KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

KUMASI-GHANA

COLLEGE OF HEALTH SCIENCE

SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF HEALTH PROMOTION AND EDUCATION

ASSESMENT OF QUALITY OF ANTE NATAL CARE CONTENT AND TIMING AT THE HOLY FAMILY HOSPITAL, NKAWKAW - EASTERN REGION, GHANA

BY

JANET VANESSA BAAFI

JUNE, 2019

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JANET VANESSA BAAFI (BSC NURSING)

A THESIS SUBMITTED TO THE DEPARTMENT OF HEALTH PROMOTION AND EDUCATION, COLLEGE OF HEALTH SCIENCES, SCHOOL OF PUBLIC HEALTH, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF PUBLIC HEALTH IN HEALTH EDUCATION AND HEALTH PROMOTION

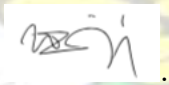
JUNE, 2019

DECLEARATION

I hereby do declare that this dissertation is an original work that I have produced which has not been presented to any person or group elsewhere for award of a degree however references to other people's work have been duly acknowledged.

SIGNATURE……DATE……

JANET VANESSA BAAFI

SIGNATURE…  ……. DATE……

DR. EASMON OTUPIRI

(SUPERVISOR)

SIGNATURE……. DATE…….

DR ANTHONY ADUSEI

(HEAD OF DEPARTMENT)

DEDICATION

Dedicated to my family and friends for their prayers and

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My gratitude first goes to the Almighty God for giving me the strength and knowledge in writing this research report.

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DEFINITION OF TERMS

Ante Natal Care (ANC). It is the care a pregnant woman receives from a health care professional during pregnancy.

Content of ANC Health interventions given to pregnant women at the ANC clinics.

Content and Timing of Pregnancy (CTP) a tool developed by Beeckman et al. (2011) based on clinical relevance for ongoing ANC and recommendations in national and international guidelines. It measures timing of initiation and content of care with three interventions (number of blood pressure (BP), blood screening (BS) and ultrasound screening (US). The CTP tool also classifies care into a four category ordinal scale; inadequate, intermediate, sufficient and appropriate.

Maternal health It is the health of women during pregnancy, child birth and the postpartum period.

Maternal mortality It is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Pregnancy It is the time during which one or more offspring develops inside a woman.

Timing of ANC It is the time a pregnant woman first reports to a health facility to receive ANC services.

ABBREVIATION/ACRONYMS

ANC Ante Natal Care

CHPS Community-Based Health Planning Services

DHS Demographic Health Survey

FANC Focused Ante Natal Care

GDHS Ghana Demographic and Health Survey

GHS Ghana Health Service

HIV Human Immunodeficiency Virus

MDGs Millennium Development Goals

PMTCT Prevention of Mother to Child Transmission

UN United Nations

UNICEF United Nations International Children's Fund

VCT Voluntary Counseling and Testing

VDRL Venereal Disease Research Laboratory

WHO World Health Organization

ABSTRACT

Rendering quality antenatal care (ANC) services to pregnant women would aid in reducing maternal mortality worldwide especially in Sub-Saharan Africa**.** Worldwide, maternal mortality is the top cause of deaths among women between the ages of 15-49 years old and according to World Health Organization (2015) it is now known that approximately 303,000 women die from pregnancy related complications each year. Approximately 800 women die of pregnancy-related complications every day in Ghana mostly occurring in rural areas and this is because pregnant women report to antenatal clinics late and often do not receive the recommended ANC services as some contents of antenatal are also not available at the health facilities.

In 2015, the total ANC coverage of The Holy Family Hospital in the Kwahu West Municipality was 4416 with 3744 consisting of women of reproductive age (WRA). Maternal death was 7and still births 96 out of 3808 deliveries made.

It was upon these grounds therefore that the study seeks to assess the quality of ante natal care services, content and timing at the Holy Family Hospital Nkawkaw, eastern region, Ghana using a tool, Content and Timing of Pregnancy (CTP Tool) developed by Beeckman et al (2011).

Methods: This cross- sectional study was conducted at the Holy family hospital Nkawkaw, eastern region from July to September, 2016. Simple random sampling method was used to select and elicit information from 422 women between the ages of 15-49 years who were in the first week post-delivery period, attending postnatal clinic and who also utilized ANC services at the Holy Family Hospital, Nkawkaw.

Data Analysis was done using Excel version 13 in entering the data and Stata version 12 in analyzing using descriptive statistics such as mean, median and standard deviation and inferential statistics such as logistic regression, Chi-square ($\chi 2$) and correlation matrix.

Results: In categorizing the women according to CTP tool, the inadequate group consisted of 17.75% of the population, 15.5% of the respondents fell into the intermediate group, the sufficient group consisted of 9.5% and more than half of the women (57.25%) fell in the appropriate category. Socio-demographic characteristics such as age, parity, and NHIS status influenced the content of ANC. Pregnant women who were between 34 -39 years were less than 35% as likely to receive recommended content of ANC compared with women within the age group of 16-21yrs (OR = 0.34; 95% CI; 0.12-0.95;p-value 0.04). Women with parity of ≥3 were almost four times as likely to receive recommended content of ANC compared with women with less than 3 children (OR=3.75; 95% CI; 1.09-3.55;p-value 0.02); and those who were non-insured were less than 5% as likely to receive the recommended content of ANC compared with those who were insured (OR=0.04;95% CI; 0.009-0.23;p-value 0.00). Socio-demographic characteristics such as age, parity, basic education and NHIS status influenced the timing of ANC services. Pregnant women who were between 34–39 years were less than 35% as likely to initiate ANC in the first trimester compared with women between 16-21 years (OR= 0.31; 95% CI; 0.11-0.85;p-value 0.05). Women with parity of ≥3 were almost twice as likely to initiate ANC in the first trimester compared with women who had less than 3 children (OR= 1.76;95%CI; 0.98-3.14;p- value 0.05). Women with basic education were less than 25% as likely to initiate ANC in the first trimester compared with their counterpart with no education (OR= 0.22;95% CI; 1.02-19.21;p-value 0.04) ; and non-insured women were less than 5% as likely to initiate ANC in the first trimester compared with insured (OR=0.04;95%CI; 0.009- 0.22;p-value 0.00). In assessing client's perspectives on quality of ANC, 75.5% of the women showed that they were satisfied with the overall

quality of ANC received, 69.25% showed that they were very satisfied with the cognitive and emotional support provided at the ANC and dissatisfaction was found among (23.5%) of the women with regards to the cost of ANC services. as maternal services are to be free according to the NHIS.

Conclusion: The CTP tool focusses on three basic interventions which cannot be solely used in assessing the quality of ANC as ANC encompasses more than these three interventions as recommended by WHO. The CTP tool should be revised to include other interventions to render it more accurate.

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CHAPTER ONE

1.0 Introduction

This chapter details the background information about the study, problem statement, rationale of the study simplifying the essence of the study and conceptual framework. It also includes research question, general and specific objectives, profile of the study area, scope and organization of this report.

1.1 Background

Maternal mortality is still a major public health challenge despite several strategies to curb it (Nikiema *et al*., 2010). Worldwide, it is the top cause of deaths among women between the ages of 15-49 years and according to the World Health Organization (2015) it is now known that approximately 303,000 women die from pregnancy related complications each year.

Pathmanathan et al. (2003) and WHO (2015) revealed that out of the 303,000 maternal deaths that occur each year, ninety-nine percent (99%) takes place in developing countries where women have one in 48 chance of dying from pregnancy associated causes when compared to the ratio in developed countries which is 1: 1,800. Conrad et al. (2012) as cited by Atekyereza and Mubiru (2014) claims that lessons from countries which have achieved low maternal mortality proposes that providing good maternal health care services would improve the health of women thereby reducing maternal mortality.

Even though maternal death is reducing tremendously worldwide, it is prominent in Sub-Saharan Africa and one reason is that pregnant women report late to antenatal (ANC) clinics and often do not receive the recommended ANC services as some contents of ANC are also not available at the health facilities. Other observations that have also been made are that

there is also a wide disparity in ANC attendance, and out of the 71% of pregnant women who attend formal ANC at least once, only 44% make four or more ANC visits (Gross *et al*., 2012; Pell *et al*., 2013).

Maternal mortality is a public health problem in Ghana one of the nations in the Sub-Saharan region of Africa where between 1,400 and 3,900 women and girls are said to be dying from pregnancy-related complications. Additionally, it is said that another 28,000 to 117,000 women and girls will suffer from disabilities caused by complications during pregnancy and childbirth each year. Ghana's maternal mortality ratio is 380 per 100,000 live births (Kyei *et al*., 2016).

The Safe Motherhood Initiative, a component of maternal health instituted by the WHO is to help reduce maternal mortality in the world particularly in developing countries as it incorporates both social and cultural factors and addresses health systems and healthy policies (The World Bank Group, 2016). Antenatal care a component of Safe Motherhood initiative is evidence based intervention that helps reduce maternal mortality when properly conducted. It assists with the detection and treatment of problems related to pregnancy, creating the opportunity for women and their families to be informed about health and the danger signs associated with pregnancy through education, counseling and screening that are vital to the health and well-being of both mother and her baby (Nyatema *et al.,* 2012; Oladapo *et al.*, 2008; Ejigu *et al*., 2013; WHO, UNICEF, 2003).

Early initiation and regular visits to the ANC clinics contributes to timely and effective use of the services thereby preventing any obstetric complication that may arise (Ghana Statistical Service, 2007). Efforts are being made by the Ministry of Health and the Ghana Health Service to ensure that the Focused Antenatal Care (FANC) strategy which includes at least eight ANC visits with structured content promoted by WHO is being implemented in all

health facilities in Ghana where ANC services are available (Ajayi *et al*., 2013; Ghana Health Service, 2013 Kyei *et al*., 2012; WHO, 2016). In Ghana, the Ministry of Health (MOH), Ghana Health Services (GHS) and other health organizations that play key roles in providing free maternal health services and primary health care are required to provide FANC services in all health facilities which focuses towards promoting adequate individualized client centered and all-inclusive services (Ghana Health Service, 2013). The quality of antenatal care is measured to a large extent by the essential contents and services that are rendered to pregnant women at ANC clinics. These includes investigations such as: hemoglobin (HB) level estimation, urinalysis (UG), Blood Grouping and Rhesus Factor (BG and Rh) test, ultrasound (U/S) scan, Venereal Disease Research Laboratory (VDRL), Prevention of Mother To Child Transmission (PMTCT), micronutrient supplementation, tetanus immunization, monitoring of certain vital signs and obstetric and gynecological examinations to aid in the early detection and management of complications that may arise and education on the signs of pregnancy-related complications (Ghana Statistical Service, Ghana Health Service and ICF International, 2015; Mohamed and Mohamed, 2011).

Beeckman et al. (2011) in their study in Brussels on the development and application of a new tool to assess the adequacy and the content and timing of ANC concluded that current measures of ANC are limited to the number of visits and what is perceived by both clients and health care providers as quality. They developed a tool called The Content and Timing of care in Pregnancy (CTP) which is based on clinical relevance for ongoing ANC and recommendations in national and international guidelines. It assesses the minimum care that is recommended in every pregnancy regardless of the parity or health risk of the pregnant woman as it measures the time pregnant women attend ANC clinics and the content of ANC services they receive and then categorizes both the timing and content of care into four categories: inadequate, intermediate, sufficient and appropriate.

Three interventions were assessed in this study: number of blood (BP) measurement, blood studies (BS) and ultrasound screening (US).

