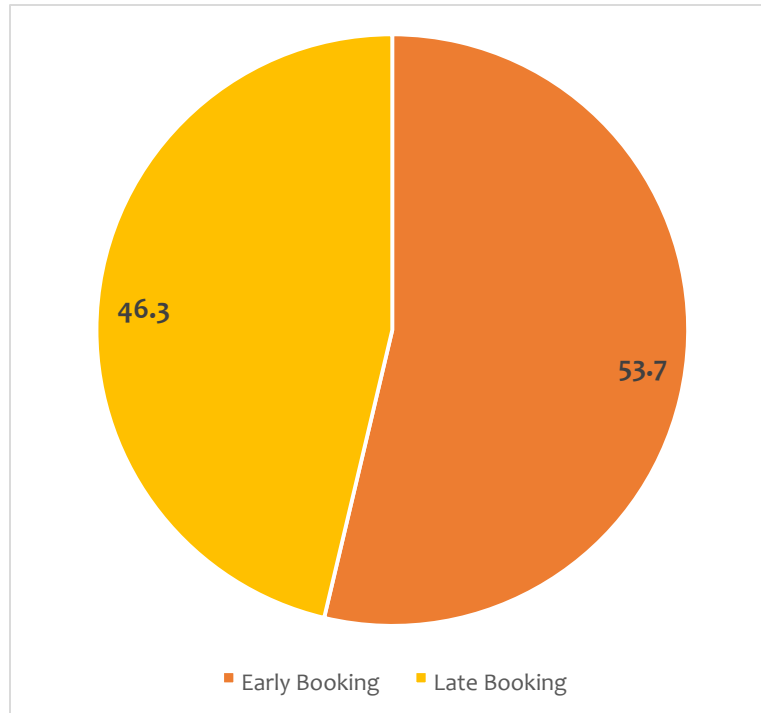


Figure 3. Rate of Early Booking among Respondents

4.9 Factors Influencing Early ANC Booking

Table 6 presents the results of the logistic regression analysis examining factors associated with early antenatal care booking among pregnant women attending ANC at Kade Government Hospital. After adjusting for potential confounders, several factors were significantly associated with early ANC booking. Women aged ≥ 35 years were significantly less likely to initiate ANC early compared with those aged 17–24 years (aOR = 0.05, 95% CI: 0.003–0.74, $p = 0.029$). Employment status also showed a strong association, as employed women were more likely to book early compared with unemployed women (aOR = 25.93, 95% CI: 1.84–364.66, $p = 0.016$). Marital status was another significant factor. Single women were less likely to initiate early ANC booking

compared with divorced women (aOR = 0.06, 95% CI: 0.01–0.72, $p = 0.027$). Similarly, respondents with two to three living children were less likely to book early compared with those with no children (aOR = 0.09, 95% CI: 0.01–0.74, $p = 0.025$). Pregnancy experience also played a role. Women who reported that the index pregnancy was their first pregnancy were significantly less likely to initiate ANC early compared with those who had been pregnant before (aOR = 0.14, 95% CI: 0.05–0.37, $p < 0.001$). Place of ANC attendance was also significant. Women attending

ANC at a health centre were less likely to initiate early booking compared with those attending CHPS compounds (aOR = 0.27, 95% CI: 0.09–0.79, $p = 0.017$). In addition, women who reported spending more than 60 minutes during ANC visits were more likely to initiate early booking compared with those who spent 0–15 minutes (aOR = 8.92, 95% CI: 1.64–48.62, $p = 0.011$). Furthermore, respondents who were attended to immediately during ANC visits were more likely to initiate early ANC booking compared with those who were not attended to immediately (aOR = 2.54, 95% CI: 1.27–5.08, $p = 0.008$). Other variables including educational level, monthly income, time spent during ANC visit (except >60 minutes), and confidence in identifying danger signs were not statistically significant in the adjusted model ($p > 0.05$).

