UNIVERSITY FOR DEVELOPMENT STUDIES

FACTORS INFLUENCING FIRST TRIMESTER ANTENATAL CARE REGISTRATION AMONG PREGNANT WOMEN IN THE WEST GONJA DISTRICT IN THE NORTHERN REGION OF GHANA

A THESIS SUBMITTED TO THE DEPARTMENT OF COMMUNITY HEALTH, SCHOOL OF ALLIED HEALTH SCIENCES, UNIVERSITY FOR DEVELOPMENT STUDIES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE IN COMMUNITY HEALTH AND DEVELOPMENT

BY

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Declaration

I declare that this thesis was solely conducted and compiled by me and under the supervision of Dr. Adadow Yidana of the Department of Community Health, School of Allied Health Sciences, University for Development Studies, Tamale. I further declare that this is the first time I have produced and presented this thesis and that all secondary material used in this work have been duly acknowledged by way of reference and no part of it has ever been presented elsewhere for any purpose.

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Abstract

Over the years policy makers in the health sector have worked towards improving maternal and child health services. The World Health Organisation (WHO) recommends that pregnant women start receiving antenatal care preferably in the first trimester and to have at least four visits before delivery. The Ghana Health Service has adopted and implemented these and many other recommendations but there have been challenges in achieving universal coverage of first trimester registration especially in the West Gonja District. This thesis was conducted in the West Gonja District in the Northern Region of Ghana between January and June 2015. The study used a cross sectional design to determine factors that influence the timing of antenatal care registration among pregnant women in the West Gonja District. The study used cross-sectional method to recruit a total of 231 pregnant women from four study sites in the four sub-districts in the district. Participants were recruited by systematic and convenience sampling methods and 231 structured questionnaires administered to them. Data collected was analysed using the Microsoft Statistical Package for Social Sciences (SPSS) version 21. Cross-tabulation analysis was performed to determine if there was association between ANC booking time and the other variables. Significant findings were associated with maternal age, mode of pregnancy recognition, number of pregnancies, number of children, attitude of health professionals among others. The total number of pregnant women who registered for ANC within the first trimester was one hundred and twelve, accounting for 49.1% of all respondents. Younger women, women with fewer children than 2 and women with co-existing medical conditions were found to be more likely to register for ANC earlier. Moreover, the attitude of health professionals and the availability of a combination of different cadres namely nurses, midwives and medical doctors were also found to be significantly associated with the timing of ANC booking. Based on the findings the Ghana Health Service needs to have a mix of health professionals at hospitals and health centres and as well train them to improve upon their attitude towards clients.

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Finally, I thank my brother Mr. Osman A. Awini and his wife Sakina Awini, Miss Celestine Baku-Amenyo, Madam Salamatu Azure and all other friends and colleagues for the moral support they offered me throughout the entire course.

List of abbreviations

AIDS	Acquired immunodeficiency Syndrome
ANC	Antenatal care
CHO-midwives	Community health officer midwives
CHPS	Community Based Health Planning and Services
GHS	Ghana Health Service
GSS	Ghana Statistical Service
HIPC	Highly Indebted Poor Countries
HIV	Human immune-deficiency virus
ICPD	International Conference on Population and Development
IPTp	Intermittent preventive treatment for malaria during pregnancy
L I	Legislative Instrument
MOH	Ministry of Health
NHIS	National Health Insurance Scheme
PMTCT	prevention of mother to child transmission of HIV
PNDC L	Provisional National Defense Council
SPSS	Statistical package for Social Sciences
STIs	Sexually transmitted infections
TT	Tetanus toxoid
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organisation
WIFA	Women in fertile age

Dedication

This thesis is dedicated to my mother, Mrs Tampuri Awini and my family.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Antenatal care (ANC) is a major component of maternal and child health. It contributes significantly to improving maternal health outcomes among mothers (Ghana Statistical Service, 2007). ANC also contributes to attainment of goal five of the eight millennium development goals (MDGs) that were adopted by the United Nations in 2000 (United Nations, 2003). Specifically ANC coverage serves as an indicator for assessing the proportion of pregnant women who received antenatal care from skilled health personnel at least once and at least four times during pregnancy aiming to achieve the global target of 100% coverage by 2015 as set by the International Conference on Population and Development (ICPD+5) (WHO, 2013).

In 1999, the World Health Organisation (WHO) in conjunction with the United Nations Population Fund (UNFPA), the United Nations Children's Fund (UNICEF) and the World Bank in a joint statement called on countries to "ensure that all women and newborns have skilled care during pregnancy, childbirth and the immediate postnatal period" (WHO et al., 2004, p.1).

Antenatal care (ANC) for pregnant women has an inherent opportunity for health professionals to provide essential services that can improve the health of both the woman and the unborn baby. In Lincetto et al., (n.d.), WHO recommends at least four focused ANC visits during each pregnancy cycle in order for essential interventions to be fully provided. Such essential interventions include identification and management of obstetric complications such as preeclampsia, three (3) scheduled tetanus toxoid (TT) immunisation, five (5) intermittent preventive treatment for malaria during pregnancy (IPTp), and identification and management of

infections including HIV, syphilis and other sexually transmitted infections (STIs). Lincetto, Mothebesoane-Anoh, Gomez, and Munjanja (n.d) further hold the view that ANC is an opportunity to promote the use of skilled attendance at birth and healthy behaviours such as breastfeeding, early postnatal care, and planning for optimal pregnancy spacing.

In 2012, approximately 213 million pregnancies occurred worldwide, of which 190 million (89% of all pregnancies) occurred in the developing world (Sedgh, Singh, and Hussain, 2014). Though WHO recommends a minimum of four antenatal care visits to skilled health personnel for antenatal services, only about half of pregnant women receive the recommended amount of care (UNICEF, 2015). UNICEF (2015) reports that globally, at least one and at least four ANC visits were estimated at 82% and 51% respectively for the 2009-2013 period, and 76% and 45% respectively for Sub-Saharan Africa for the same period.

In Ghana, a number of policies and initiatives have been adopted including the WHO recommendations regarding antenatal care with the aim of improving maternal health outcomes. In 2004, an exemptions policy for delivery fees was introduced to cover all facility costs for intrapartum care in both public and private health facilities which was initially funded from debt relief fund, the Highly Indebted Poor Countries (HIPC) initiative but was later replaced by the national health insurance scheme in 2008 (Witter et al., 2009). The current package covers all antenatal services provided by skilled and accredited health professionals from confirmation of pregnancy through to delivery and the postnatal period. The package also covers the health needs of both baby and the mother during the postnatal period to ensure that any neonatal or maternal health problems are treated promptly.

In 1999, the Ghana Government adopted the Community Based Health Planning and Services (CHPS) initiative modeled by the Navrongo Health Research Centre, Navrongo, as basis for

organizing community based health service operations which became an integral component of the government's national poverty reduction strategy (Santuah, 2013).

In the Upper East Region, the Ghana Health Service piloted a new approach to addressing maternal mortality by training and posting Community health officer midwives (CHO-midwives) to CHPS compounds to offer integrated health services that include maternity care to rural women (Sakeah, 2015). Sakeah (2015) in her study found that nearly 80% of women in CHPS zones in three districts of the Upper East Region were supervised by skilled attendants at birth in the past three years and recommends that the Government of Ghana and GHS take steps to scale up the pilot study to the broader national CHPS programme.

1.2 Problem Statement

In Ghana ANC coverage for 2013 was 90.1%, a reduction from 92.2% in 2012 for at least one visit and 72.6% coverage for at least four visits also a reduction from 76% coverage the previous year (GHS, 2014). ANC coverage has taken a declining trend since 2011 from a peak of 98.2% to the 90.1% as contained in the 2013 annual reproductive and child health report for Ghana.

On regional bases, ANC coverage varies from one region to another. Though the Northern Region always performed above 100% on at least one ANC visit, the region performs poorly on at least four visits, achieving 51.2%, 58.3% and 57.1% for 2011, 2012 and 2013 respectively (GHS, 2014).

In the West Gonja District, total ANC registrants for 2013 were 1,547 accounting for 118% of expected pregnancies. Out of this at least four ANC visits was 55.0% with only 37% first trimester registration (WGDHD, 2014).

The introduction of the National Health Insurance Scheme, the free maternal health services, including deliveries, and the CHPS compound system all aim at improving maternal health significantly. It is expected that the indicators such as proportion of pregnant women attending ANC at least four times before delivery and first trimester registration rates would have improved but this is not the case in the district. Although ANC registration rate is high in the district, first trimester registration rate is very low, averaging 34% for the 2010-2013 period. Similarly, at least four ANC visits averaged 53.5% for the same period (West Gonja District Health Directorate, 2014). With the current trend of time of registrations and average number of ANC visits before delivery, the district is unable to meet some of the targets such as the full range of tetanus doses and the intermittent preventive treatment of malaria schedules. This trend gives cause for concern, hence the study to examine the factors that influence the timing of ANC booking in the district.

1.3 Research Questions

1. Are there any socio-demographic factors that influence the timing of first ANC visit in the West Gonja District?
2. What medico-obstetric factors of pregnant women influence the timing of ANC booking visit?
3. How do health system factors influence the timing of ANC booking visits?

1.4 Research Objectives

1.4.1 Main Objective

To examine factors that influence the timing of antenatal care booking among pregnant women in the West Gonja district.

1.4.2 Specific Objectives

The study seeks to address the following specific objectives;

1. To examine the socio-demographic factors that influence the timing of ANC booking at health facility among pregnant women in the West Gonja District.
2. To investigate the medico-obstetric factors of pregnant women seeking ANC services in the West Gonja district.
3. To determine how health system factors influence the timing of ANC booking in the West Gonja District.

1.5 Relevance of the Study

Antenatal care gives the pregnant woman the opportunity to access professional health care services for her own health and that of the unborn child. ANC visits provide opportune times for both the pregnant woman and the health professional to discuss the pregnancy process and its concomitant effects thereby empowering the prospecting parents the necessary knowledge and skills on parenting. In addition, preexisting health conditions in the pregnant woman such as diabetes mellitus, hypertension, HIV and sickle cell disease that may complicate the pregnancy process can be identified early and managed promptly to prevent any undesirable outcome.

Lincetto et al., (n.d. p. 53) noted that "ANC improves the survival and health of babies directly by reducing stillbirths and neonatal deaths and indirectly by providing an entry point for health contacts with the woman at a key point in the continuum of care".

Moreover, the successful conduct of this study will, among others, be relevant in that the information gathered can be used to improve antenatal care services in the district and beyond. The report can also be used as reference material for future academic work by students and other persons alike and as well partially fulfill the University's requirements for the award of degree in Master of Science in Community Health and Development.

1.6 Scope of the Study

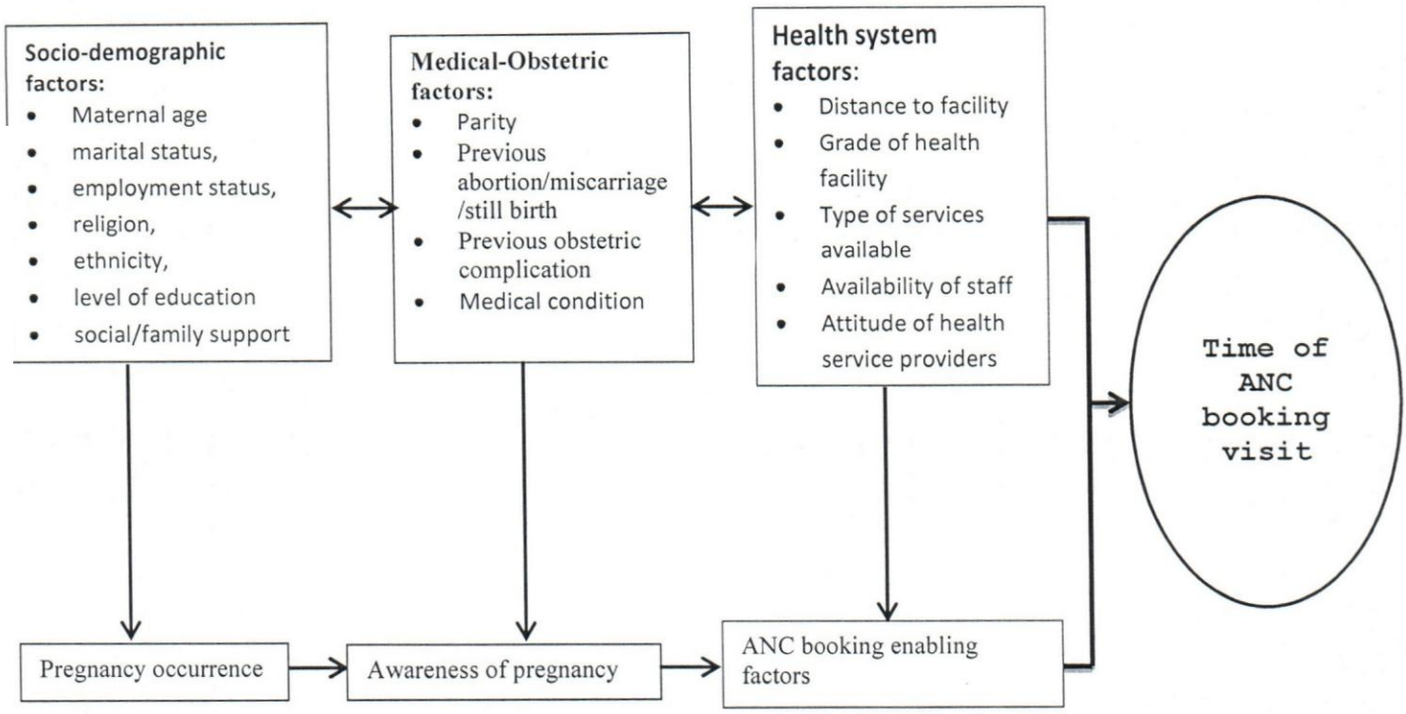
This study focused on collecting and analyzing data from a sample of pregnant women in the West Gonja District. Variables of interest include socio-demographic data of the woman such as age, marital status, employment status, religion, ethnicity, parity and level of education; medico-obstetric factors such as gravity, parity, previous obstetric complications, chronic medical conditions; and health system factors that influence ANC visits.

Method of data collection was by interviews involving eligible pregnant women. Standard self-administered questionnaires were used.

Secondary data sources were mainly from the ANC booklet, medical investigation reports and other credible sources including national and international agency publications such as WHO, UNICEF, the World Bank, UNFPA, Ghana Health Service, as well as published data from credible websites. Efforts were made to use only recent and current data for the research.

1.7 Conceptual Framework

Figure 1.1 Conceptual framework



Source: Author's own construct April 2015

The model depicts the interplay of socio-demographic, medical, obstetric and health system related factors influencing pregnancy and ANC booking time. The direction of influence of the factors of interest is depicted by the direction of the arrows. For instance, health system and socio-demographic factors may directly influence pregnancy and decisions of the woman regarding the pregnancy such as seeking medical care and starting ANC visits. The timing of the first ANC visit is influenced by the health system factors, the pregnancy status and the socio-demographic variables.

1.8 Definition of Terms and Research Variables

Socio-demographic factors: This refers to the social and personal characteristics of the pregnant woman such as age, religion, ethnicity, occupation, marital status, and level of education.

Medical and Obstetric Factors: Refers to factors associated with pregnancy namely number of times a woman has been pregnant (gravidity), the number of times a woman has given birth (parity), whether a woman has ever attended ANC previously, whether woman ever had previous abortion, miscarriage or still birth, whether a woman had any complications of pregnancy previously, any medical condition present, diagnosis of current pregnancy.