The CTP groups were categorized according to the timing of initiation of care. Women who attended ANC clinics after a gestation of fourteen weeks and above were automatically assigned to the "inadequate group". Women who during the whole pregnancy period received at least two ultrasound scan (US), one blood pressure reading (BP) and one blood study assessment (BS) according to the time table of the CTP tool also fell into this category. When at least one intervention occurred less than the minimum recommended number of times but another exceeds the respective range, the women were assigned to the "intermediate" group. "The sufficient" group consist of women who received the minimum recommended number of interventions, meaning at least they had six (BP), two (BS) and two (US) throughout the pregnancy period. Women in the "appropriate" group are those who received the minimal care package recommended for each trimester irrespective of their risk status or parity. For example, women belong to this group when during the first trimester had at least one (US), one (BP) and one (BS), during their second trimester had at least one (US) and two (BP) measurements, and during their third trimester, had at least three (BP) measurements and one (BS). This study aimed at using this tool in assessing the adequacy of the above interventions of ANC for pregnant women by studying postpartum women aged of 15-49 years and who were in their first week post-delivery in a rural area in the Eastern Region of Ghana.

1.2 Problem Statement

Approximately 800 women die of pregnancy-related complications every year in Ghana and most of the deaths occurring in rural areas with common cause such as; ante partum and postpartum hemorrhage, hypertensive disorders, infection, malnutrition and anemia (Afulani, 2015).

In 2015, the total ANC coverage of The Holy Family Hospital in the Kwahu West municipality was four thousand four hundred and sixteen (4416) with three thousand seven hundred and forty-four (3744) consisting of women of reproductive age (WRA). The hospital recorded seven (7) maternal deaths and ninety-six (96) still births out of the three thousand eight hundred and eight (3808) deliveries made (Ghana Health Service, 2016).

Maternal and neonatal mortality rate are indicators of the level and quality of ante-natal, obstetric and neonatal services provided in a country and since there is the desire for zero percent (0%) maternal mortality and less than one percent (1%) still births there was the need to assess the quality of antenatal care, content and timing at this health facility in preventing adverse pregnancy outcomes.

1.3 Rationale of Study

In Ghana and in most of the developing countries, pregnant women are receiving substandard care as some health facilities especially those in the rural areas do not have the necessary logistics to provide quality antenatal care services (Mohamed and Mohamed, 2011: Ghana Statistical Service *et al*., 2015). Maternal deaths would reduce when nearly all pregnant women have access to essential maternal and basic health services. The CTP tool which uses intervention such as the use of ultrasound (US), blood studies (BS) and blood pressure measurement (BP) could aid in assessing the adequacy of ANC using the minimum recommended care pregnant women receive at the time they visit the ANC clinics.

Searches of available and published literature reveal that no such study has been done in this municipality and thus justifies why this study was done to assess the quality of ANC.

The findings of this study could be of enormous significance to stakeholders in the country as it will aid health personnel, the Kwahu West Municipal Health Directorate, the Holy Family Hospital, the Ministry of Health, the Ghana Health Service and other health institutions plan

and target specific interventions, policies and programs for pregnant women in reducing maternal mortality.

1.4 Conceptual Framework

1. Socio-demographic characteristics such as age, level of education and parity and NHIS status influences the timing and content of ANC. The level to which a woman has acquired knowledge and skills and the number of live births she has influences her initiation, the frequency of ANC attendance and the assessment she receives at the ANC.

2. Timing of ANC: The gestation week at which a pregnant woman initiates and frequently attend the ANC clinic including the decision of her attendance to the ANC clinic either decided by herself, her husband/partner or her parents has an influence on the timing of ANC.

4. Content of ANC: Well-equipped health facility having the ability to provide adequate content of ANC services as well as effectively and efficiently manage obstetric conditions.

5. Client's perspective on quality of ANC: Available indicators at the ANC clinic that determines what clients perceive as quality

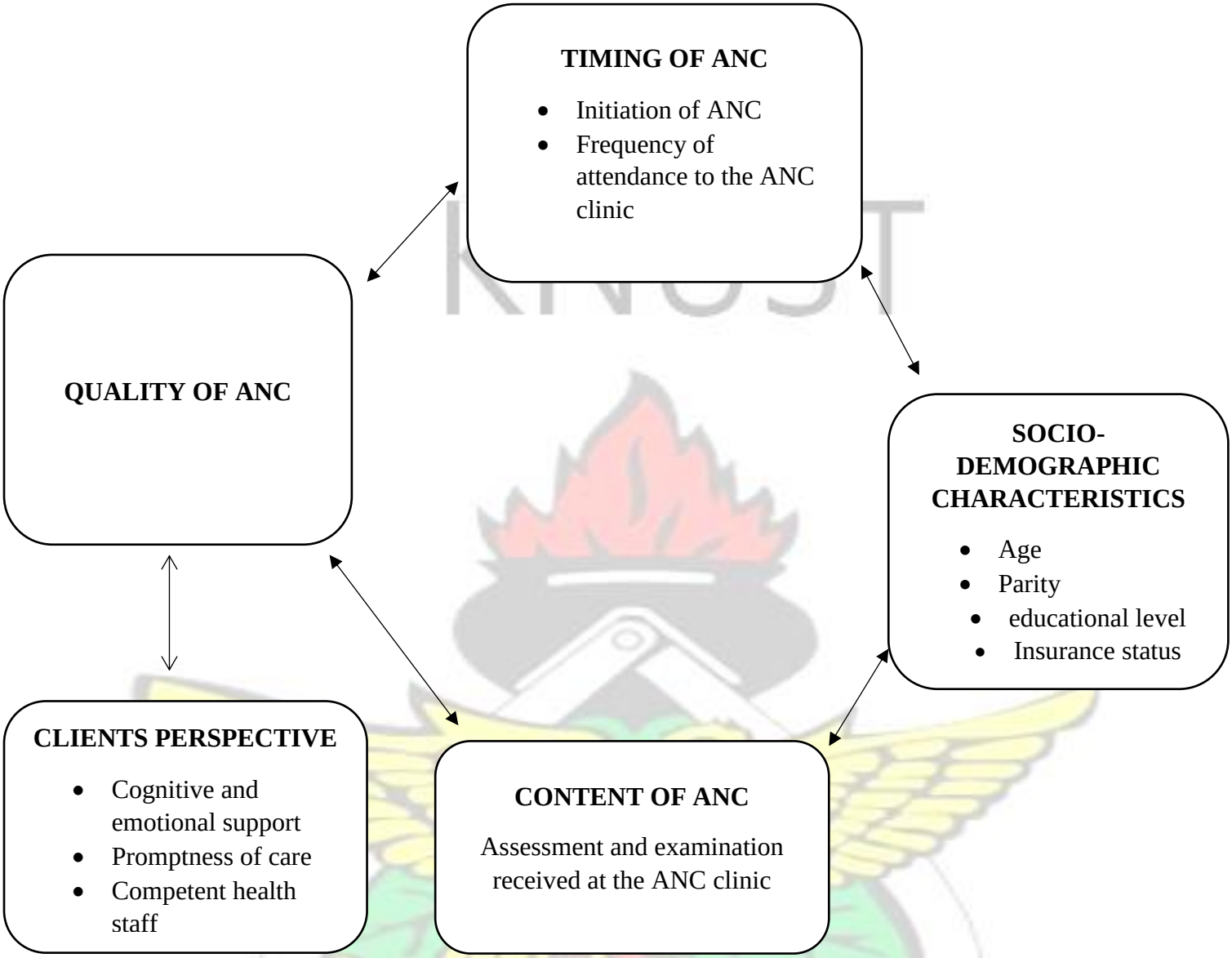


Figure 1.1 Conceptual Frameworks. (Author's construct)

1.5 Research Question

What is the quality of antenatal care at the Holy Family Hospital Nkawkaw, Eastern region, Ghana?

1.6 Objectives

1.6 General Objective

To assess the quality of antenatal care services rendered to clients at the Holy Family Hospital Nkawkaw, Eastern region.

1.7 Specific Objectives

- To assess the content and timing of pregnant women using the CTP tool.
- To determine the influence of socio-demographic characteristics of pregnant women on the content of ANC.
- To determine the influence of socio-demographic characteristics of pregnant women on the timing of ANC.
- To assess client's perspective on the quality of ANC services.

1.8 Profile of Study Area

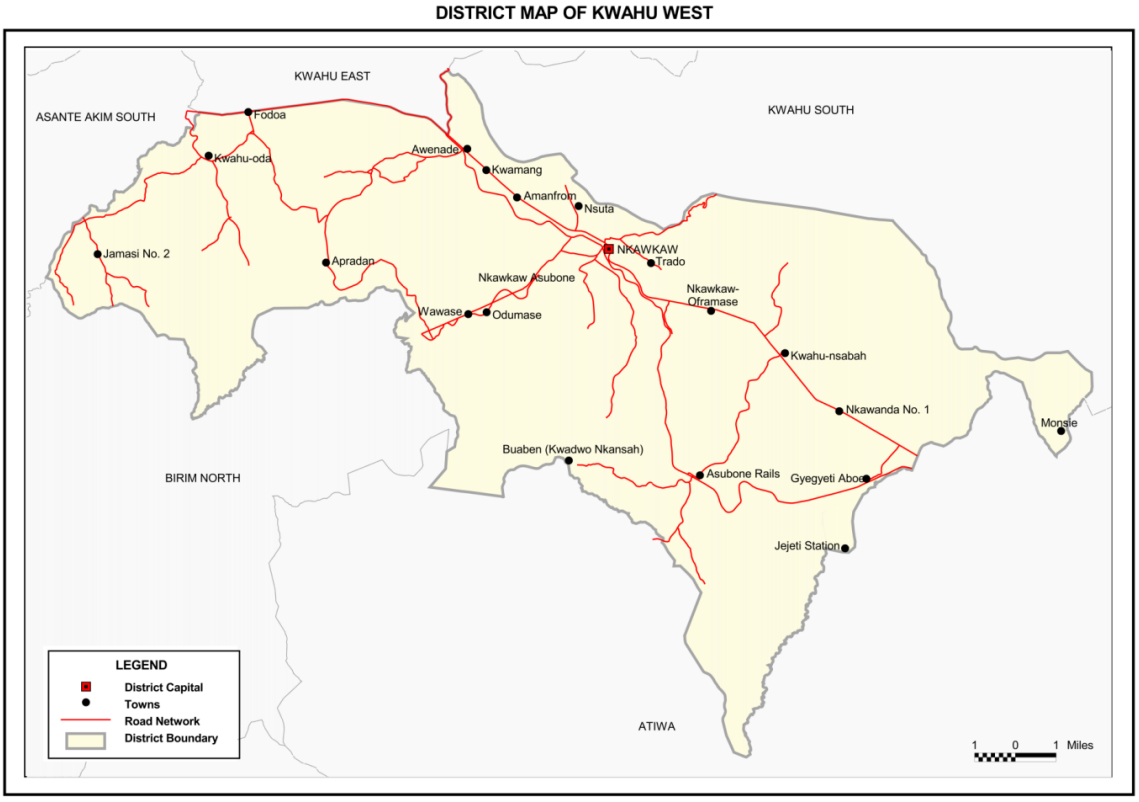
Kwahu west municipality is located in eastern region with Nkawkaw as its capital. Located on the main Accra – Kumasi trunk road, it is 155km north of Accra and 102km south of Kumasi. It has a total population of 93,584. The Municipality is bordered to the north by Kwahu south, west by Asante-Akim South Municipality, east by Fanteakwa and to the South by Birim North and Atiwa Districts. The Municipality has a total land size of 401km2 with a total of 23,296 households with an average household size of 3.9 persons per household.

Most inhabitants are engaged as skilled agricultural, forestry and fishery workers, craft and related trade. There are thirty-two community based health planning services, 10 health centers, 3 private hospitals and one mission hospital which happens to be the municipal hospital, Holy family hospital. The municipal works in line with the National Health

Insurance Policy aimed at improving access to affordable quality health care, and ensuring equity in health care delivery. The Holy family hospital act as

9Level C) District Hospital. The hospital serves about 98,000 inhabitants in the Kwahu west municipal. It has a bed capacity of 227-bed wards with has all departments and units of a hospital.

The hospital has staff strength of 180 made up of 5 doctors, 2 physician assistants 100 nurses, 2 pharmacists, 5 laboratory technicians, 1 radiographer, 1 optometrist and the rest are paramedical staff and temporal workers. The Holy family hospital is predominately the focus for the care of HIV-related disease in the Kwahu west municipality of Ghana. The hospital is a member of the Christian Health Association of Ghana.