Tabel 6. Factors Influencing Early ANC Booking

<u>Characteristics</u>	<u>cOR</u>	<u>95% CI</u>	<u>p-value</u>	<u>aOR</u>	<u>95% CI</u>	<u>p-value</u>
Age						
17–24	Ref			Ref		
25–29	0.82	[0.43 – 1.58]	0.556	0.16	[0.01 – 1.90]	0.145
30–34	0.60	[0.29 – 1.25]	0.171	0.14	[0.01 – 1.67]	0.119
≥35	0.37	[0.16 – 0.82]	0.015*	0.05	[0.003 – 0.74]	0.029*
Educational Level						
Higher	Ref			Ref		
JHS/Middle	0.94	[0.38 – 2.28]	0.883	0.92	[0.21 – 3.96]	0.908
SHS/Secondary	1.22	[0.72 – 2.07]	0.451	0.78	[0.35 – 1.70]	0.526
Employment Status						
No	Ref			Ref		
Yes	4.42	[2.03 – 9.59]	<0.001*	25.93	[1.84 – 364.66]	0.016*
Monthly Income						
≥500	Ref			Ref		
300 – 490	0.85	[0.49 – 1.47]	0.569	2.55	[0.89 – 7.27]	0.081
<100	0.94	[0.35 – 2.56]	0.906	20.15	[0.88 – 463.72]	0.061
Marital Status						
Divorced	Ref			Ref		
Married	1.08	[0.21 – 5.51]	0.927	1.25	[0.20 – 8.04]	0.812
Single	0.51	[0.10 – 2.72]	0.431	0.06	[0.01 – 0.72]	0.027*
Widowed	0.40	[0.04 – 3.97]	0.434	0.62	[0.02 – 15.82]	0.772
Number of Living Children						
No Child	Ref			Ref		
1 Child	1.17	[0.24 – 5.69]	0.844	0.80	[0.13 – 5.02]	0.812
2–3 Children	1.25	[0.27 – 5.80]	0.772	0.09	[0.01 – 0.74]	0.025*
≥4 Children	0.78	[0.15 – 4.00]	0.764	0.20	[0.02 – 1.88]	0.159

First Pregnancy

No	Ref		Ref		
Yes	0.32	[0.19 – 0.54]	<0.001*	0.14	[0.05 – 0.37] <0.001*

Place of ANC

CHPS	Ref		Ref		
Health Centre	0.17	[0.07 – 0.44]	<0.001*	0.27	[0.09 – 0.79] 0.017*
Hospital	1.11	[0.41 – 3.02]	0.837	1.43	[0.49 – 4.15] 0.514

Time Spent During ANC Visit

0–15 Minutes	Ref		Ref		
16–30	0.86	[0.38 – 1.95]	0.718	1.02	[0.32 – 3.27] 0.974
31–45	0.46	[0.20 – 1.06]	0.068	0.72	[0.20 – 2.58] 0.614
46–60	0.29	[0.13 – 0.69]	0.005*	0.82	[0.24 – 2.78] 0.749
>60	1.75	[0.54 – 5.64]	0.348	8.92	[1.64 – 48.62] 0.011*

Confidence Identifying Danger Signs

Not confident	Ref		Ref		
Somewhat confident	0.32	[0.16 – 0.62]	0.001*	0.81	[0.31 – 2.12] 0.663
Very confident	0.71	[0.29 – 1.78]	0.469	2.61	[0.67 – 10.15] 0.167

CHAPTER FIVE

5.0 DISCUSSION

5.1 Summary of Key Findings

The study found that 46.3% of pregnant women initiated antenatal care (ANC) early, while 53.7% started ANC late. The estimated prevalence of early booking was 46.3% (95% CI: 40.3%–52.3%), indicating that late initiation of ANC remains more common than early booking.

Regarding knowledge, 48.5% of respondents had moderate knowledge of ANC and skilled delivery services, 27.1% had high knowledge, and 24.4% had low knowledge, suggesting that although awareness exists, gaps in knowledge still persist.

Several socio-demographic, obstetric, and health system factors were found to influence early ANC booking. Age was significantly associated with timing of booking, with women aged 35 years and above less likely to initiate ANC early compared to younger women. Employment status, marital status, parity, pregnancy experience, place of ANC attendance, waiting time, and immediacy of care were also significant determinants of early booking.

5.2 Interpretation of Findings

The findings of this study show that early ANC initiation remains suboptimal, with more than half of the respondents booking late. Early ANC is essential for early detection and management of pregnancy-related complications, including infections, hypertension, anaemia, and malaria, as well as timely provision of preventive interventions such as

supplementation and immunization (WHO, 2016; WHO, 2023). Delayed initiation may therefore reduce the effectiveness of these interventions and increase the risk of adverse maternal and neonatal outcomes.