Health system factors: Refers to the characteristics of the available health system to the woman and the community including availability of ANC services, distance to facility from residence, grade of health facility, type of services available, availability of staff, attitude of health service providers.

Antenatal care: This is the health care service provided to pregnant women specifically relating to their health as a result of pregnancy status or the unborn child during the pregnancy period.

Focused antenatal care: The individual centered health care provided to pregnant women at health facilities during pregnancy aimed at identifying preexisting health conditions, early detection of complications arising during pregnancy, giving health promotion and disease prevention and helping pregnant women to prepare for childbirth and any complications that may occur.

ANC booking: This refers to the first visit by a pregnant woman to a health facility to seek antenatal care.

1.9 Structure of this Thesis

This thesis is organized into 6 main chapters. Chapter one comprises the background of this study, problem statement, research questions and objective, scope of research and conceptual framework. Chapter two contains review of the relevant literature presented in themes as according to the objectives of this study. Chapter three describes methods employed in the conduct of this study while chapter four and five present results and discussions of the study respectively. Chapter six provides conclusions and recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Childbirth is a natural process that many women experience a number of times in their life. Becoming a mother begins with the desire to become pregnant and being able to go through the pregnancy process successfully. Pregnancy, though not an ill health in itself, may come with its accompanying challenges including negative health, economic, social, and psychological outcomes for women and children (Sedgh et al., 2014).

Globally, close to three hundred thousand maternal deaths occurred in 2013 with about 99% of the deaths occurring in Sub-Saharan Africa and each year more than fifty million women suffer from a serious pregnancy-related illness or disability (WHO, 2013; MacDonald and Starrs, 2002). This has over the decades prompted health authorities and other agencies concerned about safe motherhood to formulate and implement policies and programmes that aim to minimize the undesirable outcomes that are associated with pregnancy and childbearing process.

ANC is an avenue for pregnant women especially the inexperienced ones to acquire knowledge and skill on how to take care of themselves during pregnancy and their babies after delivery. There are many other interventions that are provided for the pregnant women to protect them from certain ailments such as malaria and tetanus infections. It is observed generally that though majority of pregnant women attend ANC at least once before delivery, many start late in the course of the pregnancy. Over the years, ANC package has seen several improvements aimed at

improving pregnancy outcomes. The goal of the ANC package is to prepare for birth and parenthood as well as prevent, detect, alleviate, or manage the three types of health problems during pregnancy that affect mothers and babies, namely complications of pregnancy itself, pre-existing conditions that worsen during pregnancy and effects of unhealthy lifestyles (Lincetto et al., n.d). ANC therefore is one avenue that offers mothers and parents the opportunity to learn how to go through pregnancy safely and have a healthy baby.

Villar (2002) in the WHO antenatal care randomized trial manual for the implementation of the new ANC model recommends that the first ANC visit should occur in the first trimester, preferably before week 12 of pregnancy.

In Onoh et al. (2012), the mean gestational age at booking is within the first trimester (13 weeks) and this affords lots of benefits to the pregnant woman including screening for chromosomal and other fetal abnormalities with maternal serum alpha fetoproteins (MSAFP), β-human chorionic gonadotrophin (βhCG), urinary estriol (uE3), inhibin A, pregnancy associated plasma protein A (PAPP-A), and chorionic villous sampling in most developed countries. Other benefits include selection for surgical procedures like cervical cerclage, advice, administration, and counseling on prophylactic drugs and adequate diet.

Some excerpts of the basic components of the new WHO antenatal care model is shown below.

Table 2.1The basic components of the new WHO antenatal care model

General information for the first visit

Idealy, the first visit should occur in the first trimester, around, or preferably before, week 12 of pregnancy. However regardless of the gestational age at first enrolment, all pregnant women coming to the clinic for ANC will be enrolled and examined according to the norms for the first and subsequent visits. .... here the emphasis is on determining patients' medical and obstetric history with a view to collecting evidence of the woman's eligibility to follow the basic component of the new WHO model. On average, approximately 75% of women are expected to follow the basic component. At this visit, while the case history conforms to, and even exceeds, traditional standards, the elements of the physical and biochemical examinations are fewer and less resource demanding than those commonly recommended in standard programmes.

Certain factors, such as a strenuous workload, can identify women who may be at risk for pregnancy complications. Work that is physically hard, requires lengthy standing positions, or entails exposure to teratogenic agents (heavy metals, toxic chemicals, ionizing radiation) could adversely affect maternal and neonatal outcomes. Women should be advised about these concerns and provided with the required documentation to reduce work if their jobs entail any of these elements. Other problems that need to be identified and for which support should be provided include: poverty, young age of mother, women suffering domestic or gender-based violence, and women living alone.

...

Routine iron supplementation should be given to all women. Therefore, haemoglobin should be determined only at 32 weeks (the third visit) unless there are signs of severe anaemia: pale complexion, fingernails, conjunctiva, oral mucosa, tip of tongue, and shortness of breath.

Individual interaction between the patient and health care providers is an essential element of the new ANC model. As the basic component of the new WHO model includes only four visits, sufficient time must be made during each visit for discussion of the pregnancy and related issues with the patient. Instructions should include general information about pregnancy and delivery as well as any specific answers to the patient's questions. Information conveyed in these visits should focus on signs of pregnancy-related emergencies and how to deal with them, i.e. if the patient is experiencing vaginal bleeding, who she should call and where she should go for assistance. ...

Source: Excerpts from the WHO Antenatal Care Randomised Trial: Manual for the Implementation of the New Model. Page 12

The following interventions are to be implemented in the first visit as recommended in the new WHO antenatal care model:

- Iron and folate supplements to all women: one table of 60-mg elemental iron and 250 micrograms folate one-two time per day. If Hb<70g/l: double the dose.
- If rapid test for syphilis is positive: treat,
- Tetanus toxoid: first injection.
- In malaria endemic areas: sulfadoxine/pyrimethamine, three tablets once in second trimester and repeat in third trimester.
- Refer high-risk cases, according to diagnosis(es) made.

2.2 Antenatal care in Ghana

Ghana has implemented various forms of maternal and child health policies over the years. In 1969, the Ghana National Population policy was adopted but was reviewed in 1994 so as to incorporate new and emerging health issues such as HIV/AID (Ghana National Population Council, 1994). In addition, Ghana has been a member of the United Nations and some of its affiliates such as the World Health Organisation, the International Conference on Population and Development (ICPD), among others.

The Ghana Health Service has adopted the focused antenatal care system as recommended by the WHO. Some other policy initiatives have also been adopted and are being implemented such as the free maternal health care, the national health insurance scheme (NHIS) and the CHPS compound initiative. The CHPS system in particular aims at improving equity in access to basic health services and efficiency and responsiveness to client needs (GHS, 2005), while the NHIS and the free maternal health care policy aim at minimizing the cost of accessing health care especially for the vulnerable population.

Antenatal care coverage is one of the indicators of the millennium development goals. Though ANC coverage has been high over the years in Ghana at above 90%, first trimester registration

has only increased slightly from 38.4% in 2009 to 45.1% in 2013 (GHS, 2014). Though this trend is positive, the rate of increase is low at 1.3% per annum for the period. Between 2009 and 2013, adolescent ANC registrants ranged from 12.4% in 2009 through 13.3% in 2011to 12.3% in 2013. The proportion of women aged 35 years and above of registered pregnancies increased slightly from 12.2% in 2012 to 12.3% in 2013.

In 2007, the government of Ghana launched the Reproductive Health Strategic Plan with a goal of improving the health and quality of life of persons of reproductive age and newborn children by providing high quality reproductive health services. Among the six strategic objectives outlined in this plan include reduction of maternal morbidity and mortality, enhance and promote reproductive health, increase contraceptive prevalence through promotion of access to and quality of family planning services and develop and implement cross-cutting measures to ensure access and quality of reproductive health services in the country (GSS, 2007).

The national reproductive health policy recommends a minimum of four ANC visits per client but the expansion of services to include intermittent preventive therapy of malaria in pregnancy, (IPT), prevention of mother to child transmission (PMTCT) of HIV/AIDS among others require a lot more visits in order to complete these scheduled interventions. This also requires that pregnant women register for ANC as early as possible, preferably in the first trimester.

2.3 Antenatal care in the West Gonja District

The West Gonja District has only one district hospital that serves as the only referral centre for all other health facilities in the district and some other facilities in other adjourning districts. The hospital provides basic and comprehensive obstetric services such as cesarean operations, blood

transfusions, ultrasound imaging and some basic medical laboratory services. The hospital also runs an ANC clinic for pregnant women within its catchment area and as well handles referral cases from other facilities.

There are four health centres in the district that also provide ANC services. There is at least one midwife in each of these health centres with other clinical and non-clinical staff. Health clinics in the district are three but none of them provide any ANC services. There are eight Functional CHPS compounds which provide ANC services to pregnant women.

Since 2010, the district has always over achieved its ANC target coverage. In 2010, the ANC coverage was 136%, 138% in 2011, 131% in 2012 and 118% in 2013 (West Gonja District Health Directorate, 2014). The over performance could be due to the use of 3% for the projection of the expected pregnancies for the country resulting in a lower target leading to over 100% coverage for most of the health indicators (GHS, 2014).

On the other hand, first trimester pregnancy registration has remained low in the district between the 2010-2013year period, ranging from 31.6% in 2010, 29.8% in 2011, 37.7% in 2012 to 37.0% in 2013 (West Gonja District Health Directorate, 2014).

2.4 Socio-demographic factors and timing of ANC booking Visit

This study sought to find and describe any relationship that may exist between ANC booking time and social and demographic factors of pregnant women such as maternal age at current pregnancy, marital status, religion, level of education, occupational status among others.

Belayneh et al. (2014) as well as Tekelab and Berhanu (2014) found that the mean age of the participants was 24.9±4.1 years and 28.3±5.5 years respectively in their studies. Lamina (2004) found teenage respondents constituted 5.7% while majorities (67.9%) were within 25 and 34 years. In their study, Kisuule et al. (2013) found the mean age of the respondents to be 25.2 years with a standard deviation of 5.2 years, corroborating the findings of Belayneh et al. (2014).

In their study 'Proximate predictors of early antenatal registration among Nigerian pregnant women', Oladokun et al. (2010), established that 21.4%, 17.8%, 19.8% and 15.0% of respondents who were aged less than 25 years or in the 25-29, 30-34 and 35+ year brackets respectively registered for ANC services in the first trimester. It was also observed that majority of the respondents registered in the second trimester accounting for 62.5%, 65.3%, 63.7% and 64.7% for the same age groups respectively. But these findings were statistically insignificant with a p-value of 0.846. Contrary to the findings of Oladokun et al., (2010), Dixon et al. (2014) in their study 'Changing Trends in Pregnancy Registration for New Zealand Women' found higher levels of first trimester ANC registrations among pregnant women. It was found that close to seventy per cent, twenty per cent and ten per cent of pregnant women registered in the first, second and third trimesters respectively in the New Zealand study.

According to Gudayu et al. (2014) in their study conducted in Gondar Town, Ethiopia, between April and June 2012, 94% of their study participants were married while 3.7% were single. This was similar to the finding of Onyeonoro et al. (2014) in their study in Karachi, Pakistan, that 95% of respondents were married. In Gross et al. (2012), married pregnant women constituted 88% and single pregnant women accounted for 12% in their study conducted in south-eastern Tanzania. Ebeigbe et al. (2010) in their study in the Niger Delta, Nigeria also found that 95.2% and 4.6% of the study participants were married and single respectively. On the other hand, all

these findings were completely different from that of Jimoh (2003.) who found that only 19% of the respondents were married while 80% of them were either single or divorced. Jimoh (2003, p.52) argues that the traditional custom surrounding marriage amongst some ethnic groups "makes it imperative for the prospective husband to pay a huge sum of money for dowry and other sundry expenses associated with the marriage ceremony". As a result "most men shy away from the marriage institution or at best have live-in-lovers".

On religious affiliations, Belayneh et al. (2014) observed that 86.7% and 13.3% were Christians and Muslim respectively. In their study, Koye et al. (2013) identified 76.7% and 14.8% as Christians and Muslims respectively. This was a study conducted in the Debre Berhan Health Institutions in Central Ethiopia on prevalence and determinants of early antenatal care visit among pregnant women attending antenatal care. Onoh et al. (2012) observed that Christians were the dominant religion with Roman Catholic being the most common denomination of the respondents. They also found that late antenatal booking was common among Christians with percentages of 80.5% for Roman Catholic, 84.6% for Pentecostal, and 90.2% for the Protestants while Muslims had the highest percentage (50%) of early antenatal booking in their study.

Oladokun et al. (2010) found a significant association between women's education and early ANC booking with p-value of 0.027. They found that 12.5%, 13.9% and 17.1% who had primary, secondary and tertiary education respectively registered for ANC in their first trimester of pregnancy. They opined that educated women are more likely to be able to recognize the benefits of ANC and are also more likely to be empowered to make a decision to register for ANC. However, majority of participants registered in the second trimester. In Kisuule et al. (2013), 1.8%, 35.2%, 55.2% and 8.0% of pregnant women who had no education, primary, secondary and tertiary education respectively were found to have registered late for ANC. These

were findings of their study on Timing and reasons for coming late for the first antenatal care visit by pregnant women at Mulago hospital in Kampala, Uganda. Sohag, Memon, Bhatti and Abdul Azeem (2013) found that women with high level of education represented 32% of the total sample. In Onoh et al. (2012) 43.0% of the respondents had secondary education while 47.1% had tertiary education. They also found that between respondents with no formal education and those with primary education, more of the respondents with primary education booked early (0.0% versus 24.1%) respectively. Similarly, Koye et al. (2013) observed that in central Ethiopia, women with Primary school education constituted 22.4%, secondary school education 39.5% and above secondary school was 18.1%.

It is also possible that source and availability of support systems for women can influence ANC seeking behaviour of pregnant women. For instance, Oppong (2008) found in his study conducted in the Bosomtwe District of the Ashanti Region of Ghana that husbands (80%) were the major providers of funds for pregnant women to attend ANC while parents accounted for 8%. It was also observed that 12% of funds for ANC came from respondents themselves.

2.5 Medico-obstetric factors and timing of ANC booking visit

In many instances, women present at health facilities to report of ill health which turns out to be that they are pregnant. Pregnancy usually comes with a lot of discomfort to many women which they may initially misconceive to be ill health. In a study conducted in six West African countries, a third of all pregnant women experienced illness during pregnancy, of whom three percent required hospitalisation (De Bernis et al. as cited in Lincetto et al. n.d., p. 102).

Between a third and a half of maternal deaths are due to causes such as hypertension (pre-eclampsia and eclampsia) and antepartum haemorrhage, which are directly related to inadequate care during pregnancy (Lincetto et al. n.d.). There are many other chronic medical conditions that may be present in women but not recognized prior to the occurrence of pregnancy. Such conditions may include hypertension, diabetes mellitus, epilepsy and sickle cell disease (MacDonald and Starrs, 2002; Ghana Ministry of Health, 2011). Some acute conditions such as typhoid fever, malaria, urinary tract infections among others may also occur prior to or in the course of pregnancy which may have dire consequences on the health of the woman and the unborn baby and prompting the need for early booking for diagnosis and treatment (WHO and UNICEF, 2003).

Previous obstetric histories of women also are of great importance to evaluate in pregnant women in order to ensure safe passage through pregnancy. Previous history of abortions, still births, number of deliveries as well as places of previous deliveries are all vital to the safety of current pregnancies.