Source: Ghana Statistical Service, GIS

1.9 Scope of Study

The study was limited to 400 women between the ages of 15-49 years who were in their first week post-delivery period at the Holy Family Hospital Nkawkaw, Eastern region in assessing the quality of ANC: content and timing. The WHO ANC Basic Checklist and the Content and Timing of care in Pregnancy (CTP), a tool developed by Beeckman et al. (2011) was used in measuring the timing and content of care. Three interventions were assessed: (number of blood pressure (BP), blood screening (BS) and ultrasound screening (US) and respondents were categorized into four groups; inadequate, intermediate, sufficient and appropriate were then asked on their perspective on the quality of care they received.

A pilot study was undertaken at the Kwahu Government Hospital. Data were managed and analyzed with Excel windows version 10 and Stata version 12 using descriptive statistics and inferential statistics such as Chi-square ($\chi 2$), Logistic regression and correlation matrix. The study was approved by Ethics Committee of the Kwame Nkrumah University of Science and Technology, and management of the Holy Family Hospital.

1.10 Organization of Report

The report consists of six chapters. Chapter one provides basic information on maternal mortality and antenatal care. The problem statement, rationale, objectives and scope of study are all described. Chapter two concentrates on literature review on the study variables. Chapter three focuses on methodology. Results and analysis are displayed in chapter four. Chapter five presents the discussion of the study which is linked with the research questions, objectives, key variables and literature review. The final chapter, chapter six summarizes key findings and makes appropriate recommendations

CHAPTER TWO

2.0 Literature Review

Introduction

This chapter reviews literature relating to quality of antenatal care. It includes overview of antenatal care, content and timing of ANC, influence of socio-demographic characteristics of pregnant women on the content and timing of ANC and client's perspective on quality of ANC.

2.1 Antenatal Care Overview

Ante natal care (ANC) is the care between a pregnant woman and trained health personnel at a health facility and during outreaches where services that monitor and improve the health of the woman are provided so that the woman gives birth to a have healthy new-born (Andrew *et al*., 2014). Frequent ANC visits improves and maintains the physical and mental health of the pregnant woman and her unborn baby as the woman acquire knowledge on nutrition, family planning, the birthing process, breast feeding, detecting and managing complications during pregnancy whether medical or obstetrical **(**Abosse *et al*., 2010; Nikiema *et al*., 2010; Ekabua *et al*., 2011).

The WHO has recommended series of interventions as part of ANC services emphasizing more on the quality than the quantity of care rendered to pregnant women. This type of ANC care is more focused, individualized, client-centered and all-inclusive. It limits the content of care rendered to counseling, examination test to detect any complication that may arise during pregnancy and interventions that yield direct results. It also states that pregnant women should start ANC before 13 weeks of gestation and make a minimum of eight ANC visits with at least one visit during each trimester (Andrew *et a*l., 2014; WHO, 2016; Nwaeze *et al*., 2013; Ghana Health Service, 2013).Most countries worldwide have put into effect

strategies and programs to render high quality basic and maternal health services to women in reducing deaths (WHO, 2016). In Ghana, the establishment of CHPS compounds and the implementation of the Safe Motherhood Initiative which includes FANC are to reduce the level of unmet needs during pregnancy and ensure delivery by a skilled birth attendant. The quality of ANC for pregnant women is influenced by both the timing and content of ANC

2.1.1 Content of ANC

The success of any ANC depends on implemented policies which are easily assessable and inexpensive and which are of high quality during and after pregnancy. This proposes that important contents must be provided during ANC visits as pregnancy related complications are associated with inadequate ANC (Fagbamigbe and Idemudia, 2015)

Trained health professionals who provide adequate content of ANC services enable pregnant women achieve good health and reduce pregnancy complications (Afulani, 2015). As recommended by the WHO, Ghana's reproductive health (RH) policy and standards ensures pregnant women who visit ANC clinics are provided with services and interventions in screening for conditions and diseases such as; anemia, STIs (particularly syphilis), HIV infection, hypertension in pregnancy, gestational diabetes, malaria and hepatitis B virus. During ANC, education on the danger signs of pregnancy and preventive measures such as tetanus toxoid immunization, administration of anthelminthic, iron and folic acid, intermittent preventive treatment for malaria in pregnancy (IPTp), distribution of insecticide treated bed nets (ITN), ultrasound scan and urine test as recommended are rendered to pregnant women. Other vital signs measurement such as routine weight and height measurement, abdominal examination and blood pressure measurement are also provided. (WHO,2001; Beeckman *et al*., 2011; Ghana Health Service, 2014; Ayayi *et al*., 2013).These assessments are important as routine measuring of blood pressure aid in the detection of pregnancy induced

hypertension and pre-eclampsia, ultrasound scan done in measuring gestational age and detection of structural abnormality and blood studies carried out in screening for hemoglobin level and infections that the pregnant woman can transmit to the fetus in-vitro such as HIV and Hepatitis B. (Beeckman *et al*., 2011).

2.1.2 Timing of ANC

Timing is when pregnant women initiates and make regular visits to the ANC clinic. According to WHO (2016), every pregnant woman is required to make her first ANC visit within the first three months of pregnancy and make at least eight visits over the whole pregnancy period. Some women attend early and others late. Socio-demographic factors such as age, parity, educational level, health insurance status, marital status and occupation of the woman influences timing of ANC (Andrew *et al.*, 2014; Bbaale, 2011; Ciceklioglu *et al*., 2005; Halle-ekane *et al*., 2014). In Ghana, it is known that only 45% of pregnant women make their first ANC visit in the 1st trimester and 17% register in the 3rd trimester (Ghana Health Service, 2014) but with the implementation of the CHPS policy, the proportion of pregnant women registering early for ANC early would be increased (Ministry of Health Ghana, 2014). Reasons why some women attend late can be found in a report by (Kisuule *et al.*, 2013) in Uganda where they concluded that some pregnant women initiated their ANC late because they were not informed on the right gestation to start ANC whiles others did not know the benefits of attending ANC clinic early. Lack of support from significant others and the late recognition of a pregnancy is also a determining factor with timing of ANC (Gross *et al.*, 2012). As timing of ANC reflects the quality of ANC, Beeckman et al. (2011) developed a tool called "Content and Timing of Pregnancy" (CTP tool) which assesses the quality of care pregnant women receive according to the time they initiate ANC with recommended contents and then categorizes the care into inadequate, intermediate, sufficient and appropriate group.

2.2 The Influence of Socio-demographic Characteristics of Pregnant Women on the Content and Timing of Antenatal Care

There is a variation between socio-demographic characteristics of pregnant women and timing of ANC services as knowledge from social determinants of health explains how conditions in which people are born, grow, live and work influences their health (Braveman & Gottlieb, 2014).

The timing and number of ANC visits are important to detect and prevent complications associated with pregnancy. Effectiveness of ANC starts with early initiation with regular visits. The World Health Organization (WHO) recommendation for ANC adopted by the Government of Ghana recommends that by 13 weeks, nearly all pregnant women should start ANC making at least eight visits to the ANC clinic with one visit during each trimester of the pregnancy. (Ghana Statistical Service, 2007; Abosse *et al*., 2010; Beeckman *et al*., 2011; WHO, 2016).

It is reported that most pregnant women attend the antenatal clinic at least once in the course of pregnancy while not receiving all the content of ANC. If nearly all pregnant women attend ANC clinic according to WHO antenatal care model and receive the basic contents of ANC services, it could significantly reduce pregnancy related complications (Afulani, 2015; WHO, 2016).

Factors such as age, parity, education level, marital status, health insurance status, decision power and occupation influence timing of antenatal care.

Maternal age can negatively and positively influence timely initiation of ANC. Teenage mothers are less likely to timely initiate ANC visits than their older counterparts because of the stigmatization associated with teenage pregnancy (Cicekliogl*u et al*., 2005). Older adult women on the other hand may timely initiate ANC visits early due to their experience with

their previous pregnancies, having adequate information to manage the pregnancy or feel reluctant in initiating ANC early mostly due to the fact that they have not encountered any pregnancy complications (Abosse *et al*., 2010; Arthur, 2012).Maternal age as a predictor of ANC initiation is likely to determine the content of ANC a woman receives at the ANC clinic irrespective of the woman's age at the time of initiating ANC (Abosse *et al*., 2010; Arthur, 2012; Kisuule *et al.*, 2013). For instance, previous study in Uganda argued that more than half of pregnant women who were older adults were reluctant to timely initiate antenatal care services early due to the lack of complications in their pregnancy as it had an influence on the content of ANC services the women received (Kisuule *et al.*, 2013).

The number of live births a pregnant woman has is a determining factor in her initiation of ANC (Halle-ekane *et al*., 2014). The rate of negligence for pregnancy and its related issues (pregnancy induced hypertension or gestational diabetes) is likely to increase in women with higher parity. The care of other children at home makes it a bit difficult for some women to timely initiate ANC in order to receive the recommended content of ANC (Joshi *et al.*, 2015). Two studies by (Andrew *et al.*, 2014 and Pell *et al.*, 2013) concluded from their findings on nulliparous women timely initiating ANC and receiving the recommended content of ANC services than multiparous women.

Maternal education has shown to influence timing of ANC services as their association is statistically significant (Onasoga *et al.*, 2012; Halle-ekane *et al*., 2014; Kalule-sabiti *et al*., 2015).Education promotes new beliefs and attitudes that are encouraging to the use of modern health care services. Female education decrease gender disparity and empowers women. It enables women desire to receive care from qualified and competent health personnel (Joshi *et al.*, 2015).As a woman attains a higher educational level, her knowledge on health issues and effective use of ANC increase influencing decisions taken concerning her health thus enabling her to timely initiate ANC in order to receive the recommended

content of ANC. Improving the education of the mother in Ghana especially on health issues will contribute greatly to the use of maternal health services and thus help in reducing maternal and child mortality in Ghana(Ghana Health Service, 2015; Gebremeskel *et al.*, 2015**)**.

The amount of income earned is influenced by the type of job a woman holds which in turn influences her ability to pay for health services. The occupation of women plays an important role in the timely initiation of ANC as well as the recommended content of ANC she receives. The job demands, not being given permission by their employers to attend ANC clinic and the opportunity cost involved influences the timely initiation to the ANC clinic (Nghitanwa andTuwilika, 2017). A previous review by (Ajayi *et al.*, 2013) in Nigeria stated in their report that a larger proportion of pregnant women who were unemployed and semi-skilled workers timely initiated ANC services and received the recommended content of ANC services when compared to those who were skilled workers.

Marital status at times contributes to the timing of ANC. Pregnancy usually brings joy to married couples which is likely to influence a woman's timely initiation of ANC. Women who are unmarried oftentimes live with other family members who may or may not provide support to for these pregnant women during their pregnancy period. The feeling of unwantedness by their significant others may also be a predictor for timely initiation of ANC (Kalule-sabiti *et al*., 2015).

Delays in the decision to attend antenatal care clinic may result in many pregnant women presenting very late at health facilities preventing them from receiving the recommended content of ANC (WHO, 2015). Both autonomy and involvement of the pregnant woman, her parents and partner in the decision making process for the initiation of ANC predicts the timing of ANC (Kondale *et al*., 2015). For instance, in the Ghanaian society, parents

especially mothers' influences initiation of ANC usually in instances where the pregnant woman has no partner, is a teenager or, physically or mentally handicapped or the woman is unemployed. Parental dominance in decision making on ANC attendance deserves much attention in order to reduce undesirable health impacts. (Bbaale, 2011; Andrew *et al.*, 2014; Gross *et al.*, 2012).

In 2003, the NHIS implemented a policy authorizing all insured pregnant women to have access free antenatal care services. It is believed that nearly all pregnant women after being certified by health personnel would be able to receive the recommended content of ANC services because she would automatically be enrolled onto the NHIS. These insured pregnant women are less likely to experience pregnancy complications because they are more likely to receive the recommended contents of ANC during their visits to the ANC clinics while pregnant women who are uninsured are more likely to experience pregnancy complications because they delay in timely initiating ANC which prevents them from receiving the recommended contents of ANC (Asundep *et al.*, 2013; Andrew *et al.*, 2014) Some certain health care services may be offered to women who can afford and those who are insured but not to those who cannot afford and are uninsured (Gebremeskel *et al.*, 2015;Afulani,2015; Sword *et al.*, 2015).