The level of early booking observed is consistent with national and regional evidence. The Ghana Maternal Health Survey reports that while ANC attendance is generally high, many women still initiate care after the first trimester (GSS, GHS & ICF, 2018). Similar findings have been reported in Ghana and other sub-Saharan African countries, where early ANC initiation remains below recommended levels despite high overall service utilization (Amoakoh-Coleman et al., 2015; Ekholuenetale et al., 2020). This suggests that the challenge is not access alone but also timing of first contact with health services.

Knowledge was also found to influence ANC initiation. Women with better understanding of ANC timing and benefits were more likely to book early, while those with limited knowledge tended to delay care. This finding aligns with previous studies in Ghana and sub-Saharan Africa which show that maternal health literacy is a key predictor of early ANC utilization (Manyeh et al., 2020; Tessema et al., 2021). Health education and counselling during ANC visits and community outreach programmes therefore remain critical for improving early booking.

Socio-demographic factors such as age, employment status, marital status, and parity also influenced early ANC booking. Older women and multiparous women were less likely to initiate ANC early, possibly due to perceived pregnancy experience and reduced perceived need for early care. In contrast, employed women were more likely to book early, likely due to improved financial capacity and autonomy in accessing care (Ahmed et al., 2010; Ameyaw et al., 2021).

Health system factors also played an important role. Women attending CHPS compounds were more likely to book early compared to those attending health centers likely due to proximity and reduced access barriers. Additionally, shorter waiting times and prompt attention during ANC visits were associated with early booking, highlighting the importance of client-friendly service delivery. Evidence shows that respectful and timely maternal healthcare improves satisfaction and encourages early and continued utilization of services (Bohren et al., 2020; Ghana Health Service, 2022).

Overall, the findings suggest that early ANC booking is influenced by a combination of individual, socio-economic, and health system factors. Addressing these requires integrated strategies that improve maternal health education, strengthen community-based services, and enhance the quality and responsiveness of ANC services.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study assessed the prevalence of early antenatal care (ANC) booking, the knowledge level of pregnant women regarding antenatal care and skilled delivery, and the factors influencing early

ANC booking among pregnant women attending antenatal services in the Kwaebibirem Municipality. The findings show that early antenatal care booking remains suboptimal. Less than half of the respondents initiated antenatal care within the first trimester, indicating that delayed ANC initiation continues to be a significant maternal health concern. Although antenatal care attendance was universal among respondents, many women still begin care after the recommended gestational period, which may reduce the effectiveness of preventive and early detection interventions provided during pregnancy.

The study also revealed that the majority of pregnant women possessed moderate knowledge regarding antenatal care and skilled delivery services. While some women demonstrated high levels of awareness, a substantial proportion still had low knowledge of maternal healthcare services. This suggests that gaps in maternal health education persist and may contribute to delayed antenatal care initiation. Furthermore, the study identified several factors that significantly influence early ANC booking. Socio-demographic characteristics such as age, employment status, and marital status were associated with the timing of ANC initiation. Obstetric characteristics including parity and pregnancy experience also influenced booking behaviour. In addition, health system factors such as place of antenatal care attendance, waiting time, and prompt attention by healthcare

providers were found to affect early ANC utilization. Overall, the findings indicate that early antenatal care initiation is influenced by a combination of individual, socioeconomic, obstetric, and health system factors. Addressing delayed ANC booking therefore requires comprehensive interventions that strengthen maternal health education, improve accessibility of maternal health services, and enhance the quality of antenatal care delivery. Improving early antenatal care utilization will contribute to better maternal and neonatal health outcomes in the municipality.

6.2 Recommendations

1. The Ghana Health Service (GHS), through midwives and community health nurses, should strengthen maternal health education and community outreach during ANC services.
2. The Municipal Health Directorate, with health workers and community stakeholders, should intensify public education to promote early ANC booking.
3. The management of Kade Government Hospital and the Ghana Health Service should improve ANC service delivery by reducing waiting times and enhancing access through CHPS support.
4. The Ministry of Health (MoH), Ghana Health Service (GHS), and research institutions should strengthen maternal health policies and support further research on maternal health behaviours.

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APPENDIX

CONSENT FORM

STUDY TITLE: Determinants of challenges with Early Booking Among Pregnant Women at the Kade Government Hospital.

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and satisfactorily explained to me in a language I understand (.....*name of language*). I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Name or Initials of Participant..... ID Code

Participants' Signature OR Thumb Print.....

Date:

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language he/she understood (*....name of language*)

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name:.....

Signature..... OR Thumb Print

Date:.....