According to Oladokun et al. (2010), 20% of the pregnant women who participated in their study had pre-existing hypertension but it was found to be statistically insignificant with a P-value of 0.613. Other pre-existing medical condition found in pregnant women was HIV which accounted for 13.2% of first trimester registrants, 57.9% for second trimester and 28.9% of third trimester registrants. Onoh, et al. (2012), also found that among sick pregnant women who registered for ANC, 52.2% of them did so early which was highly statistically significant with a p-value of 0.001. In a meta-analysis to identify predictors for late initiation of antenatal care within an ethnically diverse cohort in East London, Cresswell et al. (2013) found 62.5% registered within 12 weeks of gestation, 25.4% within 13 to 19 weeks and 12.1% after 20 weeks gestation.

The number of children women have delivered previously may also be associated with the timing of subsequent ANC booking. In 2012, Koye et al. found that among pregnant women who registered early for ANC, 37.6% of them were nulliparous women while 62.4% were para one and above. Belayneh et al. (2014) found that 47.3% of respondents with previous ANC experience booked within 12 weeks of pregnancy. In Oladokun et al. (2010), 22.1%, 17.0% and 15.1% of pregnant women with none or one child, two, and three plus respectively started ANC in their first trimesters of pregnancy. In this same study, it was noted that the rate of registration in the second trimester for the categories of parity stated were similar, ranging between 63.8 and 64.9%.

For previous obstetric problems such as abortions and still births, Oladokun et al. (2010), found that 18.9%, 62.9% and 18.2% of women with such experience registered in the first, second and third trimesters respectively. Tekelab and Berhanu (2014) found a lower rate of 8.9% of women with history of previous abortion registering early compared to the findings of Oladokun et al.

2.6 Health system related factors and ANC booking Visit

In the current situation, antenatal care is being provided at health facility levels. The facilities vary in grades and the type of services they can provide, ranging from community level (CHPS), through sub-district (health centre) to district level (hospital) (GHS, 2005). In this regard, the Ghana Health Service is expanding health care services to the community levels through the community based health planning and services initiative to ensure improved equity in access to basic health services and efficiency and responsiveness to client needs among others. Hence with the provision of maternal and child health services including antenatal care at the CHPS

compound with midwives, it is expected that ANC coverage will improve including booking time.

There are some benefits associated with early ANC booking. In their study, Onoh et al. (2012) reported that 92.4% of their respondents perceived that there were benefits associated with early antenatal booking and therefore supported early antenatal booking. The benefits perceived by the respondents were early detection of problem in pregnancy (56.4%), early prevention and treatment of diseases (24.7%) and adherence to doctors' advice (7.6%).

In Ghana, there is no much published literature regarding booking for antenatal care within the first trimester by pregnant women. Olayinka et al. (2012) in their study on factors influencing utilization of antenatal care services among pregnant women in Ife central Lga, Osun State in Nigeria found that 94.1% of the respondents identified affordability of antenatal services, 92.2% identified schedule of ANC, 90.2% saw lack of knowledge about the existing services in ANC and 88.2% saw husband's acceptance of the services rendered as the major factors influencing the utilization of maternal health care services. These factors were the major reasons that influenced some pregnant women to book for ANC within the first trimester. Onoh, et al. (2012), corroborate these findings in their work when they found that initiation of antenatal care in index pregnancy was significantly determined by illness in index pregnancy, personal wish, and financial constraints. Illness in index pregnancy as determinants significantly contributed to early booking (52.2%).

Opong (2008) in his study to determine factors influencing the utilization of antenatal care services in the Bosomtwe District of the Ashanti Region of Ghana observed that the mean time taken to reach health facility was 30 minutes. It was also found that 29.0% of respondents took between 10 and 20 minutes to reach a health facility and that 36% of them spent between 1 hour

and 4 hours or more to get to a health facility. Opong was therefore of the view that proximity of ANC centers could influence ANC attendance, for instance far distance and long hours of travel to ANC centers may discourage utilization of ANC services.

In Tekelab et al. (2014) in their study in Kembata Tembaro Zone, Southern Ethiopia, established that distance from home to health institution was not seen as a statistically significant factor for late initiation of ANC. This was in contrast to findings in a study done in Kenya and Ethiopia (Bahilu et al., 2009, Magadi et al., 2000). This could be due to sampled women being taken from those accessible to health centers and health posts (Tekelab et al., 2014).

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the methodological approaches used to collect, analyse and present the data for this study. The description as pertains to an area is presented in its respective subsections below.

3.1 Background Information on the Study Area

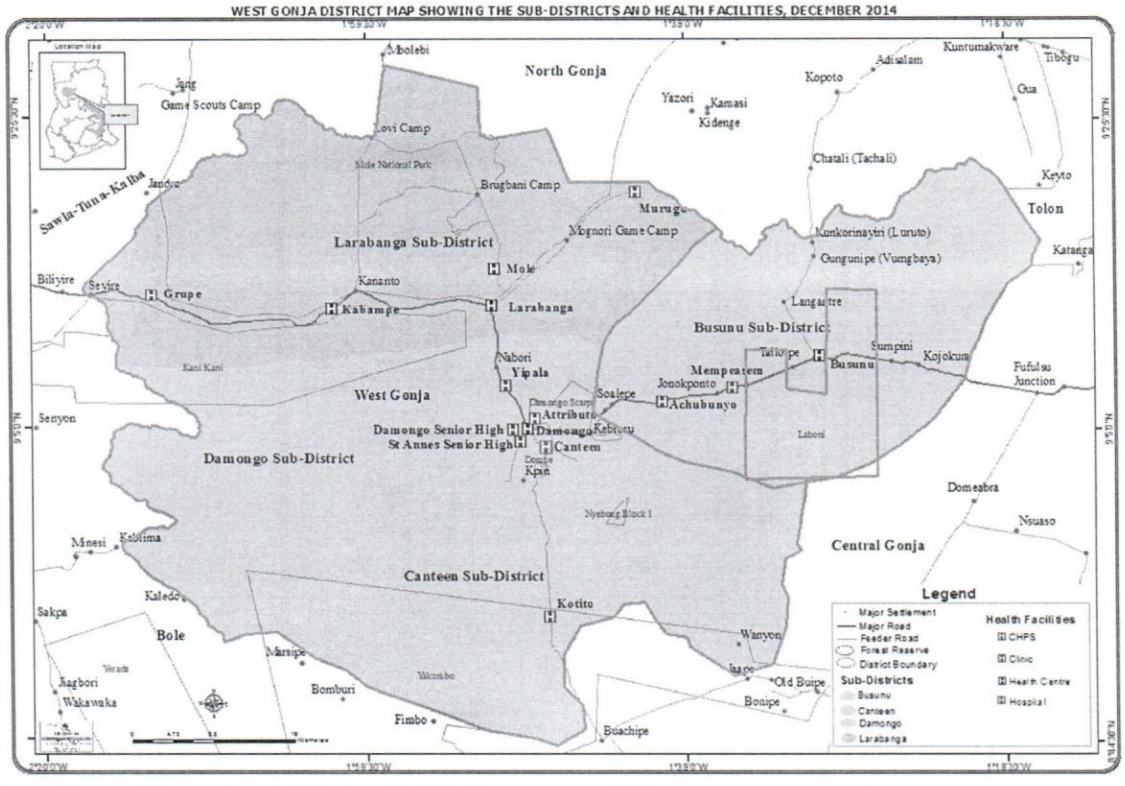
The West Gonja District is one of the 26 districts in the northern region of Ghana, with the district capital as Damongo. The district was first established on the 23rd day of December 1988 by PNDC Law 207 with Damongo as the capital town (West Gonja District Assembly, 2013). With the creation of the North Gonja District in 2012, a new Legislative Instrument (L.I.) 2065 of 2012 was passed which created the present West Gonja District Assembly (North Gonja District Assembly, 2013).

The district is bordered to the north by North Gonja district, to the East by Tolon district, to the south by the Central Gonja district and to the west by Bole and Sawla-Tuna-Kalba districts. The district stretches over a total land area of approximately 10,000 square kilo meters. About a quarter of the land area is occupied by the Mole National Park with only few communities and camps. The district is mostly rural with less than half of the inhabitants living in urban centres.

By the 2010 population and housing census, the projected 2014 West Gonja district population is 46,169 and this is sparsely distributed in 103 communities. The estimated population of Women

in fertile age group (WIFA) is 11,081 (24% of the total district population) (West Gonja District Health Directorate, 2014).

Figure 3.1 Map of West Gonja District



Source: West Gonja District Health Directorate, 2014

3.1.2 District Health System

The district health administration has divided the district into four (4) sub-districts, namely, Damongo, Canteen, Busunu and Mole. There are fifteen (15) health facilities in the district comprising one (1) district hospital, six (6) health centres and clinics and eight (8) CHPS compounds (West Gonja District Health Directorate, 2015). The CHPS compounds operate at the community level and provide mainly basic health services such as immunization of children,

ANC services and treatment of minor ailments and injuries. The health centres provide these basic services including laboratory services. The main staff at the CHPS zones are midwives and nurses while physician assistants are at the health centre levels. Medical officers are found only at the hospital level. At the hospital, services available for pregnant women include laboratory, ultrasound scanning, blood transfusion, cesarean operations and ambulance services among others. The higher referral centre to the West Gonja Hospital is the Tamale Teaching Hospital.

3.2 Study Design

The study design is a descriptive cross-sectional research method. A cross-sectional design examines the relationship between health related states and other variables of interest as they exist in a defined population at a single point in time or a short period of time (Public Health Action Support Team, 2011). In other words it involves the collection of data at a specific point in time and can involve what the situation is now or retrospective or prospective information about a phenomenon (Ross, 2005). This design was chosen because of its advantage of collecting data from a defined population over a short period of time as espoused above.

3.3 Study population

About 1,900 women in the West Gonja District form the study population for the study. This is 4% of the 2013 projected total population of the district as recommended by GHS. In 2014, the Ghana Health Service reviewed the formula for estimating the expected pregnancies by raising the percentage to 4% instead of 3%. This was a consensus reached at a Senior Managers meeting held at Miklin Hotel, Accra on 3rd and 4th of April, 2014. This was to prevent the low targets set by districts that usually led to achievements of targets exceeding 100%.

3.4.1 Sample Size determination and Characteristics

The sample size for the study was 231 determined as follows using data from the West Gonja District Health Directorate 2013 annual report.

The total number of ANC registrants for 2013 was 1,547 giving a prevalence of 81.42% of pregnancies in the district.

The variables of this study are mainly categorical in nature and therefore the appropriate sample size is determined largely by the following factors (Faris, 2011).

(i) The estimated prevalence (proportion) of the variable of interest (pregnancies)

(ii) The desired level of confidence (95% as used in social sciences research), and

(iii) The acceptable margin of error (5% chosen)

The formula used is:

$$n = \frac{t^2 \times p(1-p)}{m^2}$$

Description:

n = required sample size

t = reliability coefficient at confidence level of 95% (1.96)

p = estimated prevalence of pregnancies for 2014 (81%)

m = margin of error at 5% (standard value of 0.05)

Based on the formula above the sample size was 236.

However, 5% of the target population (1,900) is 95. Since this value was greater than 5% of the target population (*N*), that is $n > N \times 0.05$ as described in Faris (2011), Cochran's correction formula below was used to determine the final sample size.

Cochran's correction formula:

$$n_1 = \frac{n_0}{\left(1 + (n_0 / population)\right)}$$

Where:
n_0 = sample size (236)
n_1 = final sample size
Population = N (1900)

Hence, the sample size is 210. To adjust for rejected or unreturned questionnaires, 10% of this sample size was added to bring the final sample size to 231.

3.4.2 Sampling Technique

Sample units were obtained by the convenience method which was seen to be the acceptable method through a pilot study. Sampling by convenience is the terminology used to describe a sample in which elements have been selected from the target population on the basis of their accessibility or convenience to the researcher (Ross, 2005).

Ross (2005) explains that the main assumption associated with convenience sampling is that the members of the target population are homogeneous which means that there would be no difference in the research results obtained from a random sample, a nearby sample, a co-operative sample, or a sample gathered in some inaccessible part of the population. This is the assumption adopted with the use of this method.

By this method, pregnant women who reported at the health facilities stated above were invited for interview by the data collector at their own convenience. However, women who could read and write were given the questionnaires to answer by themselves with guidance from the data collector.

To minimize the possibility of bias in sampling by the convenience method, a quota sampling method was used in addition to distribute the samples across the district by estimating proportions of samples to recruit from each of the four study sites as described below.

Four study sites were used for the data collection. These sites were the West Gonja Hospital, the Damongo Health Centre, the Busunu Health Centre and Larabanga Health Centre. These are the main health facilities of their respective sub-districts. Each of these sub-districts was allocated a quota of the sample size based on the proportion of the number of pregnancies registered in that sub-district using the 2013 antenatal care coverage for the district. Based on this the 231 final study sample size was distributed as follows:

The West Gonja District's total ANC registrants for 2013 was 1547 as shown in the total for column 2 in the table below.

The quota (Q) of the total registrants for each study site was then determined using the formula $Q=(231/1547)R= 0.149R$, where R is the subtotal for the study sites. This is the proportion of the total study sample to the total registrants multiplied by the sub-total for each study site.

Hence taking R_1 and Q_1 to represent the registrants and quota respectively for the canteen sub-district,

$Q_1=0.149 \times R_1=0.149 \times 0.706=106$

This procedure is followed through to obtain the rest of the quotas of sample for each study site. The results are presented in the table below.

Table 3.1 Distribution of samples

Sub-district (health facility/study site)	2013 ANC registrants (R)	Quota size (Q)
Canteen (West Gonja Hospital)	706	106
Damongo (Damongo Health Centre)	266	40
Busunu (Busunu Health Centre)	358	53
Laribanga (Laribanga Health Centre)	217	32
Total	**1547**	**231**

Source: field survey, 2015

3.4.3 Inclusion criteria

i. Only pregnant women who had started antenatal care were included in the study.

ii. Only women whose gestational age had been determined either by last menstrual period or by ultrasound dating was included.

3.4.4 Exclusion Criteria

i. Pregnant women who had not yet registered at any health facility for antenatal care was excluded from the study.

ii. Pregnant women who registered outside the West Gonja District for antenatal care was excluded.

iii. Pregnant women whose gestational age was not established either by last menstrual period or by ultrasound scan was excluded.

3.5 Data Collection Instruments

The method for data collection for the study was mainly by use of a structured questionnaire. However other methods such as record review was also used to collect secondary data such as gestational age from ultrasound scan reports.

The instrument for data collection was a structured questionnaire. The Centers for Disease Control and Prevention (CDC) (2008) describes a questionnaire as "a set of questions for gathering information from individuals". The questionnaire was structured according to the themes that form the objectives of the study. Each theme had a number of sub-questions with alternative responses. The questions were framed using simple and clear language to enable literate respondents answer with ease. In most cases the respondent was required to tick an alternative response as she may deem appropriate. In a few of the questions respondents were expected to provide their own responses.

Each respondent was expected to respond to all questions on a questionnaire before it could be considered complete and valid for analysis. For the literate women who could understand and answer the questions appropriately, they were issued a set of the questionnaire for self-answering. A brief guidance was given by the data collector. For women who could not read or write, they were interviewed by the data collector and their responses recorded appropriately.