2.3 Client Perspectives on Quality of Antenatal Care Services

The whole concept of quality of care can be broadly grouped into to three main attributes: structure, process and outcomes. Good physical environment, cleanliness, availability of adequate and competent human resources, medicines and supplies are the structural attributes, interpersonal behavior, privacy, promptness of care, cognitive and emotional support determines the process attributes and outcome related determinants are the final health status of the client (Srivastava *et al*., 2015). Studies have shown that health care

providers perceive their technical precision and availability of medical supplies as quality of care while clients perceive quality of care as attributes health care providers (Oladapo *et al.,* 2008).

Good physical environment and efficient management plays an important role on the perceive quality of care among pregnant women (Srivastava *et al.,* 2015). Satisfaction with the physical appearance and amenities in a health facility is the presence of well-structured health facility, clean washrooms, clean water to bathe and wash their hands, good lighting system, proper waste disposal, airy and spacious waiting areas with adequate seats which is likely to influence the utilization of ANC services (Falowe *et al*., 2008; Tancred *et al.,* 2016). Falowe et al. (2008) study in Nigeria affirm this as participants in their study were on the whole satisfied with the clinic amenities at the health facility they utilized whilst in North-West Ethiopia, pregnant women satisfaction with the over-all perceived quality of care received in a clinic was poor as the study discovered absence of a clean latrine, in adequate water supply, inadequate waiting area and seats (Ejigu *et al*., 2013).

Clients satisfaction with the availability and adequacy of health personnel at a health facility is perceived as quality of care (Tancred *et al*., 2016) With the CHPS policy in Ghana the equitably distribution of qualified health personnel of all grades and categories to every part of the nation would increase the utilization of health care services for best health outcomes especially maternal health care services (Ghana Health Services, 2014).

A health facility with a well-stocked dispensary or pharmacy, adequate medical supplies and equipment's at the various units of the facility that enables health personnel's execute services proficiently is perceived by clients as quality of care(Tancred *et al.,* 2016).

Good attributes of health care providers such as promptness of care, caring and culturally sensitive to the health needs of clients especially pregnant women would result in continual utilization of the services (Phillipi, 2013).

Client's perception and expectations of technical competencies, cognitive and emotional support of health providers would largely depend on their knowledge about expected care which can be attributed to previous experience and their educational status (Oladapo et al., 2008; Srivastava *et al*., 2015; Tancred *et al.*, 2016). Studies conducted by Oladapo et al. (2008) in Ogun State, Nigeria and Srivastava et al., (2015) in India demonstrated that women attending antenatal clinics in general were satisfied with the quality of maternal services received as majority of the women were pleased with the level of expertise and technical competence of their providers. Perceptions of service quality were negatively associated with technical competencies of health personnel in sampled health facilities in a study by (Alhassan *et al*., 2015) where they perceived the technical competencies of the health staffs as not satisfactory due to misunderstandings concerning issues with the channel of information from health professionals to clients.

Cognitive and emotional support from health personnel ensures that clients are not ignored, informed about their diagnosis as well as prognosis, health personnel are gentle, compassionate and helpful during their interaction (Tancred *et a.l*, 2016). Clients who are given support in the form of receiving adequate information or encouragement are reported as feeling a greater sense of control over their health (Srivastava *et al*., 2015). Respondents in Dhahi et al (2015) study in Iraq revealed that more than half of their respondents were very satisfied with the cognitive and emotional support they received from health providers as the health providers took time to listen to them as they aired their problems, answered all their questions and shown interest in their concern (Nwaeze *et al*., 2013; Sholeye *et al.*, 2013).

Clients dissatisfaction with their interaction with health providers maybe due to poor attitudes, high client flow and health personnel-patient ratio (Ejigu *et al*., 2013).

There is a significant association between convenience of access to a health facility and perceived quality of ANC care as location of the facility influences the utilization of ANC services. Clients who reside close to a health facility have easy access to it as compared to those who reside farther away from the facility as they have to travel long distances and incur some cost before being able to access the facility (Srivastava *et al.,* 2015).

Clients who are enrolled on health insurance schemes are able to access health services covered by the insurance scheme. In Ghana, the NHIS has a policy for pregnant women to enjoy the free maternal health services for those who are members. Pregnant women who are not members have to resort to the cash and carry system for cost of health services (Ghana Health Service, 2014). It is therefore important for health personnel to educate the public on the importance of enrolling on the NHIS as costly health care services averse clients from utilizing those services especially clients without health insurance (Philippi, 2013).

Customer satisfaction is affected not just by waiting time but the reason for waiting (Nwaeze *et al.*, 2013; Dhahi *et al.*, 2015; Soliman, 2015) Clients who wait for shorter time to receive health services are more likely to be satisfied than those who wait for longer hours. A pregnant woman's perception on time spent at the clinic is significantly influenced by her educational attainment and socioeconomic status. It is more likely that those with higher levels of education are conscious of the time they spend at the clinics (Falowe *et al.*, 2008).

CHAPTER THREE

3.0 Methodology

Introduction

This chapter deals with the type of research design used, data collection and analysis tools, study population and the sampling procedure. Limitation of the study and assumptions are also explained in this chapter.

3.1 Research Methods and Design

Cross-sectional study design was employed because data were collected from women who were in their first week post-delivery who assessed ANC services at the Holy Family Hospital, Nkawkaw, Eastern Region of Ghana from July-September, 2016. Quantitative methods were used in collecting data from the respondents. The study also adopted descriptive statistics and inferential statistics such as Chi-square test ($\chi 2$) logistic regression and correlation matrix in the analysis. The perceived quality of care was examined and ranked on a Likert scale ranging from poor to excellent.

3.2 Data Collection Techniques and Tools

A semi-structured questionnaire that was interviewer administered was used in collecting data from four hundred women who had delivered and were in the first week post-delivery between the ages of 15-49 years from the period of July-September, 2016 at the Holy Family Hospital, Nkawkaw Eastern Region. Systematic sampling technique was used in selecting the participants. Both the principal investigator and the trained research assistants administered the questionnaire to participants in the local language. Data collection was carried out between 9:00 am and 3:00 pm and daily meetings were held between the principal investigator and research assistants to clean the data collected to provide valid and reliable

information for the study before it was entered into Microsoft Access. Questionnaire was adopted from the WHO antenatal care model basic component checklist and the CPT tool checklist.

3.3 Study Variables

The dependent variable that was studied was quality of antenatal care. Assessing the services that women receive at the ANC clinic and the independent variables included in the study were the socio-demographic characteristics; age, marital status, religion, education level, parity, health insurance status and decision making power.

Table 1.0: Definition of Variables in the Study

No.	Name of Variable	Definition
1.	Age of woman	Exact age reported by women and results categorized into five groups. • 16 – 21 • 22 – 27 • 28 – 33 • 34 – 39 • ≥ 40
2.	Ethnicity	Women reporting the ethnic group they belong to which has been categorized into five groups. Akan = 1 Ga/ Dangme =2 Ewe =3 Northern =4 Others =5
3.	Education level	Women reporting the highest certificate/degree they had obtained which has been categorized into seven groups in the questionnaire but recoded into four groups in the results. • No education • Basic (Primary and Junior) • Secondary • Tertiary
4.	Marital status	Women reporting their situation with regard to whether single, separated or married

		which have been categorized into six groups in the questionnaire but recoded into four groups in the results. • Single • Separated • Co-habitation • Married
5.	Occupation	Women reporting the kind of job or profession they are engaged in which is categorized into eight groups in the questionnaire but recoded into three groups in the results. • Unemployed • Semi-skilled employment • Skilled employment
6.	Religion	Women reporting on the type of belief and worship they associate with which has been categorized into four groups in the questionnaire but recoded into three groups in the results. • None • Islam • Christianity
7.	Parity	Women reporting having one or more live birth and results categorized into ten groups in the questionnaire but recoded into three groups in the results. • 1 – 2 • 3 – 5 • ≥ 6
8	Decision making power	Women reporting on who makes the decision for their attendance to the ANC clinic which is categorized into four groups. • Self =1 • Husband/partner =2 • Client and husband/partner =3 • Parents =4
9.	Husband/Partner education level	Women reporting on the highest certificate/degree their husbands/partners had obtained which have been categorized

		into eight groups in the questionnaire but recoded into four groups in the results. • No education • Basic (Primary and Junior) • Secondary • Tertiary
10.	Husband/Partner occupation	Women reporting on the kind of job or profession their husbands/partners are engaged in which have been categorized into nine groups in the questionnaire but recoded into three groups in the results. • Unemployed • Semi-skilled employment • Skilled employment
11.	Timing of ANC Weeks of gestation at initiation of ANC Total number of ANC consultations	Women reporting the gestational age they first reported to the ANC clinic which have been categorized into two groups in the result. • 0 – 13 weeks (1st trimester) • 14 – 26 weeks (2nd trimester) Women reporting the number of times they attended the ANC clinic which has been categorized into two groups in the results. • Inadequate (≤4 visits) • Adequate (> 4visits)
12.	Content of ANC Assessment/Interventions Received by Respondents according to WHO ANC Basic Checklist Characteristics of Received ANC	Women reporting on the assessment and interventions they received during their whole pregnancy period at the ANC clinic Women reporting on the number of assessment and interventions they received according to the CTP tool

3.4 Study Population

The study population consisted of women between the ages of 15-49 years who were in their first week post-delivery attending post-natal clinic and who utilized ANC services at the Holy Family Hospital Nkawkaw, Eastern region from July-September, 2016. Women who were not in their first week post-delivery and not within the selected age limit were excluded.

3.5 Sampling

3.5.1 Sample Size

A total sample size of 422 women between the ages of 15-49 years who were in their first week post-delivery was selected using this statistical formula.

$n = Z^2 (pq)/d^2$ used to determine the minimum number of subjects to be included in the study; where; n = sample size

Z = the reliability co-efficient for 95% confidence interval set at 1.96

P = estimated proportion of pregnant women between the ages of 15-49years who utilized ANC services at the Holy family hospital (50%)

q = 1- p (Estimated proportion of pregnant women who do not utilize ANC services)

d = precision desired (tolerated margin of error) 0.05

If the value of p is 0.5 (which gives large sample size) and the desired precision is chosen to be 0.05 with statistical certainty of 95% (Z = 1.96), then

$n = (1.96)^2 * (0.5*0.5)/ (0.05)^2$

n = 384

The minimum sample size to be chosen for this study was 384 but an adjustment of 10% of dropout and non-compliance was added totaling 422 (Snedecor and Cochram 1989).

3.5.2 Sampling Technique

Simple random sampling method was used to select the women between the ages of 15-49 years who were in their first week post-delivery who attended post-natal clinic at the Holy family hospital. Using a list of all the 3744 women who utilized ANC at the Holy family

hospital in 2015, random number generator software was used to select the women. The women who belonged to these numbers constituted the sample.

3.6 Pre-testing

This was done at the Kwahu Government Hospital, Kwahu Eastern Region because of its similar socio-cultural and socio-economic settings with the Holy family hospital, Nkawkaw. The pretesting ensured that respondents did not have any difficulties understanding the questionnaire. The questionnaires were pre-tested on 40 respondents after which corrections were made where necessary.

3.7 Data Handling

Daily meetings were held between the principal investigator and research assistants to clean the data collected to provide valid and reliable information for the study. Excel Windows version 10 was used in entering the data on daily basis by the principal investigator and the research assistants after which it was analyzed using STATA SE12.0.