INVESTIGATOR STATEMENT AND SIGNATURE

Brief statement or declaration that investigator has given enough information to participants to make informed decisions.

I certify that the participant has been given ample time to read and learn about the study.

All questions and clarifications raised by the participant have been addressed.

ASSENT FORM

Title of Study: Determinants of Challenges with Early Booking among Pregnant Women

Attending Antenatal Care (ANC) at Kade Government Hospital in the Kwaebibirem Municipality, Eastern Region, Ghana

Introduction:

I am Cheritta Plassi the Principal Investigator for this study. I am currently a master

Of Public Health student at the Ensign Global University. You can contact me at box 114,

Kwaebibirem, via phone at 0549548896 or by email at cherittap@gmail.com or The Registrar /

IRB Administrator, Ensign Global University, Kpong, Eastern Region, Ghana

Phone: +233 245 762 229 for matters related to ethics. This research is part of the research unit's ongoing effort to understand healthcare trends and contribute to better clinical practices.

Purpose of the Study: The study seeks to find out the reasons why some pregnant women delay in starting antenatal care (ANC) and what challenges they face when booking early at Kade Government Hospital. The information will help improve services and encourage early ANC attendance.

What You Will Be Asked to Do: If you agree to take part, you will be asked to answer some questions about your pregnancy, your knowledge about ANC, and reasons for coming to the hospital. The questions will take about 20 to 30 minutes. You will not be asked any

questions that will make you feel uncomfortable. You can choose not to answer any question you don't want to.

Possible Risks: There are no known risks in taking part in this study. Some questions may make you think about your experiences, but you do not have to answer anything that makes you uncomfortable.

Benefits: Your participation will help health workers understand how to make ANC services better for young mothers. You will not be paid, but your participation will help improve care for other women in the future.

Confidentiality: Everything you say will be kept private and confidential. Your name will not appear anywhere in the report or results. The information you provide will be used only for research and stored safely.

Voluntary Participation: Taking part in this study is your choice. You can stop at any time without giving a reason, and it will not affect the care or services you receive at the hospital.

Agreement (Assent)

Please read the statement below and sign if you agree to take part.

I have read (or have been read to) the information above. I understand what the study is about and what I am being asked to do. I have had the chance to ask questions and my questions have been answered. I agree to take part in this study.

Parental/Guardian Consent Section

I have read (or have been read) the information about the study. I understand that my ward is being asked to take part and that participation is voluntary. I give permission for my child/ward to participate in this study.

Name of Parent/Guardian:.....

Relationship to Participant: Signature/Thumbprint:

Date: Contact Number of Parent/Guardian:.....
.....

Cheritta Plassi

(Principal investigator)

Consent Statement

I have read and understood the purpose and procedures of this study. I voluntarily grant permission for the researcher to review relevant documents at Kade Government Hospital for the stated research purpose.

Name of Institutional Representative:

Position/Designation:

Signature:.....

Date:

Principal Investigator:.....

Date:

Official Stamp (if applicable)

Appendix iv: Data Collection tool

Questionnaire: Determinants of challenges with Early Booking Among Pregnant Women at the Kade Government Hospital.

Introduction

This research is being conducted to explore the “Utilization of Antenatal Care and Skilled Delivery services among mothers of infants in the Nanton District”. Your participation is highly appreciated. This information will help the District Health Directorate, private agencies, the community, and other decision-making bodies to improve ANC and Skilled delivery service uptake.

The interview will last between 30 to 45 minutes. Your responses will be kept strictly confidential and used only by the District Health Directorate and the University. Participation is voluntary, and there is no compensation. You may skip any question or stop the interview at any time.

Do you have any questions? May I begin the interview now?

Signature of interviewer: _____ Date: _____

Respondent agrees: (A) Yes ☐ (B) No ☐ Time started: _____

IDENTIFICATION

Name of Sub-district: _____

Name of Community: _____

Interview Date: _____

Interview #: _____

Interviewer Name: _____

Section A: Socio-demographic Characteristics

D1. What is your Age? _____

D2. What is your Highest level of education?

a. Pre-primary/None ☐ b. Primary ☐ c. JHS/Middle ☐ d. SHS/Secondary ☐ e. Higher ☐

D3. What is your Ethnicity? _____

D4b. What is your Occupation?

a. Unemployed ☐ b. Trader/Business ☐ c. Farmer ☐ d. Artisan ☐ e. Salary Worker ☐

D5. What is your Monthly Income?