3.6 Quality Control

To ensure that this research work meets the required quality standards, the necessary protocols were observed. A pilot study was conducted in one of the communities in the West Gonja District to ensure that questions on the questionnaire that may be ambiguous were identified and

modified for clarity. The data collected was screened for completeness of responses and incomplete questionnaires were excluded in the analysis. The statistical package for the social sciences (SPSS) version 21 was used to analyse the data and to construct statistical tables and figures. All the questionnaires were coded serially to tally with the numbering of the SPSS data entries to ensure easy referencing. In addition all the alternative responses were coded to allow for easy tallying by the software. After all entries were made into the software, each entry was rechecked and errors identified were corrected.

3.7 Research Ethics

Upon approval of the proposal, an introductory letter was requested for from the Department of Allied Health Sciences of the University. An application was written and attached to the introductory letter and presented to the West Gonja District Health Directorate seeking permission to conduct data collection.

The necessary protocols including appropriate introduction of student and data collector were observed at each of the study sites. Moreover, informed consent was sought from respondents before they were issued questionnaires or interviewed for their responses.

Respondents were made to understand that though their consent was sought they were at liberty to quit as respondents if they so desired.

The questionnaire and introductory letters are attached as appendix I and II respectively.

CHAPTER FOUR

RESULTS

4.0 Introduction

The data collected was entered in the Statistical package for Social Sciences (SPSS) version 21 for analysis. The results are presented in the following tables and figures.

There was 100% questionnaire return rate. However, three of the questionnaires were found to contain incomplete responses and were therefore excluded in the analysis. The total number of questionnaires analysed was 228 instead of the 231. There were 22 questions on each questionnaire with alternative responses from which respondents were expected to choose their answers.

4.1 Socio-demographic Factors

The socio-demographic factors evaluated included the age of the pregnant woman, marital status, religious affiliation, ethnicity, educational background, status of employment and social support. The results are presented in the sub-sections as follows.

Table 4.1 Distribution of respondents by age

Maternal age (years)	Frequency	Percent
15 to 19 years	30	13.2
20 to 24 years	72	31.6
25 to 29 years	44	19.3
30 to 34 years	52	22.8
35+ years	30	13.2
Total	**228**	**100.0**

Source: field survey, 2015

The mean maternal age was 24 years with a standard deviation of ±6 years.

Table 4.2 Cross-tabulation: maternal age and gestational age (trimester) at booking

Maternal age	Gestational age(trimester) at booking			Total
	First trimester	Second trimester	Third trimester	
15 to 19 years	18	10	2	30
20 to 24 years	46	20	6	72
25 to 29 years	16	27	1	44
30 to 34 years	23	26	3	52
35+ years	9	18	3	30
Total	**112**	**101**	**15**	**228**

Source: field survey, 2015

Table 4.3 Chi-Square tests for cross tabulation of maternal age and gestational age at booking

	Value	Degree of freedom	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.220[a]	8	.010
Likelihood Ratio	21.002	8	.007
Linear-by-Linear Association	7.249	1	.007
N of Valid Cases	228		

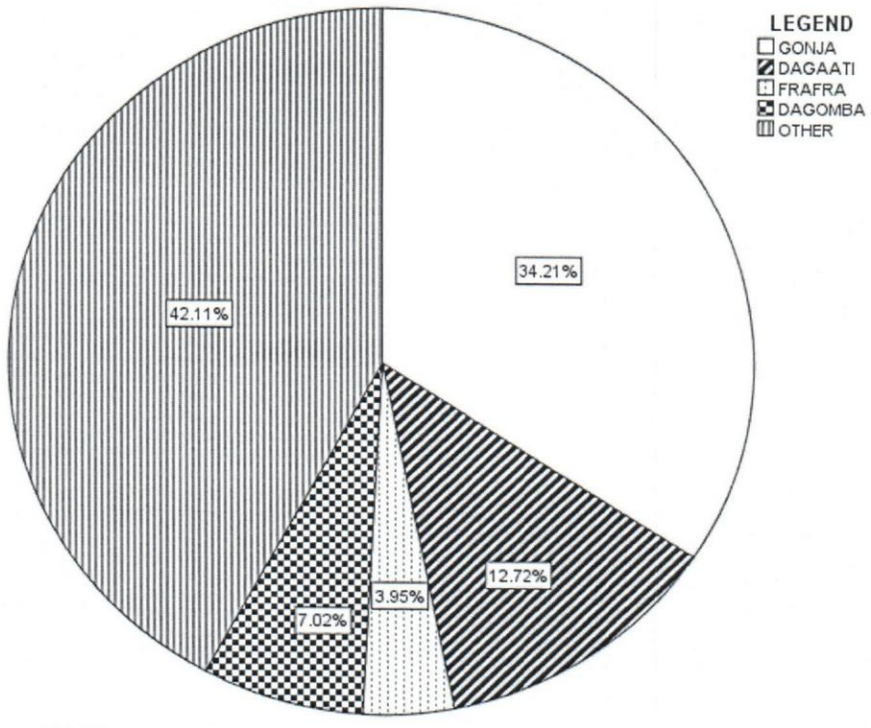
Source: field survey, 2015

For marital status, there were 44 (19.3%) and 184 (80.7%) single and married women respectively.

By religion, 181 (79.4%) and 47 (20.6%) of the women were Muslims and Christians respectively. No any other type of religion was stated.

The ethnic distribution of respondents is shown in the pie chart below. Other ethnic groups mentioned included Kamara, Tampulima, Hausa, Fulani, Hanga and Ewe.

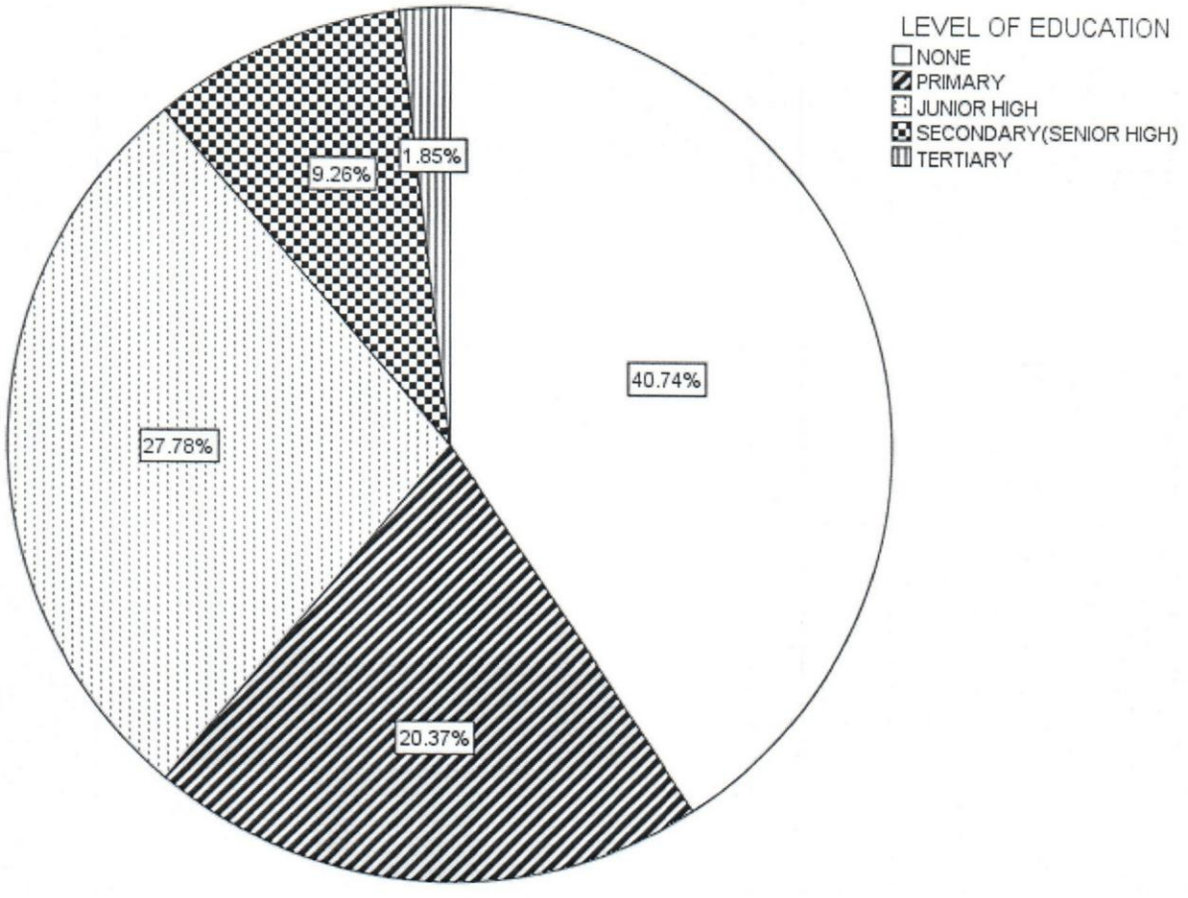
Figure 4.1 Distribution of Ethnicity of Respondents



Source: Field survey, 2015

On the level of education, responses reveal that women without any formal education were in the majority with 50.9% and women with tertiary education were in the least with 2.6%. Further information is shown in figure 4.2 below.

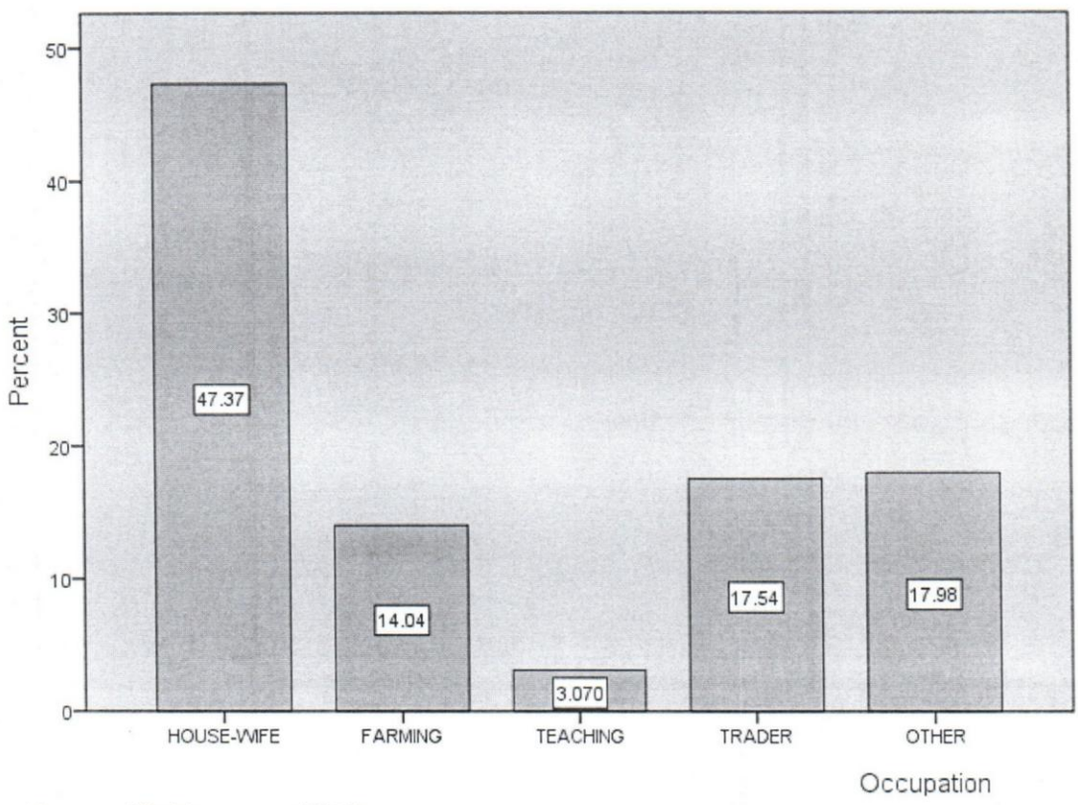
Figure 4.2 Distribution of Respondents by Level of Education



Source: Field survey, 2015

The occupational status for most of the women was house wife. However, one other career mentioned was seamstress. Some women also stated their occupational status as students.

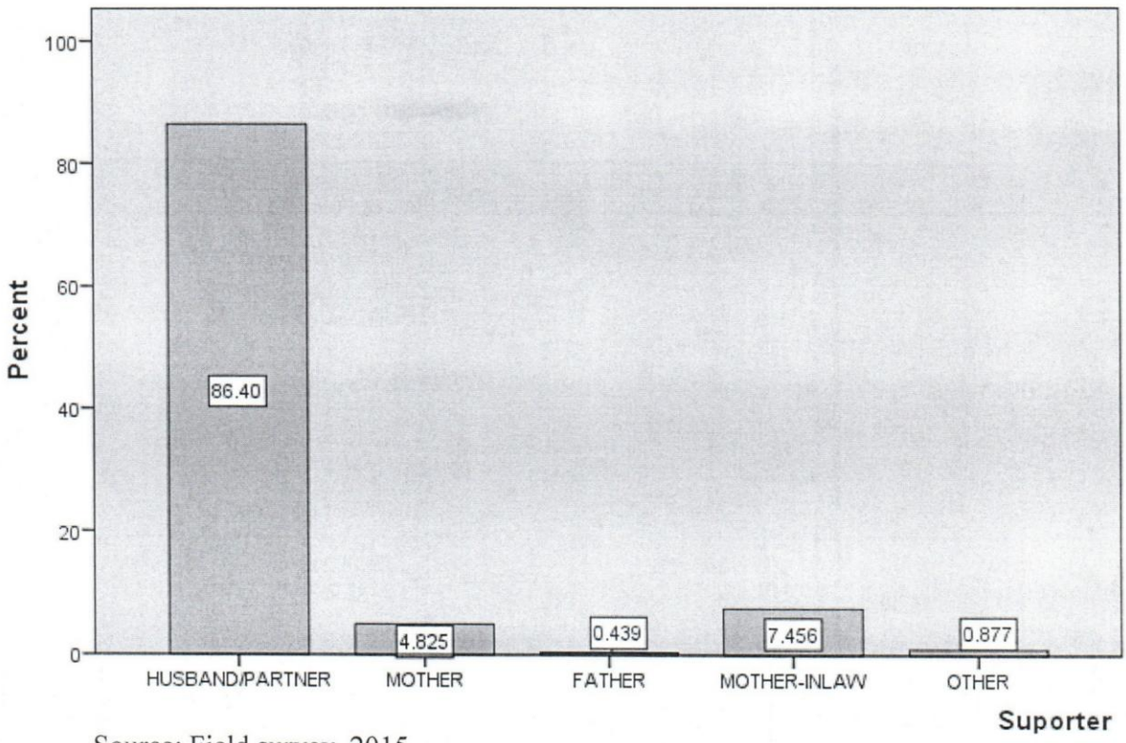
Figure 4.3 Respondents' occupational status



Source: Field survey, 2015

It was noted that, 197 (86.4%) of the women stated that their husbands or partners were persons who were their main support in the pregnancy. Only 2(0.9%) of the women stated other persons namely brother and sister as their main support persons.