3.8 Data Analysis

Data cleaning was done and completed questionnaires were processed and analyzed using STATA version 12 for analysis. Descriptive and inferential statistics were used to present the results of the study. The descriptive statistics were presented using frequencies, percentages, mean, median and standard deviation. Descriptive statistics was used to rank the pregnant women perceived quality of ANC care using a 5 point Likert scale where 1= poor; 2= fair; 3 =good; 4= very good and 5= excellent. The study used Chi-square ($\chi 2$) test to examine the influence of socio-demographic characteristics on the timing and content of ANC. Inferential statistics such as logistics regression analysis reporting odds ratio was also used to examine the influence of socio-demographic factors of pregnant women on the content and timing of ANC.

3.9 Ethical Consideration

Ethical approval was provided by the Committee on Human Research Publications and Ethics at the Kwame Nkrumah University of Science and Technology/ Komfo Anokye Teaching Hospital. Administrative clearance was provided by the health directorate of the Kwahu West municipality and the Kwahu South district, the Holy Family Hospital as well as the Kwahu Government Hospital. Anonymity, confidentiality and informed consent were observed. The purpose of the research was explained to the respondents and only consenting women were interviewed.

3.10 Limitations of Study

The limitations of the study include the fact that the CTP tool focuses on three basic interventions during pregnancy and ANC encompasses more than these three interventions according to WHO recommendations. The difference between the two countries in which the CTP tool has been used also accounts for some limitations.

3.11 Assumptions

The study assumes; that opinions expressed by the respondents were fairly representative of the views of the general population, the respondents understood the questions that were asked, the research assistants were careful in the administration of the questionnaire and answers that were provided by respondents and were not altered prior to entry and there was no recall bias.

CHAPTER FOUR

4.0 Results of the Study

4.0 Introduction

The chapter presents the results based on the key variables in an attempt in covering the research questions which is structured into the various specific objectives.

4.1 Socio-demographic Characteristics of Respondents

The background information of respondents enrolled in the study is presented in table 4.1. The median and mean age of the women was 27 years and 27.75 years respectively. With an average parity of 2 (SD=1.22). More than half of the surveyed women (55%) had had basic education at the primary and junior high school level with most women (73.75%) being married while less than a fifth each were single and cohabitating. More than a third of the respondent each had their partners being educated up to primary and junior higher school level. About 73.5% of the respondents were engaged in semi-skilled employment; however, nearly 10.5% were unemployed. Partners of most of the respondents (84%) were engaged in semi-skilled employment such as artisan and trading. The majority of the surveyed women (97.5%) were NHIS members and then about 93.7% of the respondents were Christians whiles 74% belonged to the Akan ethnic group.

Table 4.1: Socio-demographic Characteristics of Respondents

Variables	Frequency	Percentage
Continuous variables		
Age		
16 – 21	50	12.50
22 – 27	152	38.00
28 – 33	143	35.75
34 – 39	47	11.75
≥ 40	8	2.00

Median; mean (SD)	*27; 27.75 (5.45)*	
Parity		
1 – 2	257	64.25
3 – 5	140	35.00
≥ 6	3	0.75
Median; mean (SD)	*2; 2.29 (1.22)*	
Categorical variables		
Education		
No education	33	8.25
Basic (Primary and Junior)	220	55.00
Secondary	95	23.75
Tertiary	52	13.00
Marital Status		
Single	48	12.00
Separated	8	2.00
Co-habitating	49	12.25
Married	294	73.75
Occupation		
Unemployed	42	10.50
Semi-skilled employment	294	73.50
Skilled employment	64	16.00
Partners Education		
No education	15	3.76
Basic (Primary and Junior)	130	32.58
Secondary	156	39.10
Tertiary	98	24.56
Partners Occupation		
Unemployed	4	1.00
Semi-skilled employment	339	84.00
Skilled employment	56	14.04
NHIS status		
Insured [active membership]	390	97.50
Uninsured	10	2.50
Religion		
None	7	1.75
Islam	18	4.50
Christianity	375	93.75
Ethnicity		
Akan	298	74.50
Ga/Dangme	37	9.25
Ewe	26	6.50
Northern	34	8.50
Others	5	1.25

Source: Field Data, 2017

4.2 Content and Timing of Pregnancy using the CTP Tool

4.2.1 Characteristics of Received Content of ANC; (BP), (US) and (BS)

The study measured the content of ANC services received by pregnant women using the Content and Timing of Care in Pregnancy (CTP) tool across three interventions; blood pressure, ultrasound scan and blood studies done for the entire pregnancy period which is presented in Table 4.2

Table 4.2: Characteristics of Received Content of ANC; blood pressure measurement (BP), ultrasound scan (US) and blood studies (BS)

Variable	**1st trimester**		**2nd Trimester**		**3rd Trimester**		**Entire pregnancy period**	
	Mean (SD)	Median (P25-P75)	Mean (SD)	Median (P25-P75)	Mean (SD)	Median (P25-P75)	Mean (SD)	Median (P25-P75)*
Gestation weeks for initiation ANC							9.8 (4.10)	8 (8 – 12)
Number of ANC consultations							5.1 (2.01)	4 (4 – 7)
Number of times blood pressure was measured	2.3 (0.73)	2 (2 – 3)	2.3(0.56)	2 (2 - 3)	3.8(1.5)	4 (3 – 5)	8.2 (3.01)	7 (6 – 10)
Number of ultrasound scan taken	1.2(0.36)	1(1 - 1)	1.1(0.31)	1(1 - 1)	1.0(0.12)	1(1 - 1)	6.1 (1.88)	6 (6 - 7)
Number of Blood studies done	1.9(0.97)	2 (1 - 2)	1.3(0.71)	1(1 - 1)	1.7(0.87)	1(1 - 3)	6.6 (2.86)	6 (4 - 8)

*P represents Percentiles SD Standard Deviation
Source: Field Data, 2017

4.2.2 Recommended Minimum Number of Content of ANC Received Per Trimester

According to the CTP tool, the minimum interventions pregnant women are to receive are 2 or more ultrasound scan, 6 or more blood pressure measurement, and 2 or more blood studies during the whole pregnancy period. A result in Table (4.3) presents the minimum number of interventions recommended in the CPT tool for each trimester. According to the CTP tool time table for minimum number of interventions per trimester, 4.8% received 1 blood pressure measurement in the first trimester, 57.1% received a minimum of 2 blood pressure measurements in the second trimester and 25.4% received a minimum of 3 blood pressure measurement for the third trimester. 87.3% and 88.9% of pregnant women had 1 ultrasound scan in the first and the second trimester respectively and then 40% and 4.8% had a minimum of 1 blood study done in the first and third trimester respectively.

Table 4.3: Recommended Minimum Number of Content of ANC Received Per Trimester

Assessments (number of times)	**1st Trimester**	**2nd Trimester**	**3rd Trimester**
	N (%)	N (%)	N (%)
Number of times blood pressure measured			
1 time	**3 (4.84)** +	3 (4.76)	10 (15.87)
2 times	39 (61.90)	**35 (57.14)** +	3 (3.17)
3 times	20 (31.75)	24 (38.10)	**16 (25.40)** +
4 times	-	-	12 (19.05)
5 times	-	-	17 (26.98)
6 times	1 (1.59)	-	6 (9.52)
Number of Ultrasound scan taken			
1 time	**55 (87.30)** +	**56 (88.89)** +	61 (98.39)
2 times	8 (12.70)	7 (11.11)	1 (1)
Number of Blood samples for test			
1 time	**25 (40.32)**	47 (75.81)	**34 (54.84)** +
2 times	27 (43.55)	12 (19.35)	12 (19.35)
3 times	1 (1.61)	-	16 (25.81)
4 times	9 (14.52)	3 (4.84)	-

Source: Field Data, 2017 +recommended minimum number of interventions per trimester

4.2.3 Range of Content of ANC Received by Pregnant Women According to the CTP Tool

The study assessed the lower and upper range of the interventions received by pregnant women in the recommended trimester according to the CTP tool. It is presented in (table 4.4). About 76.7% of pregnant women received blood pressure measurement within the recommended range 6 – 11 whiles 19.1% below the recommended lower range. The majority of pregnant women (76.36%) had ultrasound scans exceeding the upper range, whiles 23.6% received this intervention within the recommended lower and upper range (≥2 and ≤4). More than half (67.7%) of the pregnant women had blood studies exceeding the recommended upper range, whiles 32.7% received this intervention within the recommended lower and upper range (≥2 and ≤4).

Table 4.4: Range of Content of ANC Received by Pregnant Women According to the CTP Tool

Range of interventions	Frequency	Percentage
Blood Pressure		
< 6	63	19.09
6 – 11 (Minimum – Upper) *	253	76.67
> 11	14	4.24
Ultra sound		
< 2	0	
2 – 4 (Minimum – Upper) *	78	23.63
> 4	252	76.36
Blood sample		
< 2	0	0
2 – 4 (Minimum – Upper) *	108	32.73
> 4	222	67.27

Source: Field Data, 2017 *recommended range

4.2.4 Category of Pregnant Women using the CTP Tool

The timing of recommended minimum interventions received and range of the various interventions received by pregnant women in the recommended trimester aided in

categorizing the respondents according to the CPT tool shown in (table 4.5). The content and timing of the ANC services received was measured using CTP tool with an ordinal scale – inadequate, intermediate, sufficient and appropriate. More than half of the pregnant women (57.25%) fell in the appropriate category. Pregnant women in this category in their first trimester had at least 1 (US), 1 (BP) and 1 (BS), during their second trimester had at least 1 US and 2 BP measurements, and during their third trimester, had at least 3 BP measurements and 1 BS.

The sufficient group was 9.5% where pregnant women received the minimum recommended number of interventions, meaning at least they had 6 (BP), 2 (BS) and 2 (US) throughout the pregnancy period. 15.5% of the respondents fell into the intermediate group where at least one intervention occurred less than the minimum recommended number of times but another exceeded the respective range. Respondents who initiated ANC after fourteen weeks of gestation were automatically assigned to the inadequate group which consisted of 17.75% of the population. It also consisted of respondents who during the whole pregnancy period received at least 2 (US), 1 (BP) and 1 (BS) according to the time table of the CPT tool.

Table 4.5 Category of Pregnant Women using the CTP Tool

Content of ANC services	Frequency	Percentage
Inadequate	71	17.75
Intermediate	62	15.50
Sufficient	38	9.50
Appropriate	229	57.25

Source: Field Data, 2017

4.3 The Influence of Socio-demographic Characteristic of Pregnant Women on the Content of Antenatal Care

The study examined the influence of socio-demographic characteristics of pregnant women on the content of ANC received using Pearson Chi-square test ($\chi 2$). When the contents of

ANC categorized as inadequate, intermediate, sufficient and appropriate, were compared, women differed significantly by: age ($\chi 2$ =27.14; p=0.007), parity ($\chi 2$ =21.18; p=0.012), education ($\chi 2$ =20.10; p=0.017), marital status ($\chi 2$ =30.55; p=0.001), occupation ($\chi 2$ =14.90; p=0.021), NHIS status ($\chi 2$=27.44; p=0.001) and ANC decision power ($\chi 2$ =76.62; p=0.001). Pregnant women between the aged of 22 - 27 years were more likely to belong to the appropriate group when compared with women who were 34 years or old (41.05% versus 13.62%). Pregnant women who were para 3 – 5 were also more likely to fall into the sufficient and appropriate group as compared to women who were para 6 and older (37.12% versus 2.82%) and then women who had basic level education also found to be in the sufficient and appropriate group as compared with those with no education (50.66% versus 9.17% and 63.16% versus 5.26 respectively).