a. < GHC100 ☐ b. 100–290 ☐ c. 300–490 ☐ d. $\geq$ 500 ☐

D6. What is your Religious Affiliation?

a. Muslim ☐ b. Christian ☐ c. Traditionalist ☐ d. Other: _____

D7. What is your Marital Status?

a. Single ☐ b. Married ☐ c. Divorced ☐ d. Widowed ☐

D8. Number of living children: _____

D9. What is your Partner's education level?

a. Pre-primary/None ☐ b. Primary ☐ c. JHS ☐ d. SHS ☐ e. Higher ☐

D10. What is your Partner's Occupation?

a. Unemployed ☐ b. Farmer ☐ c. Trader ☐ d. Artisan ☐ e. Salary Worker ☐

D11. Do you have a child under 1 year?

a. Yes ☐ b. No ☐ c. Not sure ☐

D12. Is this your first pregnancy?

a. Yes ☐ b. No ☐

D13. Number of pregnancies (including miscarriage): _____

D14. Did you receive ANC education?

a. Yes ☐ b. No ☐

D15. If yes, who provided it?

a. Midwife ☐ b. Nurse ☐ c. CHW ☐

Section B: Utilization of ANC Attendance

Subsection B1: Antenatal Care

(ANC) D16. Did you attend ANC clinic?

a. Yes ☐ b. No ☐ c.

Don't know ☐ D17. Number of ANC visits: _____

D18. Gestational age at first ANC visit:

- a. 0–3 months ☐ b. 4 months ☐ c. 5+ months ☐

Section C: Factors Influencing Utilization

Subsection C1: ANC Attendance

D19. Where did you attend ANC?

- a. Hospital b. Health Center c. CHPS d. TBA/Home

D20a. Why did you attend ANC? (Tick all)

- a. Baby's health b. Mother's health c. Education d. Screening e. Medications
f. Advice on gestation g. Helped in prior pregnancy h. Other: _____

D21b. Why didn't you attend ANC? (if applicable)

- a. Late recognition b. Unwanted pregnancy c. Domestic issues d. No benefit
e. Stigma f. Culture g. Other: _____

D22a. What are the factors promoting ANC attendance?

- a. Nearby facility b. Available staff c. Friendly staff d. NHIS e. Transport
f. Drug availability g. Partner support h. Autonomy i. Past experience j. Media k. Other:

D22b. What are the barriers to ANC?

- a. Distance b. Transport c. Staff attitude d. Shortage of drugs e. No partner support
f. Cost g. Cultural/religious beliefs h. No NHIS i. Other: _____

D23. What is the Transport cost to ANC?

a. No cost b. <GH¢20 c. GH¢20–40 d. GH¢40–60 e. GH¢60–80 f. ≥GH¢80

D24. What is the waiting time at ANC?

a. 0–15 mins b. 16–30 c. 31–45 d. 46–60 e. >60

D24 (repeat). Were you attended immediately?

a. Yes b. No

D25. What is the ANC service cost?

a. No cost b. <GH¢20 c. GH¢20–40 d. ≥GH¢40

D26. Do you listen to radio?

a. Yes b. No

D27. If yes, how many times per week? _____

D28. Do you watch TV?

a. Yes b. No

D29. If yes, how many times per week?

_____ D30. Can number of pregnancies
affect ANC use?

a. Yes b. No

Section D: Knowledge of ANC and SD Services

Subsection D1: ANC Knowledge

D31. What are the Services received at ANC? (Tick all):

a. Urine test b. Blood test c. Scan d. Palpation e. SP (malaria prophylaxis)

f. Nutrition counselling g. Birth preparedness h. Other: _____

D32. How many ANC visits are required? _____

D33. What are some benefits of ANC? (Tick all):

a. Health for mother b. Health for baby c. Education on pregnancy

d. Warning signs e. Breastfeeding counselling f. Other: _____

D34. What are some pregnancy danger signs? (Tick all):

a. Anaemia b. High BP c. Bleeding d. Headache e. Vomiting f. Abdominal pain g.

Other: _____

Section E: Satisfaction with ANC Services

D35. How satisfied are you with the ANC services provided at Kade Government Hospital?

a. Very satisfied b. Satisfied c. Neutral d. Dissatisfied e. Very

dissatisfied D36. Do you feel that healthcare providers at Kade Government Hospital give adequate information about early booking?

a. Strongly agree b. Agree c. Neutral d. Disagree e. Strongly disagree