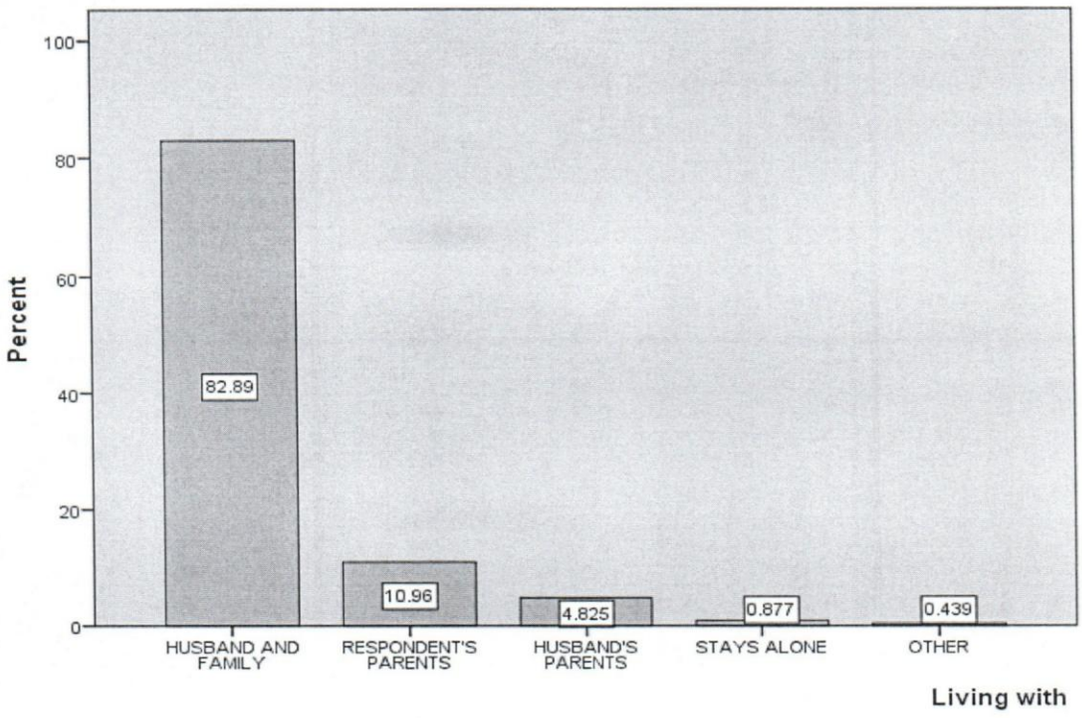
Figure 4.4 Respondents' main supporter



Source: Field survey, 2015

Majority of the respondents, 189 (82.9%) live with their husband or partner and family, while 10.95 live with their parents. 2 (0.9%) of the women live alone while 1 (0.4%) of them live with a brother.

Figure 4.5 Persons respondents live with

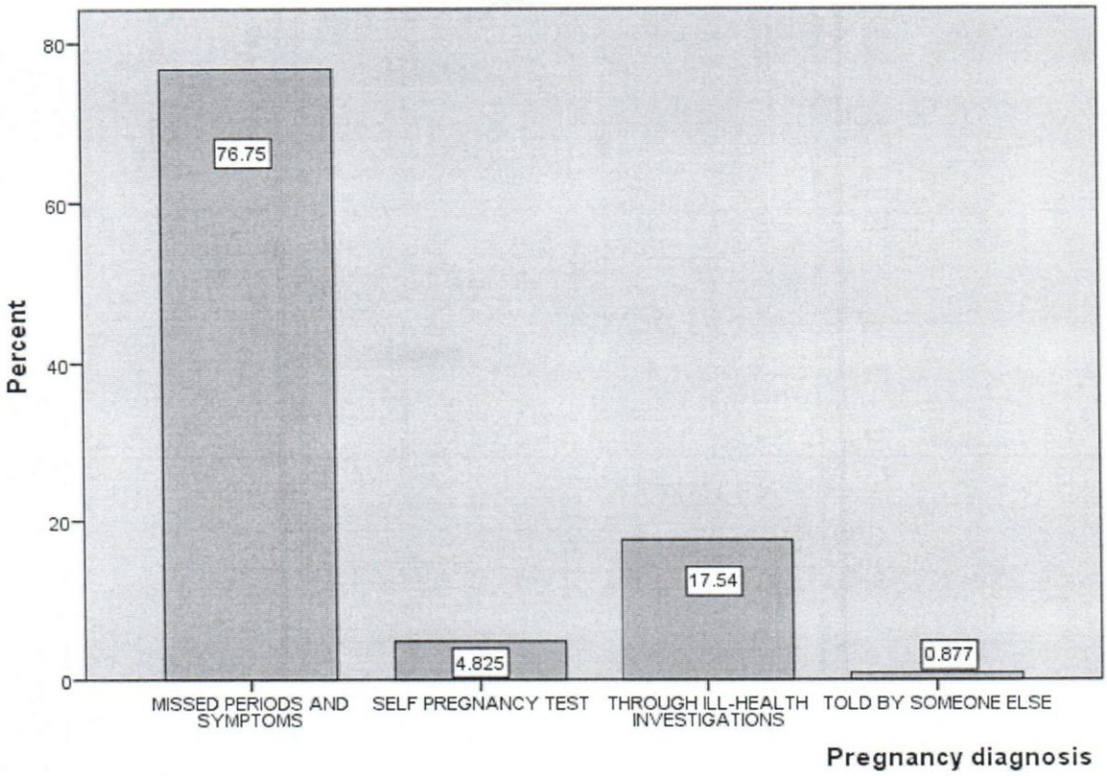


Source: Field survey, 2015

4.2 MEDICO-OBSTETRIC FACTORS

Pertaining to how the women got to know that they were pregnant, one hundred and seventy-five (representing 76.8%) stated missing menstrual period and other symptoms as the mode of their source of knowledge. Forty (representing 17.5%) of them were diagnosed at health facilities through medical investigations.

Figure 4.6 Mode of pregnancy diagnosis



Source: Field survey, 2015

Table 4.4 Chi-Square Tests for Mode of pregnancy diagnosis

	Value	Degree of freedom	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.167[a]	6	.003
Likelihood Ratio	22.275	6	.001
N of Valid Cases	228		

Source: Field survey, 2015

Fifty-six (56) respondents, accounting for 24.6% were pregnant for the first time. However, majority of the respondents (72) representing 31.6% were pregnant for the fifth time or more.

Table 4.5 Distribution of respondents by gravidity

Gravidity	Frequency	Percent
1	56	24.6
2	37	16.2
3	33	14.5
4	30	13.2
5+	72	31.6
Total	**228**	**100.0**

Source: Field survey 2015

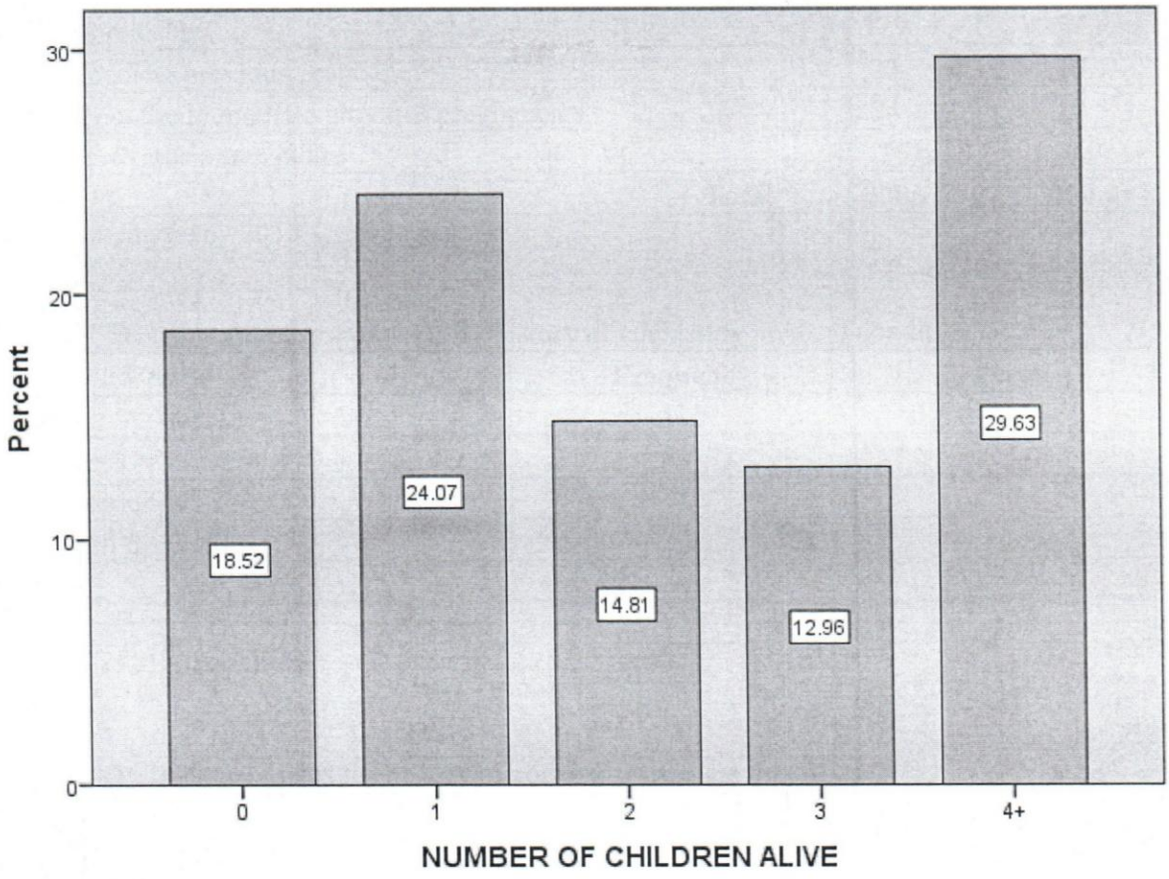
Table 4.6 Chi-Square tests for distribution of respondents by gravidity

	Value	Degree of freedom	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.988	8	.010
Likelihood Ratio	20.651	8	.008
Linear-by-Linear Association	11.320	1	.001
N of Valid Cases	228		

Source: Field survey, 2015

On the number of respondent's children that are alive, sixty-one (representing 26.8%) had no any living child. This could be because they were either pregnant for the first time or the children died. Fifty-seven of them (25.0%) had at least four children living. The mean number of live children was 1.9 with a standard deviation of 1.5.

Figure 4.7 Number of living children of respondents



Source: Field survey, 2015

Table 4.7 Chi-Square tests for number of living children of respondents

	Value	Degree of freedom	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.791	8	.016
Likelihood Ratio	19.202	8	.014
Linear-by-Linear Association	9.076	1	.003
N of Valid Cases	228		

Source: Field survey, 2015

The tables below show that majority of the respondents did not have previous miscarriages or any co-existing medical condition or complication in the current or previous pregnancies.

Table 4.8 Distribution of respondents by history of previous miscarriage

Previous miscarriage?	Frequency	Percent
No/not applicable	179	78.5
Yes, immediate previous pregnancy	23	10.1
Yes, but not the immediate previous pregnancies	24	10.5
Yes, all previous pregnancies	2	0.9
Total	**228**	**100.0**

Source: Field survey 2015

Table 4.9 Distribution of respondents by history of coexisting medical condition

Coexisting condition	Frequency	Percent
None	211	92.5
Hypertension	3	1.3
Diabetes mellitus	1	0.4
Sickle cell disease	9	3.9
Other	4	1.8
Total	**228**	**100.0**

Source: Field survey 2015

Table 4.10 Chi-Square tests for history of coexisting medical condition

	Value	Degree of freedom	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.067[a]	8	.029
Likelihood Ratio	9.271	8	.320
N of Valid Cases	228		

Source: Field survey 2015

Other medical conditions some respondents said they had in the current pregnancy included malaria, urinary tract infections and respiratory tract infections.

Table 4.11 History of Complications during pregnancy

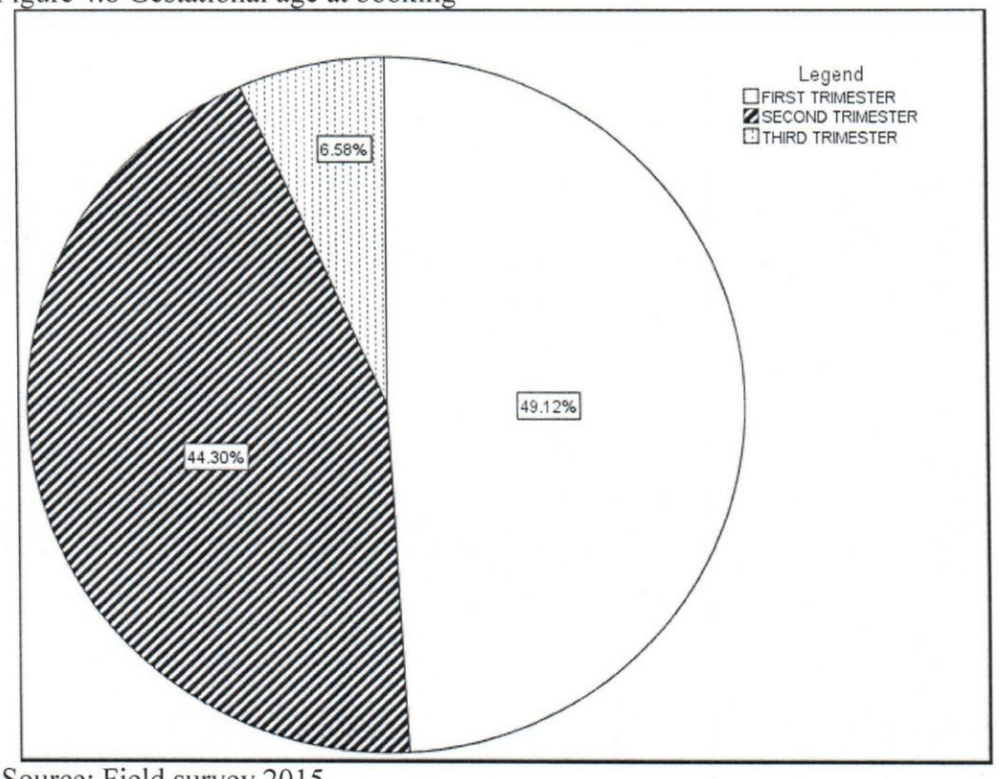
Pregnancy complications	Frequency	Percent
None/not applicable	223	97.8
Pregnancy induced hypertension	1	0.4
Pre/eclampsia	3	1.3
Other	1	0.4
Total	**228**	**100.0**

Source: Field survey 2015

Though one respondent indicated that she had a pregnancy-related complication, she however did not specify the type of condition.

The number of women who registered within the first trimester was 112 representing 49.1%. Second and third trimester registrants were 101(44.3%) and 15 (6.6%) respectively.