Women who were married were more likely to belong to the sufficient and appropriate group when compared with those who were single (77.29% versus 6.11% and 57.89% versus 34.21 respectively). Semi-skilled employed women in the study were found to belong to the sufficient and appropriate group when compared with those who were unemployed (73.8% versus 11.79% and 86.84% versus 13.16% respectively). All insured pregnant women were more likely to belong to sufficient and appropriate group when compared with those who were uninsured. Pregnant women whose attendance to the ANC clinic were made by both partners were more likely to belong to the sufficient and appropriate group as compared with those whose decision to attend ANC were made by their parents (43.23% versus 1.31% and 50.00% versus 34.21%)

Table 4.6: The Influence of Socio-demographic Characteristic of Pregnant Women on the Content of Antenatal Care

Variables	Inadequate	Intermediate	Sufficient	Appropriate	$\chi 2$	p-value
Continuous variables	N (%)	N (%)	N (%)	N (%)		
Age					27.14	**0.007**
16 – 21	7 (9.86)	11(17.74)	9(23.68)	23(10.04)		
22 – 27	29(40.85)	21(33.87)	8(21.05)	94(41.05)		
28 – 33	19(26.76)	29(46.77)	15(39.5)	80(34.93)		
34 – 39	15(21.13)	1(1.61)	5(13.16)	26(11)		
≥ 40	1(1.41)	0(0)	1(2.63)	6(2.62)		
Parity					21.18	**0.012**
1 – 2	54(76.06)	42(67.74)	18(47.4)	143(62.5)		
3 – 5	15(21.13)	20(32.26)	20(52.6)	85(37.12)		
≥ 6	2(2.82)	0(0.0)	0(0.0)	0(0.0)		
Categorical variables						
Education					20.10	**0.017**
No education	4(5.63)	6(9.68)	2(5.26)	21(9.17)		
Basic (Primary	48(67.61)	32(51.61)	24(63.16)	116(50.66)		
Secondary	15(21.13)	12(19.35)	3(7.89)	65(28.38)		
Tertiary	4(5.63)	12(19.35)	9(23.68)	27(11.79)		
Marital Status					30.55	**0.000**
Single	10(14.08)	11(17.74)	13(34.21)	14(6.11)		
Separated	0(0.00)	1(1.61)	0(0.00)	7(3.06)		
Co-habitating	8(11.27)	7(11.29)	3(7.89)	31(13.54)		
Married	53(74.65)	43(69.35)	22(57.89)	77(77.29)		
Occupation					14.90	**0.021**
Unemployed	7(9.86)	3(4.84)	5(13.16)	27(11.79)		
Semi-skilled	47(66.20)	45(72.58)	33(86.84)	169(73.80)		
Skilled employment	17(23.94)	14(22.58)	0.00	33(14.41)		
NHIS status					27.44	**0.000**
Insured [active]	63(88.73)	62(100)	38(100)	227(99.13)		
Uninsured	8(11.27)	0(0.00)	0(0.00)	2(0.87)		
ANC decision power					76.62	**0.000**
Self						
Husband/partner	36(50.70)	18(29.03)	4(10.53)	104(45.41)		
Both partners	8(11.27)	6(9.68)	2(5.26)	23(10.04)		
Parents	25(35.21)	27(43.55)	19(50.00)	99(43.23)		
	2(2.82)	11(17.74)	13(34.21)	3(1.31)		

4.3.1 Regression of Socio-demographic Characteristics of Pregnant Women on the Content of Antenatal Care Initiation

Table 4.6 shows the binary and multivariate logistic regressions for the influence of socio-demographic characteristics of pregnant women on the content of ANC. In model 1, socio-demographic characteristics such as age, parity, and NHIS status influenced the content of ANC. Pregnant women who were between 34 -39 years were less than 35% as likely to receive recommended content of ANC compared with women within the age group of 16-21yrs (OR = 0.34; 95% CI; 0.12-0.95;p-value 0.04). Women with parity of ≥3 were almost four times as likely to receive recommended content of ANC compared with women with less than 3 children (OR=3.75; 95% CI; 1.09-3.55; p-value 0.02); and those who were non-insured were less than 5% as likely to receive the recommended content of ANC compared with those who were insured (OR=0.04;95% CI; 0.009-0.23;p-value 0.00). After adjustment for covariates (Model 2) pregnant women who were between the age group of 34 – 39 years (AOR=0.15; 95% CI; 0.03-0.57) and uninsured (AOR= 0.07; 95% CI; 0.01- 0.40) were more likely to belong to the appropriate group and receive the content of ANC associated with the group when compared with other groups. Women who were para 3 and older (AOR=3.40; 95% CI; 1.53-7.54), educated to the tertiary level (AOR=19.45; 95% CI; 2.80-134.6) and had their ANC attendance decision taken by their parents (AOR=7.3; 95% CI; 1.19-44.99) were more likely to belong to the appropriate group and receive the content of ANC associated with the group when compared with other groups.

Table 4.7: Regression of Socio-demographic Characteristics of Pregnant Women on the Content of Antenatal Care Initiation

Variables	OR	95% CI	p-value	AOR	95% CI	p-value
Continuous variables	Model 1			Model 2		

Age						
16 – 21	1.00			1.00		
22 – 27	0.69	0.28, 1.69	0.41	0.61	0.18, 1.98	0.41
28 – 33	1.06	0.41, 2.70	0.89	0.56	0.16, 1.98	0.37
34 – 39	0.34	0.12, 0.95	**0.04**	0.15	0.03, 0.57	**0.00**
≥ 40	1.14	0.12, 10.72	0.90	0.27	0.02, 3.68	0.33
Parity						
1 – 2	1.00			1.00		
≥3	3.75	1.09, 3.55	**0.02**	3.40	1.53, 7.54	**0.003**
Categorical variables						
Education						
No education	1.00			1.00		
Basic (Primary	0.49	0.16, 1.47	0.20	0.65	0.18, 2.27	0.50
Secondary	0.73	0.22, 2.39	0.61	1.78	0.41, 7.64	0.43
Tertiary	1.65	0.38, 7.13	0.49	19.45	2.80, 134.64	**0.003**
Marital Status						
Single	1.00			1.00		
Co-habitating	0.83	0.39, 1.77	0.63	0.51	0.17, 1.54	0.23
Married	1.12	0.49, 2.53	0.78	1.09	0.41, 2.92	0.85
Occupation						
Unemployed	1.00					
Semi-skilled	1.05	0.44, 2.50	0.91	1.10	0.40, 3.05	0.23
Skilled employment	0.55	0.20, 1.47	0.23	0.08	0.02, 2.92	0.85
NHIS status						
Insured [active]	1.00			1.00		
Non-insured	0.04	0.009, 0.23	**0.00**	0.07	0.01, 0.40	**0.002**
ANC decision power						
Self						
Husband/partner	1.00			1.00		
Both partners	1.10	0.46, 2.61	0.81	0.78	0.29, 2.12	0.63
Parents	1.65	0.94, 2.91	0.07	1.35	0.67, 2.72	0.39
	3.85	0.87, 17.00	0.07	7.33	1.19, 44.99	**0.03**

OR=Odds Ratio; AOR=Adjusted Odds Ratio; CI=confidence interval, Outcome measures: content of ANC care; Significance level α =0.01, α =0.03, α=0.05; OR and AOR for reference group was (appropriate group) set 1.0

4.4 The Influence of Socio-demographic Characteristics of Pregnant Women on Timing of ANC

The study examined the influence of socio-demographic characteristics of pregnant women on the timing of ANC received using Pearson Chi-square test ($\chi 2$). When the timing of antenatal care categorized as 1st and 2nd trimester was compared, the women differed significantly by: age ($\chi 2$ =12.85; p=0.012), parity ($\chi 2$ = 14.54; p=0.002), education ($\chi 2$

=10.11; p=0.018) and NHIS status ($\chi 2$ =27.75; p=0.001). Other socio-demographic characteristics such as: marital status, occupation and ANC decision power had no significant relationship with the timing of ANC services.

Table 4.8: The Influence of Socio-demographic Characteristics on the Timing of ANC

Variables	0 – 13 weeks (1st trimester)	14 – 26 weeks (2nd trimester)	$\chi 2$	p-value
Continuous variables	N (%)	N (%)		
Age			12.85	**0.012**
16 – 21	43(13.03)	7(10.00)		
22 – 27	123(37.27)	29(41.43)		
28 – 33	126 (38.18)	17(24.29)		
34 – 39	31(9.39)	16(22.86)		
≥ 40	7(2.12)	1(1.43)		
Parity			14.54	**0.002**
1-2	205(62.42%)	52(74.29%)		
3-5	124(37.58%)	16(22.86%)		
≥ 6	1(0.30%)	2(0.50%)		
Categorical variables				
Education			10.11	**0.018**
No education	31(9.39)	2(2.86)		
Basic (Primary)	171(51.82)	49(70.00)		
Secondary	80(24.24)	15(21.43)		
Tertiary	48(14.55)	4(5.71)		
Marital Status			2.11	0.54
Single	38(11.52)	10(14.29)		
Separated	8(2.42)	0(0.00)		
Co-habitating	41(12.42)	8(11.43)		
Married	243(73.64)	52(74.29)		
Occupation			4.69	0.09
Unemployed	34(10.30)	8(11.43)		
Semi-skilled	249(75.45)	45(64.29)		
Skilled employment	47(14.24)	17(24.29)		
NHIS status			27.75	**0.00**
Insured [active	328(99.39)	62(88.57)		
Uninsured	2(0.61)	8(11.43)		
ANC decision power			5.45	0.14
Self	126(38.18)	36(51.43)		
Husband/partner	33(10.00)	6(8.57)		
Both partners	144(43.64)	26(37.17)		
Parents	27(8.18)	2(2.86)		

Table 4.8 shows the binary and multivariate logistic regressions for the influence of socio-demographic characteristics of pregnant women on timing of ANC initiation. Socio-demographic characteristics such as age, parity, basic education and NHIS status influenced the timing of ANC services. Pregnant women who were between 34–39 years were less than 35% as likely to initiate ANC in the first trimester compared with women between 16-21 years (OR= 0.31; 95% CI; 0.11-0.85;p-value 0.05). Women with parity of ≥3 were almost twice as likely to initiate ANC in the first trimester compared with women who had less than 3 children (OR= 1.76; 95%CI; 0.98-3.14;p- value 0.05). Women with basic education were less than 25% as likely to initiate ANC in the first trimester compared with their counterpart with no education (OR= 0.22;95% CI; 1.02-19.21;p-value 0.04) ; and non-insured women were less than 5% as likely to initiate ANC in the first trimester compared with insured (OR=0.04;95%CI; 0.009- 0.22;p-value 0.00).

After adjusting for other covariates, pregnant women who were para 3 or higher remained significantly more likely to timely initiate ANC than women who were para 1- 2 (AOR=2.9, 95% CI; 1.32-6.56). Pregnant women educated to the tertiary level were significantly more likely to timely initiate ANC when compared with women with no education (AOR=9.95, 95% CI; 1.24-86.73).

Pregnant women engaged in skilled employment (AOR=0.09; 95% CI; 0.02- 0.36) and those uninsured (AOR=0.07; 95% CI; 0.01- 0.40) were significantly less likely to timely initiate ANC when compared with women who were unemployed and insured. Pregnant women whose initiation of ANC attendance was decided by their parents were 6.7 times (95% CI; 1.09-41.06) more likely to initiate ANC visits when compared with those who made decisions by themselves.

Table 4.9 Regression of Socio-demographic Factors of Pregnant Women on the Timing of ANC

Variables	OR	95% CI	p-value	AOR	95% CI	p-value
Continuous variables						
Age						
16 – 21	1.00			1.00		
22 – 27	0.69	0.28, 1.69	0.42	0.63	0.19, 2.06	0.45
28 – 33	1.20	0.46, 3.10	0.69	0.65	0.18, 2.34	0.51
34 – 39	0.31	0.11, 0.85	**0.02**	0.15	0.04, 0.60	**0.00**
≥ 40	1.13	0.12, 10.72	0.90	0.31	0.02, 4.10	0.37
Parity						
1 – 2	1.00			1.00		
≥3	1.76	0.98, 3.14	**0.05**	2.94	1.32, 6.56	**0.00**
Categorical variables						
Education						
No education	1.00			1.00		
Basic (Primary)	0.22	1.02, 19.21	**0.04**	0.33	0.06, 1.60	0.17
Secondary	0.34	0.81, 2.88	0.17	0.97	0.16, 5.61	0.97
Tertiary	0.77	1.18, 10	0.77	9.95	1.24, 86.73	**0.03**
Marital Status						
Single	1.00			1.00		
Separated	1	-		1	-	
Co-habitating	1.34	0.48, 3.77	0.56	1.93	0.52, 3.61	0.32
Married	1.22	0.57, 2.62	0.59	1.68	0.02, 0.36	0.35
Occupation						
Unemployed	1.00			1.00		
Semi-skilled	1.30	0.56, 2.99	0.53	1.35	0.50, 3.61	0.54
Skilled employment	0.65	0.25, 1.68	0.37	0.09	0.02, 0.36	**0.001**
NHIS status						
Insured [active	1.00			1.00		
Uninsured	0.04	0.009, 0.22	**0.00**	0.07	0.01, 0.40	**0.003**
ANC decision power						
Self						
Husband/partner	1.00			1.00		
Both partners	1.57	0.61, 4.04	0.34	1.00	0.34, 2.90	1.00
Parents	1.58	0.90, 2.76	0.11	1.26	0.63, 2.53	0.50
	3.85	0.87, 17	0.07	6.70	1.09, 41.06	**0.04**

OR=Odds Ratio; AOR=Adjusted Odds Ratio; CI=confidence interval, Outcome measures: timing of ANC visits (initiation of care); Significance level α =0.01, α =0.03, α=0.05; OR and AOR for reference group was set 1.0

4.5 Client Perspectives on the Quality of ANC

The study examined the respondents' perspective on the perceived quality of ANC (table 4.5). The perceived quality of care was ranked on a Likert scale ranging from poor to

excellent (1= poor; 2= fair; 3 =good; 4= very good and 5= excellent). Overall, respondents perceived that the physical environment (structure, water supply, electricity, room space and seat arrangement) as fairly good (Mean=2.89; SD=0.87). They perceived the facility's cleanliness (Mean = 2.78; SD= 0.83) and convenience of access to the facility (Mean = 2.87; SD=0.52) as also fairly good. The availability of medicines, supplies and services (Mean=3.38; SD=0.72), promptness of care (Mean 3.19; SD=0.68) and the attitudes of health professionals (Mean =3.05; SD=0.90) was perceived to be good.

4.10: Client Perspectives on the Quality of ANC

Perceived quality of care	Mean (SD)	Median (P25 – P75)
Hospital physical environment (structure, water supply, electricity, and room space and seat arrangement)	2.89 (0.87)	3 (2 - 3)
Cleanliness of hospital	2.78 (0.83)	3 (2 - 3)
Availability of medicines, supplies and services	3.38 (0.72)	3 (3 – 4)
Promptness of care received	3.19 (0.68)	3 (3 – 3)
Perceived attitudes of health personnel	3.05 (0.90)	3 (2 - 4)
Convenience of access to hospital	2.87 (0.52)	3 (3 - 3)

*P represents Percentiles
Source: Field Data, 2017

Examination of the relationship between the various factors that contributed to perceived quality of antenatal care using a correlation matrix is presented in (table 4.5). There was a moderate positive association between client's perception about the physical environment of the hospital and cleanliness (r=28; p=0.00). The attitudes of health professionals had a weak positive association with the hospital's physical environment (r=0.19; p=0.00), cleanliness (r=0.22; p=0.00) and access to ANC services (r=0.12; p=0.00). However, the attitudes of health professionals had a weak negative correlation with availability of medicines, supplies (r=-0.12; p=0.00) and promptness of care (r=-0.12; p=0.00).

Table 4.11: Correlation Matrix of the Perceived Quality of ANC Services Provided to Clients

		Physical environment	Cleanliness	Availability of medicines, supplies	Promptness of care	Attitudes of health personnel	Convenience of access to hospital
Physical environment	Pearson Correlation	1.00	.				
	Sig. (2-tailed)						
Cleanliness	Pearson Correlation	**0.28***	1.00				
	Sig. (2-tailed)	0.00					
Availability of medicines, supplies	Pearson Correlation	0.03	0.07	1.00			
	Sig. (2-tailed)	0.44	0.14				
Promptness of care	Pearson Correlation	0.03	0.07	1.00*	1.00		
	Sig. (2-tailed)	0.44	0.14	0.00			
Attitudes of health personnel	Pearson Correlation	**0.19***	**0.22***	**-0.12***	**-0.12***	1.00	
	Sig. (2-tailed)	0.00	0.00	0.01	0.01		
Access to ANC services	Pearson Correlation	0.03	0.09	-0.0001	-0.0001	**0.12***	1.00
	Sig. (2-tailed)	0.53	0.06	0.99	0.99	0.00	

*. Correlation is significant at the 0.05 level (2-tailed).

In (figure 4.1) all the respondents perceived that they were satisfied with the competency of the health professionals and the privacy at the hospital as 93.5% of the women showed that they were also satisfied with the availability and adequacy of human resources at the health facility.

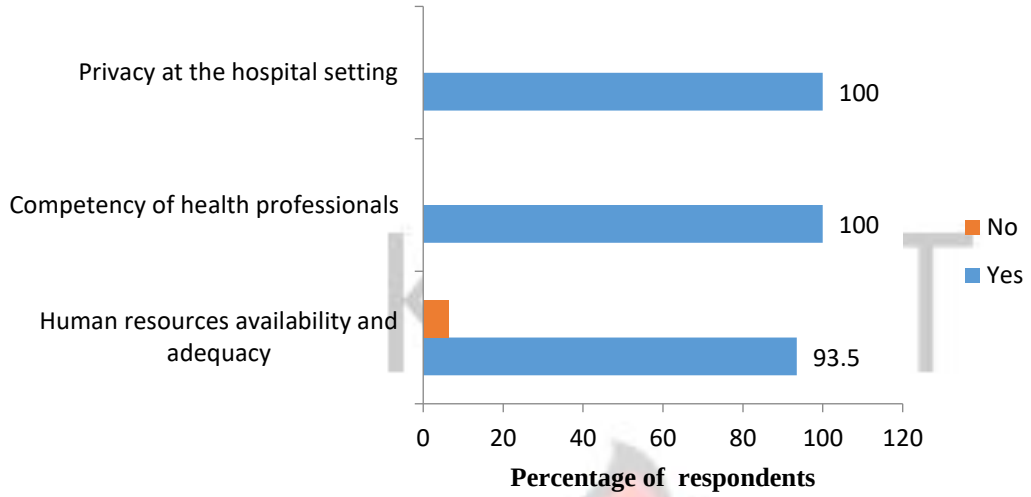


Figure 4.1 Patients' Privacy and Perceived Availability and Competency of Health Professionals Source: Field Data, 2017

In figure 4.2, dissatisfaction was found among (23.5%) of the women with regards to the cost of ANC services as maternal services are to be free according to the NHIS. (75.5%) of the women showed that they were satisfied with the overall quality of ANC received and about 69.25% showed that they were very satisfied with the cognitive and emotional support provided at the antenatal clinic.

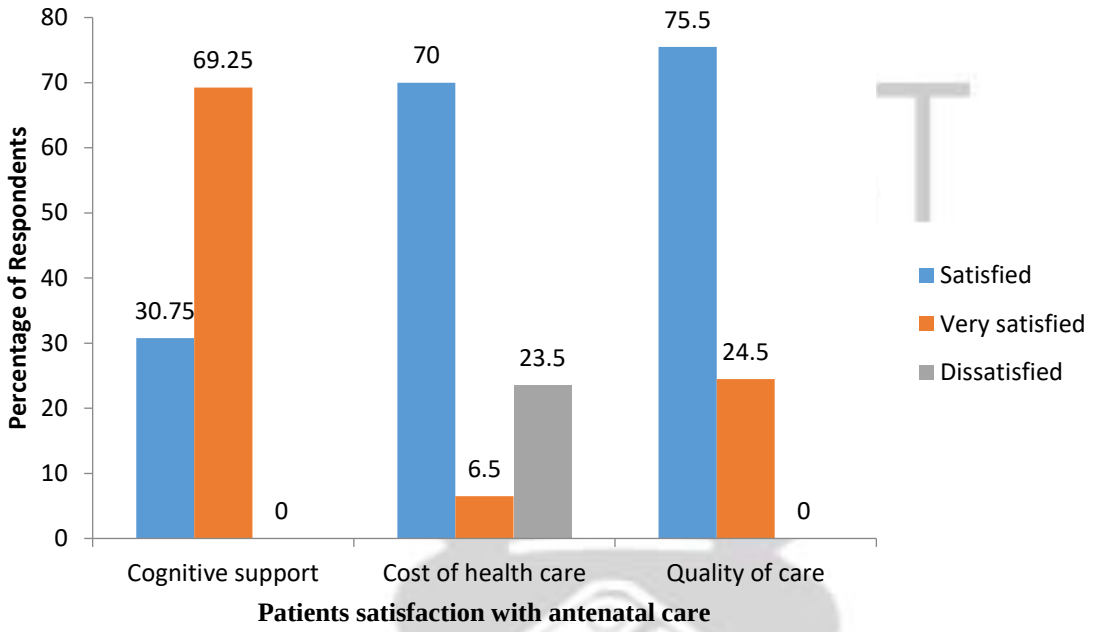


Figure 4.2 Patients Satisfaction with Cognitive Support, Cost and Overall Quality of Care
Source: Field work, 2017

Figure 4.3 shows 62% of pregnant women waited for approximately 30 – 60 minutes in receiving ANC, whiles 34% waited for 1 – 2 hours.

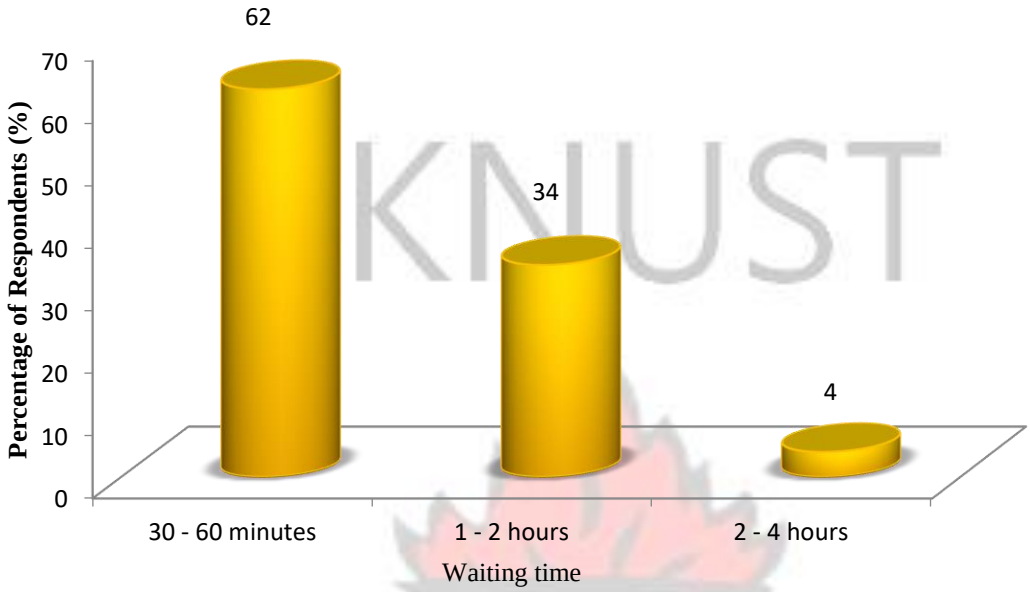


Figure 4.3 Waiting Time for Received ANC Services
Source: Field work, 2017

CHAPTER FIVE

5.0 Discussion

Introduction

The chapter discusses the findings of the study with relevant literature which are linked to the research questions, objectives and the key variables.