Figure 4.8 Gestational age at booking

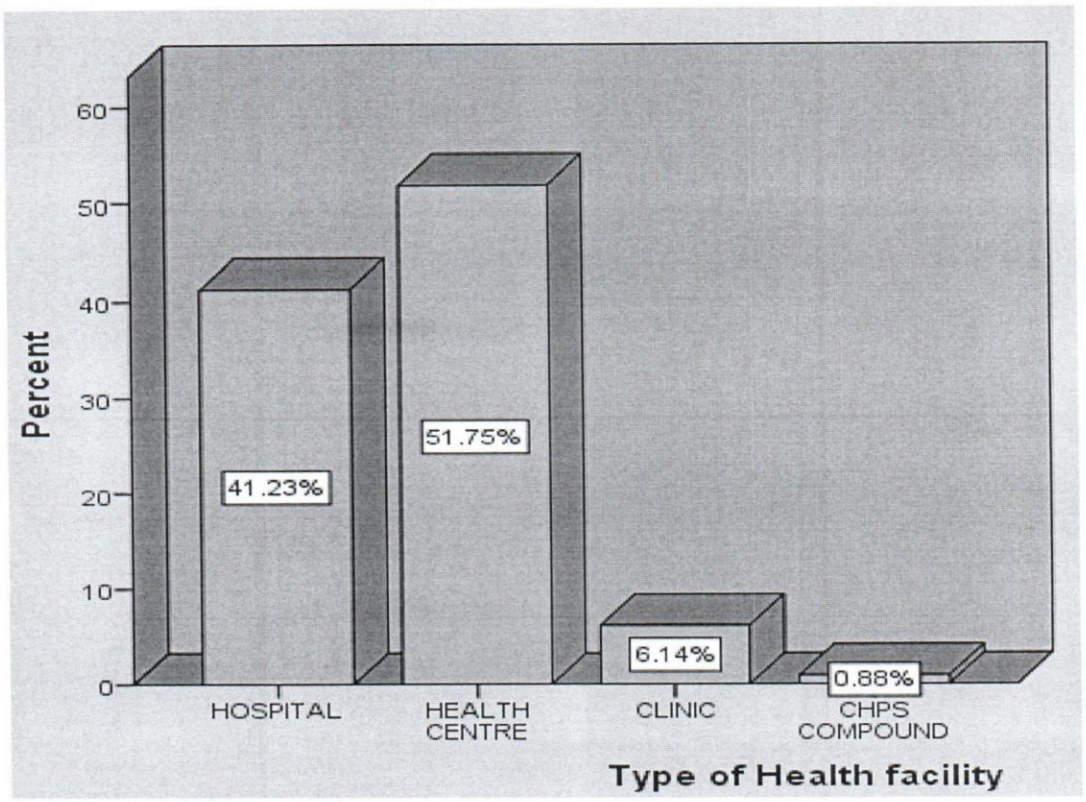


Source: Field survey 2015

4.3 HEALTH SYSTEM RELATED FACTORS

Most of the respondents started their antenatal care at either the hospital or health centre. As can be seen in figure 4.9 below, 41.2% (94 respondents) and 51.8% (118 respondents) registered at hospital and health centre respectively.

Figure 4.9 Type of health facility providing ANC services



Source: Field survey 2015

The distance between respondents' home and health facilities they attend ANC ranged from one kilometer or less to more than five kilometers. The mean distance is approximately 3km with a standard deviation of 1.9km.

Table 4.12 Distance between facility and home of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<1KM (15 MIN)	66	28.9	28.9	28.9
	1-1.5KM (25 MIN)	48	21.1	21.1	50.0
	1.6-2KM	28	12.3	12.3	62.3
	2.1-3KM (45MIN)	25	11.0	11.0	73.2
	3.1-5KM (1HOUR)	15	6.6	6.6	79.8
	>5 KM (>1 HOUR)	46	20.2	20.2	100.0
	Total	228	100.0	100.0	

Source: Field survey, 2015

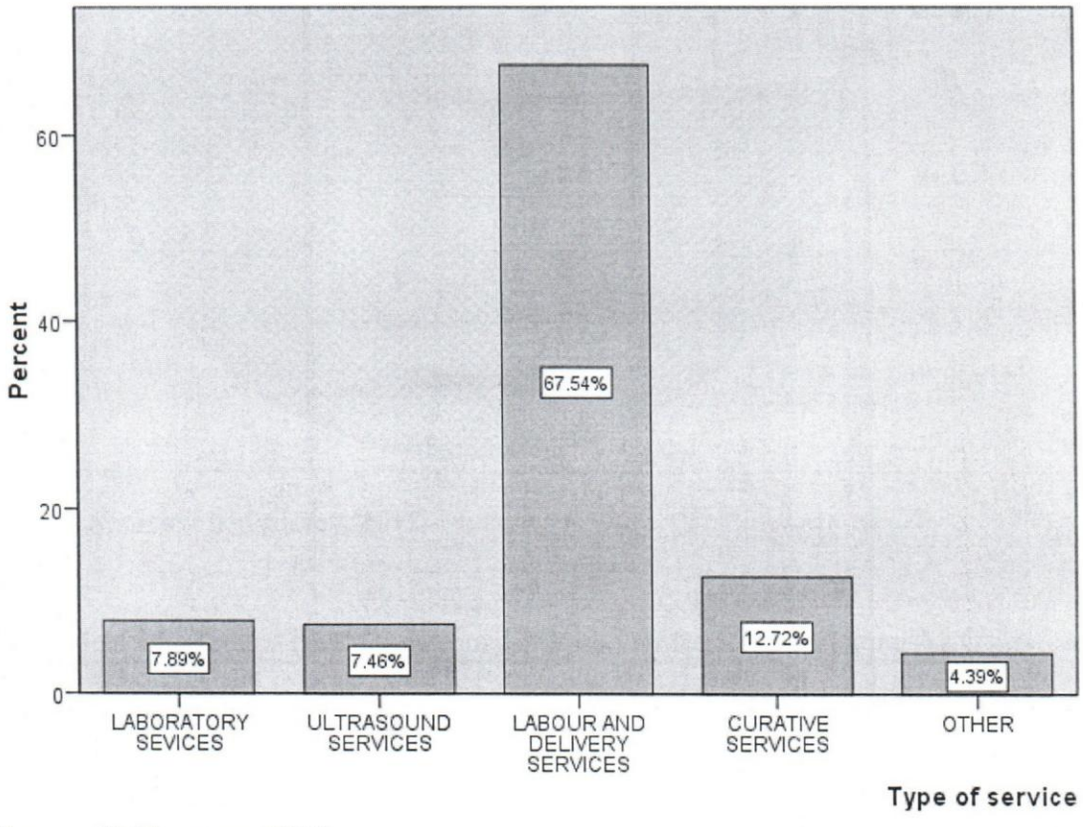
Table 4.13 Statistics of distance between facility and respondents' home

N	Valid	228
	Missing	0
Mean		3.06
Std. Deviation		1.889

Source: Field survey, 2015

The type of services that most respondents considered before choosing the health facility they registered for ANC was mainly labour and delivery which accounted for 67.5% of all responses. Figure 4.10 below shows the distribution of the responses on this subject matter.

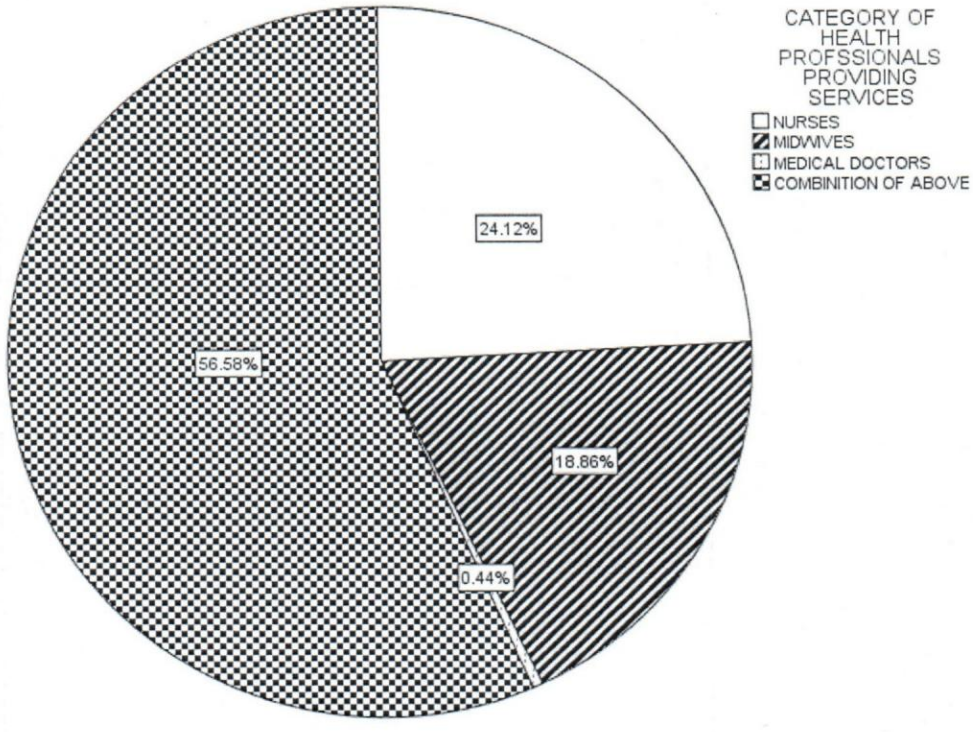
Figure 4.10 Type of services available at booking facility



Source: Field survey, 2015

Majority of respondents indicated that they received ANC/health services from a combination of nurses, midwives and/or medical doctors. This accounted for 129 responses representing 56.6%. However only one respondent indicated that medical doctors provided the ANC/Health services for her.

Figure 4.11 Category of health professional providing ANC services



Source: Field survey, 2015

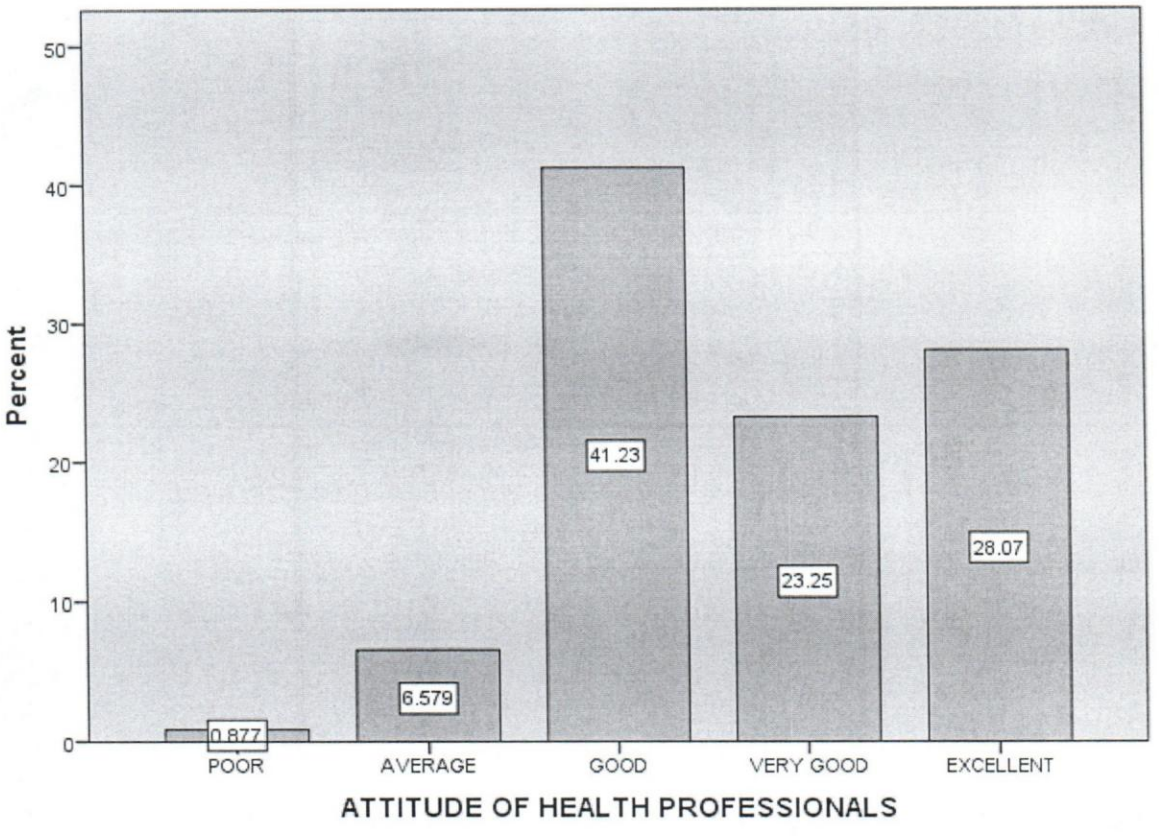
Table 4.14 Chi-Square Tests for category of health professional providing ANC services

	Value	Degree of freedom	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.593	6	.001
Likelihood Ratio	18.886	6	.004
N of Valid Cases	228		

Source: Field survey, 2015

The attitude of health professionals who provided ANC services for the respondents was seen by most respondents to be good or even better. As shown below, 41.2% said it was good, 23.3% said it was very good while 28.1% said it was excellent. Only 0.9% said the attitude of the health professionals was poor.

Figure 4.12 Attitude of health professionals providing ANC services



Source: Field survey, 2015

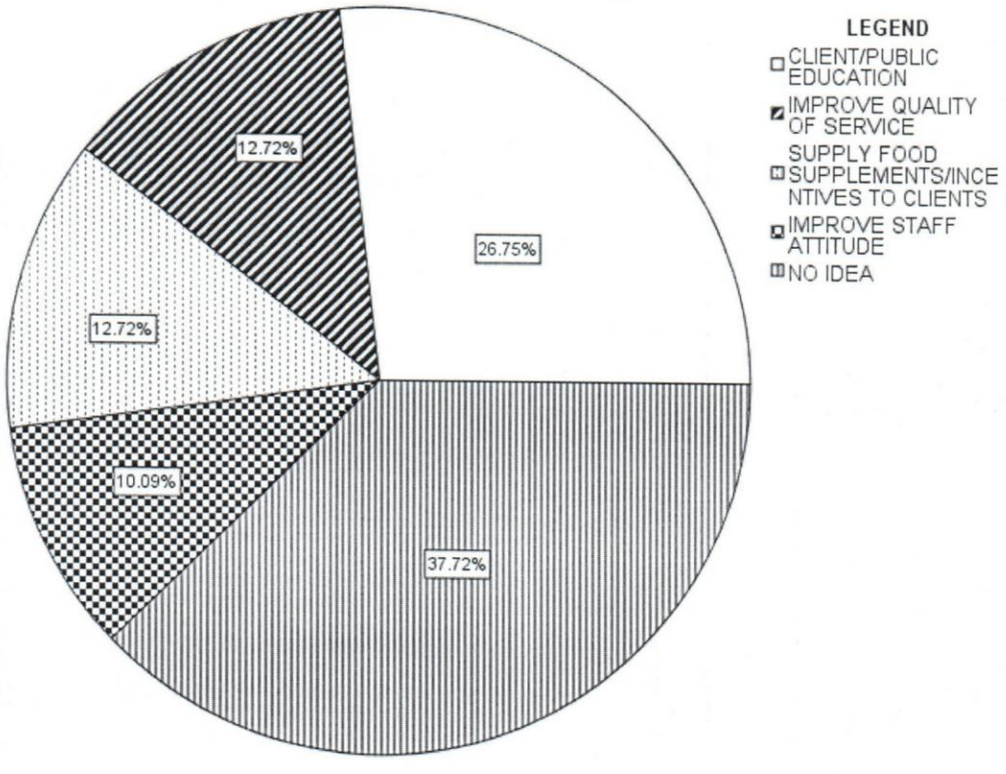
Table 4.15 Chi-Square tests for attitude of health professionals

	Value	Degree of freedom	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.013	8	.007
Likelihood Ratio	20.335	8	.009
N of Valid Cases	228		

Source: Field survey, 2015

When asked to give suggestions that can help improve timely ANC registration, a varied number and categories were given. This question was an open one that allowed respondents to give their own answers instead of choosing from predetermined alternative answers. The responses were analysed and were grouped into five main categories as shown in the figure below. Close to thirty-eight per cent of the women stated that they did not have an idea while the rest gave various types of suggestions. A little over a quarter (26.8%) of respondents gave responses that were tasking health professionals to do client/public education on the importance of early ANC registration. Other suggestions were related to improving the quality of the services provided (12.7%), providing food supplements and other incentives such as the bed nets (12.7%) and improvement of staff attitude (10.1%).

Figure 4.13 Suggestions to improve ANC booking time



Source: Field survey, 2015

CHAPTER FIVE

DISCUSSIONS

5.1 Socio-demographic factors

The social and demographic characteristics of respondents were explored to determine their association with antenatal care. Under this theme, maternal age, ethnicity, religion, marital status, level of education, type of occupation, the respondent's main support and person respondent currently lives with were examined.

5.1.1 Maternal Age

The mean maternal age was 24 ±6 years which agrees with the findings of Belayneh et al. (2014) who found that the mean age of the participants was 24.9 ±4.1years. The modal age class of respondents was between 20 and 24 years (72 respondents), accounting for 31.6% of the total sample. The teenage class of 15 to 19 years and women aged 35 or more constituted 13.2% (30 respondents) each. This finding is at variance with Lamina (2004) finding that teenage respondents constituted 5.7%. This could be due to differences in geographical location and social values placed on maternal age at marriage or childbirth.

In cross-tabulation analysis, majority of the teenagers (60%) registered within the first trimester which constituted 7.9% of the total sample. The age class of 20 to 24 years formed the modal age group of the respondents (46) who registered for ANC services within the first trimester. This figure represents 20.2% of the total sample while majority of women aged 25 years or more registered later than the first trimester. Generally, 62.4% of women younger than 25 years

registered for antenatal care during the first trimester while only 38.1% of women aged 25 years or older did same.

The Pearson's Chi-square statistic for a cross-tabulation analysis of maternal age and booking gestational trimester is 0.01 with likelihood ratio of 0.007. This was a highly significant relationship.

Table gives further information on the cross-tabulation analysis between maternal age and timing of ANC booking.

5.1.2 Marital Status

In this study married women constituted 80.7% while single women accounted for 19.3%. Though slightly lower than the findings of Gudayu et al. (2014), Gross et al. (2012), Onyeonoro et al. (2014) and Ebeigbe et al. (2010), the married population constituted the majority of respondents. The 19.3% of single women in this study is higher than the findings of 12% by Onyeonoro et al. (2014), 4.6% by Ebeigbe et al. (2010) and 3.7% by Gudayu et al. (2014). This difference may be due to differences in geographical location and socioeconomic dynamics that exist in the different towns and communities. Nonetheless married women constitute the vast majority of respondents giving significant credence to the societal view that couples having children out of wed-lock is inappropriate. It was significant to note that there were no divorced women respondents in this study as it was found in other studies including Olayinka et al. (2013), 11.8% and Koye et al. (2013), 4.3%. The findings of this study refutes that of Jimoh (2003) in which only 19% of the respondents in that study were married whereas 80% of them were either single or divorced.

There was no statistical significance found in the cross-tabulation analysis between marital status and antenatal booking time. The Pearson Chi-Square statistic was 0.292.

5.1.3 Tribe of Respondent

The ethnic distribution was wide. Gonjas accounted for 34.2%, Dagaabas 12.7%, Frafras 3.9% and Dagombs 7.0% of all respondents. Other tribes stated were Larabanga, Tampulima Kamara, Akan, Konkomba, Wala, Fulani and Ewe. These tribes together accounted for 42.1% of all respondents. The many ethnic groupings that are identified in the study area suggest that the area is a multicultural setting. However, ethnicity was not observed to be significantly influential on the timing of antenatal care booking time. The chi-square statistic for this analysis was 0.332 at 8 degrees of freedom.

5.1.4 Level of Education

Out of the 228 respondents, 116 of them (50.9%) had no any form of formal education, 88 (38.6%) had basic education while 18 (7.9%) had secondary education. Only 6 (2.6%) of them had tertiary education. These findings are at variance with that of Onoh et al. (2012) who found that respondents with no formal education made up of 20.0%, those with secondary education were 43.0% and those with tertiary education constituted 47.1% of their sample. These findings are also at variance with the findings of Koye et al. (2013) who observed that women with Primary school education constituted 22.4%, secondary school education 39.5% and above secondary school was 18.1% in their study on the topic 'prevalence and determinants of early antenatal care visit among pregnant women attending antenatal care in Debre Berhan Health

Institutions, Central Ethiopia'. These observed differences may be due to geographical, socio-cultural and education policy differences between the countries and towns.

Out of the 116 women who had no any form of education 48 (41.4%) of them registered for ANC within the first trimester. For the 64 respondents who had basic education, 49 (76.6%) of them registered within the first trimester while 11 (61.1%) out of the total of 18 respondents with secondary education had done same. Half of the women who had tertiary education registered within the first trimester. Generally, 57.1% of women with at least basic education registered within the first trimester as against 41.4% of those without any form of formal education. This implies that women with any form of education are more likely to register early for ANC services than those without. This is consistent with the findings of Oladokun et al. (2010) in their study on 'Proximate predictors of early antenatal registration among Nigerian pregnant women' who opined that educated women are more likely to be able to recognize the benefits of ANC and are also more likely to be empowered to make a decision to register for ANC.

5.1.5 Distribution by Religion

By religious affiliation, most (181 representing 79.4%) of all respondents were muslims while only 47 (20.6%) were Christians. Out of the 181 muslims 45.9% of them registered early while 61.7% of Christians did same. This is contrary to the finding of Onoh et al. (2012) who observed that Muslims had the highest percentage (50%) of early antenatal booking and that late antenatal booking was common among Christians with percentages of 80.5% for Roman Catholic, 84.6% for Pentecostal, and 90.2% for the Protestants in their study. There was no any other religious

denomination stated. The high number of muslim women in this study supports the district's claim in their data that majority of the people resident in the district are muslims.

5.1.6 Occupation of respondents

Among the worker groupings, there were more house-wives (108 representing 47.4% of all responses) than any other occupational grouping identified. This finding agrees with Cresswell et al. (2013) in their study in East London in which housewives accounted for 6,968 (34.6%) of the total sample as the modal occupational group. Other occupational groups were farming (14.0%), teaching (3.1%), traders (17.5%) and others (namely seamstresses, students) 18.0%. The percentage of traders as found in this study is just about half of that found in Olayinka et al. (2012), 33.3%.

Half of the housewives and a third of the women farmers registered in first trimester. This is far higher than the findings of Onoh, et al. (2012) in their study in Abakaliki, Nigeria in which they found that 12.5% of housewives and 10% of women farmers respectively booked early for ANC services. It was also observed that 6 out of 7 (85.7%) of the teachers registered in first trimester while 60% of the traders (24 out of 40) did so. This suggests that women with educational background and formally employed are likely to register early for ANC services than those in the informal sector. However, the chi-square test statistic for occupational status and timing of ANC booking was 0.149 thereby rendering occupational status and timely ANC booking statistically insignificant.

5.1.7 Person Respondent Lives with

Though about 83% of respondents live with their husbands or partners, only 47.6% of them registered early. This may be an indication that the men are not influential in favour of early ANC registration although they were found to be the main providers of financial support to their wives in Oppong (2008). On the other hand, majority of the respondents (16 out of 25, constituting 64%) who live with their parents registered early. This suggests that parents may have a major influence on decisions regarding the ANC visits of their pregnant daughters especially, if they live together.

5.1.8 Respondent's Main Support Person

Husbands/partners were stated by majority of the respondents (197 representing 86.4%) as their main support persons in their current pregnancy. This is consistent with Oppong (2008) who found in his study conducted in the Bosomtwe District of the Ashanti Region of Ghana that 80% of the sources of funds for antenatal care came from husbands. Similarly, in this study, parents were found to have accounted for 5.2% of the support pregnant women require for antenatal care which agrees with Opong (2008) in where parents accounted for 8% of such sources of funds. In spite of the high support from husbands and partners less than half (49.2%) of the respondents who enjoyed such support registered within the first trimester. This is suggestive that majority of the male partners may not be influential in favour of early antenatal care booking. This suggests that husbands and male partners of pregnant women may have a major influence on the timing of the first ANC visit by their wives. In the findings of Opong, 42.3% of such decisions were made by husbands while 51.3% of the women themselves took such decisions.

5.2 Medico-Obstetric Factors

This section looks at factors that are related to pregnancy and medical conditions. Particularly, certain chronic conditions such as Hypertension, Diabetes Mellitus, Sickle Cell Disease and eclampsia were of interest in this study. These conditions are known to have undesirable effects on outcomes of pregnancies. Lincetto et al. (n.d.) posits that between a third and a half of maternal deaths are due to causes such as hypertension (pre-eclampsia and eclampsia) and antepartum haemorrhage, and are directly related to inadequate care during pregnancy.

5.2.1 Mode of Recognition of Pregnancy

The majority of respondents (175 representing 76.8%) recognized that they were pregnant through the missing of their menstrual periods and other symptoms of pregnancy. However, only 41.1% of these women registered early for ANC. This low rate may be due to the fact that the women knew they were pregnant and therefore deliberately delayed ANC booking time. Moreover, they might not know the importance of early ANC registration and therefore did not bother to do so upon discovering that they are pregnant.

Eleven (11) women recognized their pregnancy status through self-pregnancy test. Out of this 8 (72.7%) respondents registered early for ANC services. This suggests that these women might have knowledge on the importance of ANC and therefore consciously sought it early.

Forty (40) women stated that they were diagnosed pregnant through investigation at health facilities during treatment for ill health. Out of this number, thirty (30) (representing 75%) of them registered for ANC within the first trimester. This is in consonance, though higher, with the findings of Onoh, et al. (2012), who found that 52.2% of sick pregnant women registered early

for ANC. This high rate of early ANC registration suggests that, these women might have been given counseling and education on the need to register early for ANC services by health professionals during the treatment process which they complied. The chi-square statistic for mode of diagnosis of pregnancy is 0.003. This is highly statistically significant.

5.2.2 Gravidity of Respondents

The number of times a woman becomes pregnant (gravidity) was examined to determine if there is any association with the timing of ANC booking. Out of the 112 women who booked for ANC services within the first trimester, 34 (30.4%) of them were pregnant for the first time. This is only about a half of what Cresswell et al. (2013) found in East London but close to the findings of Koye et al. (2012) who found that 37.6% of their respondents were nulliparous.

It is also seen that 25 (22.3%) of the respondents were pregnant for the second time, 18 (16.1%) for the third time and 12 (9.8%) for the fourth time. Women who were pregnant for the fifth time or more were 23 accounting for 20.5% of the first trimester registrants. From these results, it can be observed that the lesser the number of times a woman becomes pregnant, the likelihood that she would register early and vice versa.

In cross-tabulation analysis of gravidity and timing of ANC booking visits there was observed statistical significant relationship. The chi-square statistic of the analysis is 0.010 with a likelihood ratio of 0.008.

5.2.3 Number of Live Children Respondents Have

Out of the 228 respondents, 61 (26.8%) had no any child, 42 (18.4%) had 1 child, 39(17.1%) had 2 children 86 (37.7%) had 3 or more children. Among women who had no child yet, 37 (60.7%) of them registered for ANC within the first trimester while 64.3% of women with only one child living did same. However, the rate of first trimester registration falls as the number of children respondents have alive increases from 2. For instance, among the women who had two children, 51.3% of them registered early while 24.1% and 36.8% of women with 3 or 4 and more children did so respectively. This implies that women with fewer children than three have the tendency to start ANC earlier than those with more. This trend is consistent with that observed by Oladokun et al. (2010).

The Pearson Chi-square statistic for the cross-tabulation analysis between these two variables was 0.016 at 8 degrees of freedom. This indicates a high level of statistical significance which refuted the finding of Koye et al. (2013), that the number of children women have alive was not significantly associated with early ANC visit.

5.2.4 Previous Miscarriages/Abortions

Most respondents (179 constituting 78.5%) stated they never had any previous miscarriage or abortion. In all, 49 representing 21.5% of the respondents ever had at least one miscarriage in the past. This is consistent, though a little higher, with the finding of Koye et al. (2013) where 16.9% of their respondents reported a history of previous abortions. However, out of the 49 respondents who ever had a form of miscarriage in this study 23 (46.9%) of them registered for ANC in the first trimester of their pregnancy. There was no any significant association between the early

ANC booking and previous miscarriage or abortion. P-value was 0.619. This agrees with Koye et al. (2013).

5.2.5 Co-Existing Medical Conditions

Asked whether they had any medical condition such as hypertension, diabetes mellitus and sickle cell disease the current pregnancy, 211 women stated they had none of such conditions while 3 indicated they had hypertension, 1 had diabetes mellitus and 9 had sickle cell disease. Although majority had no any co-existing medical condition with the pregnancy the few that had showed a significant association with the timing of ANC booking. For instance, among those women with hypertension, 66.7% of them registered early and 33.3% of those with sickle cell did same. In general, 41.2% of women with one form of condition or another registered within the first trimester. Other medical conditions stated were malaria and respiratory tract infections.

The p-value of a Chi-Square analysis of these two variables in cross-tabulation is 0.029 at 8 degrees of freedom. This is at variance with the findings of Oladokun et al. (2010) when they found no statistical significance in their study with a p-value of 0.613 but consistent with Onoh, et al. (2012) who observed that 52.2% of their participants who were sick registered early with a p-value of 0.001.

5.2.6 Pregnancy-Related Complications

Asked if they had any form of pregnancy related complication such as pregnancy induced hypertension, diabetes mellitus or preeclampsia in their current pregnancy, 223(97.8%) of the women answered in the negative. However, five (2.1%) of the women indicated that they had

one form of complication or another but none of them registered early for ANC. This finding, though lower, also supports that of Koye et al. (2013) when they observed that 8.1% of their respondents reported of such complications but was not statistical significant. Similarly, the the relationship between the variables pregnancy related complications and timing of ANC booking in this study employing cross-tabulation analysis was not statistically significant. The Pearson Chi-Square statistic was 0.409.

5.3 Health System Related Factors

This section looks at the factors associated with the health system including types of health facilities, distance between health facilities and respondents' homes, availability of health professionals and their attitude towards clients. This section concludes by seeking suggestions from respondents on how to improve early ANC registration.

5.3.1 Type of Health Facility

The type of health facility majority of the respondents attended was the health centre. One hundred and eighteen respondents representing 51.8% registered for ANC services at health centres while 94 (41.2%) did so at the hospital. In the west Gonja District, there is only one hospital. The rest of the health facilities are health centres and CHPS compounds with a few clinics. There is no private health facility operational in the district yet.

Emelumadu, et al. (2014) in their study in south east Nigeria found that hospital based ANC attendance accounted for 78.8% of their total sample which is at variance with the 41.2% found in this study. Clinics and CHPS compounds together accounting for only 7% of the responses

regarding type of health facility the women utilised. The fact that there are no many hospitals in the district explains why majority of the respondents in the district attend ANC clinics at the health centres.

For first trimester registrations, 52.1% of hospital registrants and 47.5% of health centre registrants registered. Though majority of the respondents registered at health centres, the rate of first trimester registration was lower than that of the hospital.

Ill health is one of the factors that influenced early ANC booking which may account for the reason why more women registered early at the hospital than health centres. Moreover, the health centres do not have fully equipped clinical laboratories to carry out necessary clinical investigations hence some of these women could have been referred to the hospital for such purposes and resulting in diagnosis of pregnancy and their subsequent registration for antenatal care at the hospital.

The relation between type of health facility utilized and timing of booking was not statistically significant. The p-value was 0.088.

5.3.2 Distance of Health Facility from Respondent's Home

The mean distance the women had to travel from their homes to a health facility was about 3km with a standard deviation of about 1.9km. Sixty-six (representing 28.9%) and one hundred and eighty-two (representing 79.8%) of respondents lived within a distance less than one kilometer and five kilometers respectively from the health facility they seek ANC. Those who live beyond a distance of five kilometer accounted for 20.2%. These findings support that of Opong (2008)

who found in his study that 36% and 89.3% of his respondents lived within one and five kilometer distance respectively from their homes to the health facility they sought ANC services. Only a 10.7% of the women live beyond a five kilometer range.

Of those who live less than a kilometer to the facility, majority (53.0%) of them registered within the first trimester. For those who live about three kilometers and five or more kilometers away from health facilities 44% and 42.6% of them respectively also registered within the first trimester. The trend in the rate of registration did not show any wide variation. This suggests that distance to travel by pregnant women before accessing ANC services did not have much influence on the timing of registration. This implies that majority of Ghanaian women do not have to travel beyond five kilometers before accessing ANC services.

The relationship between these two variables was not statistically significant. The p-value of the cross-tabulation analysis was 0.364.

5.3.3 Category of Health Professionals Providing ANC Services

The categories of health professionals providing ANC services were stated as nurses, midwives, medical officers and a combination of any of these for respondents to choose from. Based on this 24.1% of respondents indicated only nurses, 18.9% only midwives and 0.4% only medical doctors. Majority of respondents (56.6%) indicated that a combination of these cadres of workers provided ANC services to them. This seems to reflect real situation on the ground considering that majority of the women actually registered at health centres where there are no medical officers but midwives and nurses. Observe that out of the women who stated only nurses, midwives or medical officers provided the ANC services for them, 40%, 48.8% and 100% of

them respectively registered within the first trimester for ANC services. On the other hand, 52.7% of those receiving services from a combination of the professionals did same. This suggests that health facilities with a combination of cadres have the potential of improving the rate of early ANC booking among pregnant women. The chi-square statistic for the relationship was 0.001, indicating a high statistical significance. Further information is in the table below.

Table 5.1 Cross-tabulation analysis of gestational age at booking and category of health professionals

	GESTATIONAL AGE AT BOOKING			Total
	FIRST TRIMESTER	SECOND TRIMESTER	THIRD TRIMESTER	
NURSES	22	31	2	**55**
MIDWIVES	21	13	9	**43**
MEDICAL DOCTORS	1	0	0	**1**
COMBINITION OF ABOVE	68	57	4	**129**
Total	**112**	**101**	**15**	**228**

Source: Field survey 2015

5.3.4 Attitude of Health Professionals

When asked to grade the attitude of staff providing the ANC service as many as 41.2% of the respondents stated that the attitude of the health professionals providing the services was good. Moreover, 23.3% and 28.1% stated that the attitude of the professionals was very good and excellent respectively. In effect, 92.7% of the respondents were of the view the attitude of health professionals is at least good whereas only 7.4% stated that the attitude of the professionals was average or poor. This is consistent with the finding of Opong (2008) where he found that respondents, 92% of his respondents described the attitude of health staff as at least friendly and 7% described health staff attitude as sometimes hostile.

The relationship between attitude of health professionals and timing of ANC registration was seen to be statistically significant with a p-value of 0.007. This suggests that, if staff attitude is improved the rate of early ANC registration may also improve.

5.3.5 Booking Time and associated Reasons

Asked to state the reasons for booking at the time respondents did, 172 (constituting 75.4% of the respondents) stated ill health as the reason that made them to book at the time they did. Out of the 172 respondents who were ill at the time of booking, as many as 84 of them (representing 48.8%) booked in the first trimester. This rate is so close to the overall first trimester registration as found in this study. Onoh et al. (2012) in their study found that 52.2% of their respondents who were ill registered for ANC services early which was statistically significant with a p-value of 0.001. Ill health of pregnant women therefore could be a confounding factor which effect has resulted in the high first trimester ANC registration. In this regard, the true rate of voluntary first trimester registration could be far lower than the statistics show for the West Gonja District.

Though health professionals especially those providing the ANC services are required to educate women on the importance and the need to register early for ANC services, only 18 (representing 16.1%) respondents who registered within the first trimester stated that they were advised by health professionals to register early. However, as high as 62.1% of those women advised by health professionals to register for ANC did so within the first trimester while one-third (33.3%) of respondents advised by friend/family member registered early. This was also observed by Gross et al. (2012) where women who knew that ANC attendance should be initiated within the first three months of pregnancy (67%) and those who had a good knowledge about ANC services (22%) were found to start ANC attendance earlier than the others. This suggests that if health

professionals educate women adequately on the importance and need for early ANC registration they are more likely to comply. The high number of women who registered early after being advised by health professionals is an indication that the pregnant women in particular and the public in general put premium on information or education from health professionals.

Financial or health insurance constraints also affect the timing of booking. Though not many complained of financial problems only a quarter of women with such a problem could register within the first trimester. The few number of women citing financial problems as the factor that affected their booking is suggestive that most respondents are health-insured and therefore could access ANC services with much ease. In particular not possessing money in cash when attending the ANC clinic and not receiving support from the husband/partner were independently associated with a later ANC enrolment for all women (Gross et al., 2012). Women who had no money in hand attended on average about 1 week later and women who felt not supported by their husband attended almost 3 weeks later than women who had such support.

The relationship between the booking time and reasons for booking is highly statistically significant with a Chi-Square statistic of 0.010 and likelihood ratio of 0.007 at 8 degrees of freedom.

5.3.6 Suggestions to Improve ANC Booking Time

Asked to make suggestions on what health service providers can do to improve timely registration for ANC services by pregnant women, a variety of suggestions were made. Although Over 37.7 % of respondents did not have an idea as to what suggestion to make, as many as 61 (26.8%) of them cited client/public education as a measure to improve the timing of ANC

booking. Other suggestions made were calls to improve the quality of ANC services (2.7%), provision of incentives such as food supplements and mosquito nets (12.7%) and improving of staff attitude (10.1%). There seem to be merit in the suggestion to do client education considering the fact that 62.1% of women complied with the advice of health professionals to register for ANC services early. Client/public education therefore can be used as a tool to improve timely booking for ANC services. Opong (2008) in his study also noted that his respondents made similar suggestions. Suggestions such as "universal education of the women, improved health education, free ANC services and the construction of health facilities in certain communities were significant suggestions made by the patients for improving the delivery of antenatal care" (Opong, 2008).

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

The main variables of the study were bio-demographic, social, obstetric, medical and health system related factors. These factors were put into three main themes and data collected, analysed and presented accordingly. Statistically significant relationships were observed between ANC booking time and factors such as maternal age, level of education, gravidity, mode of pregnancy recognition, the type of cadres providing ANC services, and the attitude of such health professionals.

6.1 Summary of Findings

Significant findings made from the results of the study are summarised as follows.

1. It was observed that younger women less than 25 years, who accounted for 62.4% of respondents, had registered early for ANC services than older ones. A Chi-Square statistic of a cross-tabulation analysis was 0.010 at 8 degrees of freedom indicating a statistically significant relationship between maternal age and ANC booking time.
2. The process a woman goes through to recognize that she is pregnant had a significant influence on the timing of ANC booking. Majority of the women (76.8%) recognized their pregnancy status through the missing of their menstrual periods while 17.5% were diagnosed at health facilities. The Chi-Square statistic of a cross-tabulation analysis between mode of pregnancy recognition and timing of ANC booking was 0.003 at 6 degrees of freedom.

3. The number of times a woman has been pregnant was observed to be statistically significant in the study. It was observed that women with fewer children are more likely to start antenatal clinic early.
4. Women with fewer children alive were found to have higher rate of first trimester ANC registration than those with more children than two.
5. The presence of medical conditions such as sickle cell disease, hypertension and other acute infections in pregnancy was found to have a significant influence on the timing of antenatal care booking time. Pregnant women with a form of medical condition tend to register for ANC earlier than those without any medical problem.
6. The attitude of health professionals towards clients was seen to be an influential factor on the timing of ANC booking visits. Majority of pregnant women perceive that good attitude of health professionals improves early ANC booking among pregnant women.
7. A combination of health professionals at health facilities to provide health services favoured early ANC booking among pregnant women. Any combination of nurses, midwives and clinicians potentially improves ANC booking time.
8. Many (26.8%) of the respondents suggested that health professionals intensify education of pregnant women and the general public on the importance of early ANC registration.

6.2 Methodological Limitations

A major limitation of the study is that a convenience method of sampling was used to recruit majority of the respondents which may not allow for generalization of the results.

6.3 Recommendations

Based on the findings of this study the following recommendations are made.

1. Health professionals should intensify health educational activities to educate women and the general public on the importance of early antenatal care attendance. Areas to consider for education should include the menstrual cycle, methods of recognizing occurrence of pregnancy, and management of medical problems in pregnancy.
2. Authorities and stakeholders in the health sector such as Ghana Health Service, Ministry of Health, non-governmental organisations involved in health delivery and health facility managements need to build the capacity of health professionals especially those providing direct antenatal care services to improve service provider-client relationship.
3. The Ghana Health Service should make conscious efforts to staff health facilities especially the health centres with a mix of nurses, midwives and clinicians as well as other essential health professionals to provide holistic health care services to clients.
4. Managers and leaders of the health facilities should train and mentor ANC service providers in good service provider-client relationship.

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Appendix I

Questionnaire

Questionnair	

Dear respondent,

This is a questionnaire for data collection on a thesis topic "***Determinants of First Trimester ANC Registration Among Pregnant Women in the West Gonja District in the Northern Region Of Ghana***" for a Master of Science degree programme at the University for Development Studies Graduate School. The data to be collected is for academic purpose and will be kept confidential. No personal identity is required for this questionnaire. You are at liberty to ask questions for any clarification before consenting to this request to respond to the questions contained in this questionnaire.

I count on your cooperation.

Thank you.

Awini A. Ishmael
UDS/CHD/0130/13
(Candidate)

RESPONDENT

Signature/Thumbprint of respondent..... Date .....

DATA COLECTOR

NAME OF RESEARCH ASSISTANT .....

SIGNATURE ..... DATE: April 2015

****

Instructions for completion of questionnaire

The questionnaire has three main themes; theme 1, 2 and 3. Each theme has a number of statements that require responses. All statements must be responded to in order to make the completed questionnaire valid

Only pregnant women who have registered for ANC services are eligible to be interviewed. Interviewee will have to consent to the interview by reading, or be explained to, the consent above and subscribe by signing or thumb-printing before commencement of the interview.

Tick (✓) the appropriate box adjacent to the question. Except otherwise stated, choose only one answer for each question

THEME 1: BIO-DEMOGRAPHIC DATA			Tick (✓)	Code
T1Q1	How old are you now? (**age**)	15 to 19		1
		20 to 24		2
		25 to 29		3
		30 to 34		4
		35 +		5
T1Q2	What is your **marital status**?	Single		1
		Married		2
		Divorced		3
		Windowed		4
T1Q3	What is your **tribe**?	Gonja		1
		Dagaati		2
		Frafra		3
		Dagomba		4
		Other (specify)		5
T1Q4	What is your highest level of formal **education?**	None		1
		Primary		2
		Junior high		3
		Secondary		4
		Tertiary		5
T1Q5	What is your current **religion**?	Islam		1
		Christianity		2
		Traditionalist		3
		Buddhism		4
		Other (specify)		5
T1Q6	What is your current **occupation** status?	House wife		1
		Farming		2
		Teaching		3
		Trader		4
		Other (specify)		5
T1Q7	Who are you currently **living with?**	Husband and family		1
		My parents		2
		Husband's parent (s)		3
		Alone		4
		Other (specify)		5
T1Q8	Who is your **main support** in this pregnancy?	Husband/partner		1
		Mother		2
		Father		3
		Mother-inlaw		4
		Other (specify)		5

THEME 2: MEDICAL AND OBSTETRIC DATA			Tick (✓)	Code
				1
T2Q9	How did you get to know that you are pregnant for this pregnancy? (**diagnosis**)	From missing of menstrual periods and symptoms		
		Through self pregnancy test		2
		Through ill health investigations		3
		Told by someone else		4
T2Q10	*How many times have you been pregnant (including the current one)? (**gravidity**)	1		1
		2		2
		3		3
		4		4
		5+		5
T2Q11	*How many children do you have alive? (**live children**)	0		0
		1		1
		2		2
		3		3
		4+		4
T2Q12	*state whether you had any previous **abortions/miscarriages** and how it is related to this current pregnancy.	No		1
		Yes, the immediate previous pregnancy		2
		Yes. But not the immediate previous one.		3
		Yes. All previous pregnancies (if >1 abortion/miscarriage)		4
T2Q13	State whether you have any **medical condition** before or during this pregnancy.	None		1
		Hypertension		2
		Diabetes mellitus		3
		Sickle cell disease		4
		Other (specify)		5
T2Q14	State whether you had any pregnancy related **complication** during any of your previous pregnancies	None/not applicable		1
		Pregnancy induced hypertension		2
		Pregnancy induced diabetes		3
		Pre/eclampsia		4
		Other (specify)		5
T2Q15	**What was the **gestational age** at the time of registration of this pregnancy?	First trimester (1 to 13 weeks gestation)		1
		Second trimester (14 to 26 weeks gestation)		2
		Third trimester (26+ weeks gestation)		3

*data can be obtained from ANC booklet

** data can be confirmed from ultrasound report or LMP date

THEME 3: HEALTH SYSTEM DATA			Tick (✓)	Code
T3Q16	At which facility did you register and attend ANC? (**booking facility**)	Hospital		1
		Health Centre		2
		Clinic		3
		CHPS compound		4
T3Q17	What is the walking **distance (time)** from your home to the health facility you attend ANC?	Less than 1Km (≤15 minutes)		1
		1 to 1.5Km (25minutes)		2
		1.6 to 2Km (30 minutes)		3
		2.1 to 3Km (45minutes)		4
		3.1 to 5Km (1 hour)		5
		More than 5Km (> 1hour)		6
T3Q18	What pregnancy related **service(s)** informed the choice of the health facility you attend ANC?	Laboratory services		1
		Ultrasound services		2
		Labour and Delivery services		3
		Curative services		4
		Other (specify)		5
T3Q19	What category of **health professionals** provide the ANC/health services to you in relation to this pregnancy?	Nurses		1
		Midwives		2
		Medical doctors		3
		Combination of all/any of the above		4
T3Q20	In your opinion how do you grade the **attitude** of the health professional(s) that provide the ANC services to you.	Poor		1
		Average		2
		Good		3
		Very good		4
		Excellent		5
T3Q21	What is the main **reason** why you started ANC at the time you did?	Own initiative		1
		I was ill at the time		2
		I was advised by health professional		3
		I was advised by friends/family		4
		Because of financial/NHIS problems		5
		Other (specify)		6
T3Q22	What do you **suggest** health professionals should do to improve timely ANC registration?	i……..		1
		ii……..		2
		iii……..		3
		iv……...		4
				5

Appendix II

UNIVERSITY FOR DEVELOPMENT STUDIES
(SCHOOL OF ALLIED HEALTH SCIENCES)

Tel: 03720-93295

Our Ref: UDS/CHD/0130/13
Your Ref:

P.O. Box 1883
Tamale, Ghana

Date: 22 /04/2015

OFFICE OF THE DEAN

THE DISTRICT DIRECTOR
GHANA HEALTH SERVICE
WEST GONJA DISTRICT.

Dear Sir,

LETTER OF INTRODUCTION

I write to introduce to you **MR. AWUNI A. ISHMAEL,** an Msc/Mphil (Community Health and Development Studies) student of the School of Allied Health Sciences, University for Development Studies.

He is undertaking a thesis research titled: **" DETERMINANTS OF FIRST TRIMESTER ANTENATAL CARE REGISTRATION AMONG PREGNANT WOMEN IN WEST GONJA DISTRICT."**

I will be grateful if you assist him collect the appropriate data to answer his research questions.

Thank you.

Yours sincerely,

Dr. Robert Kuganab-Lem
(DEAN - SAHS)