5.1 Content and Timing of Pregnancy

The success of any ANC depends on implemented policies which are easily assessable and affordable. This proposes that important contents must be provided during ANC visits as pregnancy related complications are associated with inadequate ANC (Fagbamigbe and Idemudia,2015). According to the CTP tool used in this study in assessing the content of ANC, it was revealed that more than half of the women (57.25%) fell in the appropriate category, sufficient group was 9.5%, 15.5% of the respondents fell into the intermediate group and respondents who initiated ANC after fourteen weeks of gestation were automatically assigned to the inadequate group which consists of 17.75% of the population. It can be noted that even though the women fell into different categories, every pregnant woman who visited the ANC clinic had an ultra sound scan, blood studies and blood pressure measured. These assessments are important as routine measuring of blood pressure aid in the detection of pregnancy induced hypertension and pre-eclampsia, ultrasound scan done in measuring gestational age and detection of structural abnormality and blood studies carried out in screening for hemoglobin level and infections that the pregnant woman can transmit to the fetus in-vitro such as HIV and Hepatitis B. (Beeckman *et al*., 2011).This statement can be similar to the findings of the Ghana Maternal Health Survey, (2007) which stated that nearly all their respondent had at least their blood

pressure measured and blood studies done when they visited the ANC clinic. With the establishment of more CHPS compounds in Ghana, majority of pregnant women would be provided with the basic contents of ANC services in reducing maternal morbidity and mortality.

The contents proposed in the CTP tool is limited as it focuses on only three basic interventions and according to WHO, ANC encompasses more than these three interventions. Other components recommended by WHO should be added to the CTP tool to accurately measure the quality of ANC.

In our study, the CTP was again used in assessing the timing of ANC. Respondents who initiated ANC after fourteen weeks of gestation were automatically assigned to the inadequate group which consisted of 17.75% of the population. These women initiated ANC services in the second trimester which could be attributed to some factors such as parity, occupation, education level, health insurance status, decision power and place of residence. About 15.5% of the respondents fell into the intermediate group where initiation of care was in the first trimester. The sufficient group consisted of 9.5% of the population whose initiation of care was also in the first trimester. More than half of the women (57.25%) fell in the appropriate category with their initiation of care beginning in the first trimester as well.

This finding is in contrast with Beeckman *et al*., (2011) study in Brussels where after applying the CTP tool, they concluded on assigning 10.2% of the women to the inadequate group, 8.4% to the intermediate group, 36% to the sufficient group and 45.3% of the women to the appropriate group. The most striking aspect between these two findings is their percentages of women in the appropriate group of the CTP tool where this study had 57.25% and (Beeckman *et al*., 2011) study had 45.3% The differences between these two findings are that in our study, the study population was recruited from one health facility while the previous study recruited its study

population from nine medical centers that provided ANC services in Brussels. The differences may also be as a result of the type of health care systems in Ghana and Brussels and associated social determinants of health that influences an individual's health.

5.2 The Influence of Socio-demographic Characteristics of Pregnant Women on the Content of ANC

It is reported that most pregnant women attend the ANC clinic at least once in the course of pregnancy while not receiving all the content of ANC. If nearly all pregnant women attend ANC clinic according to WHO care model and receive the basic contents of ANC services, it may significantly reduce pregnancy related complications(Afulani,2015; WHO, 2016).

Pregnant women who were of 34 – 39 years were significantly less likely to belong to the appropriate group and receive the content of ANC associated with the group when compared with women between the age group of 16 – 21 years. This finding could be attributed to the experiences of these pregnant women as they perceived themselves as having adequate information to manage the pregnancy. Some pregnant women also feel reluctant in initiating ANC early mostly due to the fact that they have not encountered any pregnancy complications. It is unwise for women to have such notions because of the risk of developing complications in the future that may result in poor health outcomes. For instance, previous study in Uganda argued that more than half of pregnant women who were older adults were reluctant to initiate antenatal care services early due to the lack of complications in their pregnancy (Kisuule *et al.,* 2013).There is therefore the need to educate women especially older mothers on the need to timely initiate ANC and make frequent ANC visits so they receive the recommended content of ANC (Arthur, 2012)

This present study observed that pregnant women who were para 3 or higher were more likely to belong to the appropriate group and receive the recommended content of ANC associated with the group. This could be attributed to the women having adequate knowledge on the benefits of ANC, experienced pregnancy complications in their previous pregnancies or their susceptibility to pregnancy related complications. Our findings conflict with a previous study (Halle-ekane *et al*. 2014) in Cameroon where women who had a parity of 1-3 were rather more likely to timely initiate ANC in order to receive the recommended contents of ANC than multiparous women.

As a woman attains a higher educational level, it is likely that her knowledge on health issues would increase which may influence her health seeking behavior (Onasoga et.al, 2012)

In this study, pregnant women educated at the tertiary level were more likely to have received the recommended content of ANC as compared with those with no education. This may be attributed to the fact that the educated women are aware of the available services offered at ANC clinics and the importance of ANC. Improving the education of the mother in Ghana especially on health issues will contribute greatly to the use of maternal health services and thus help in reducing maternal and child mortality in Ghana. Women should be encouraged to pursue education beyond the primary level as our study has found that women with higher levels of education tend to receive the recommended contents of ANC. Our findings also imply that the less educated are not receiving the recommended contents of ANC because they are not adequately informed about the services being offered freely. Hence it may be necessary for the National Commission for Civic Education in Ghana (NCCE), Ghana Health Service, CHAG, Ministry of Health and other stakeholders to intensify education on the availability of maternal health care services probably through the mass media (radio, television, print media in all the local dialects) and the community information centers, churches, mosques and markets

especially in the rural areas where the use of mass media may not be very effective (Bbaale, 2011; Abosse *et. al*, 2010, Ghana Health Service, 2015).

In 2003, the NHIS had a policy authorizing all insured pregnant women get free antenatal care services. Earlier on, it has been reported that insured pregnant women are less likely to experience pregnancy complications because they are more likely to receive the recommended contents of ANC during their visits to the ANC clinics. (Asundep *et al.*, 2013; Andrew *et al.*, 2014). Un-insured pregnant women in this study were found to be less likely to receive the recommended content of ANC services. This probably can be attributed to limited financial resources to cover the cost of care and also be assumed that these pregnant women have delayed in their attempts to enroll onto the NHIS. There should be a collaboration between the Ghana Health Insurance Authority and the Ghana Health Service in implementing activities that would intensify education on the importance of enrolling on the NHIS.

Delays in the decision to attend antenatal care clinic may result in many pregnant women presenting late at health facilities preventing them from receiving the recommended content of ANC (WHO, 2015). We report on women whose attendance to the ANC clinic were decided by their parents to be more likely to receive the recommended content of ANC services (AOR=7.3; 95% CI; 1.19-44.99). It is most likely that parents make the decisions because their wards are not in the best position to do so. For instance, the pregnant woman may be an adolescent or a physical or mentally handicapped person and since parents are known to be responsible for the welfare of their children, they make decisions for them in their attendance to the ANC clinics. A parent's support aside their opinion entails providing the ward with the funds and accompanying her to attend the clinic enabling her to receive the recommended contents of ANC services since accompanying the pregnant woman to the clinic would make it harder for her to miss an

attendance. Parental dominance in decision making on ANC attendance deserves much attention in order to reduce undesirable impacts (Andrew *et al.*, 2014; Gross *et al.*, 2012).

5.3 Influence of Socio-demographic Characteristics of Pregnant Women on the Timing of ANC

Women who start ANC in the first trimester and attend the recommended eight or more times are more likely to receive most of the essential ANC services (Afulani, 2015; WHO, 2016). In our study, 97 % initiated ANC in the first trimester. Our finding is higher than a review in Ethiopia (Gudayu, 2015) where it concluded that 35.1% initiated ANC at the recommended time.

Age influenced the initiation of ANC. Pregnant women aged 34 – 39 years were significantly less likely to timely initiate ANC. This can be attributed to the fact that these women did not experience any complications with their pregnancy and so did not see the need to timely initiate ANC. There is the need to create more awareness in the community to educate older women on the timely initiation of ANC. Ghana Health Service, CHAG, Ministry of Health and other stakeholders are to intensify the education on the availability of maternal health care services probably through the mass media (radio, television, print media in all the local dialects) and the community information centers, churches, mosques and markets especially in the rural areas where the use of mass media may not be very effective. Expectant mothers who visit the ANC clinics in general should be educated on daily basis on the availability of ANC services that would also aid to increase awareness in the communities (Bbaale, 2011; Abosse *et al*., 2010, Ghana Health Service, 2015). The community health workers at CHPS compounds should intensify their home visit activities on creating the awareness on the importance of timely initiating ANC.

Female education reduces gender disparity and empowers women. Education promotes new beliefs and attitudes that are encouraging to the use of modern health care services. It enables women desire to receive care from qualified and competent health personnel (Joshi *et.al,* 2014). We observed that pregnant women who were educated up to basic level (Primary) were less likely to timely initiate ANC. This can be attributed to the women not knowing what to expect and where to access maternal health services. Therefore, policies aimed at improving female education are likely to also improve ANC initiation (Gebremeskel *et. al,* 2015**)**. Women should be encouraged to attain higher education in order to improve their health seeking behaviors.

Pregnant women who were para 3 or higher were significantly more likely to timely initiate ANC when compared with pregnant women who were para 1-2. This might be as a result of a latest pregnancy carrying a lower risk for complications if the previous pregnancies and birth were uncomplicated. Sometimes taking care of other children at home makes difficult for women to timely initiate ANC when they do not have support from their significant others (Joshi *et. al*, 2014).Our findings do not corroborate with two studies by (Andrew *et.al,* 2014 and Pell *et. al*, 2013) where they concluded from their findings on nulliparous women initiating ANC early than multiparous women as they stated that the higher a woman's parity, the later she would attend ANC.

Skilled employed women were less likely to timely initiate ANC in our study. This can be attributed to the job demands of these women, not given being permission by their employers to timely initiate and attend ANC clinic and the opportunity cost involved should they absent themselves from their job to attend the ANC clinic. This finding is in line with results of (Ajayi *et.al,* 2013; Nghitanwa andTuwilika, 2017) review where a larger proportion of pregnant women who were unemployed and semi-skilled workers timely initiated ANC services when compared

with those who were skilled workers. It is the duty of community health workers to intensify and target their health promotion activities in the churches, mosques, market, shops, salons and dressmaking shops in creating the awareness on the importance of timely initiating ANC.

Women who are uninsured accessing maternal health services would need to pay for the services and this would negatively influence ANC initiation. (Sword *et. al,* 2015). Pregnant women who are poor and uninsured are vulnerable in accessing ANC services as certain services are not rendered to them with the notion that they cannot afford them and also these women do not know the services they are to be offered at the health facilities (Afulani, 2015.) This present finding revealed that women who were uninsured were significantly less likely to timely initiate ANC.A reason for this may be that, in some health facilities, certain services may be offered to women who can afford them and those who are insured but not to those who cannot afford and uninsured (Gebremeskel *et. al*, 2015). For instance, ANC assessment such as lower abdominal ultrasound scan is not included in the NHIS and so the women bear the cost of this service.

Our study also surveyed the relationship between decision power and timely initiation of ANC. Pregnant women whose initiation of ANC attendance was decided by their parents were 6.7 times (95% CI; 1.09-41.06) more likely to initiate ANC visits. As stated earlier on, the pregnant woman may be an adolescent or a physical or mentally handicapped person or unemployed requiring the parents to make decisions for them in the initiation of their ANC attendance. A parent's support in the decision of ANC initiation would make it harder for the pregnant woman to miss an attendance (Andrew *et. al,* 2014; Gross *et.al*, 2012). Parental dominance in decision making on ANC attendance deserves much attention in order to reduce undesirable impacts. Other socio-demographic characteristics such as: marital status, occupation and ANC decision power had no significant relationship with the timely initiation of ANC services.

5.4 Client Perspectives on Quality of ANC

Reducing both maternal and neonatal mortality is one of the Millennium Developmental Goals of the UN (UN, 2015). Delivery of health care according to the Ghana Health Service (2014) report is substandard with regards to maternal health services. Questions are raised concerning the quality of ANC rendered to clients. This study showed that most women perceived the physical environment (structure, water supply, lighting, electricity, waste disposal, room space and seat arrangement) to be fairly good as there was a moderate positive association between client perceptions about the physical environment and cleanliness of the health facility. This implies that the women were pleased with improved amenities in the facility which will influence the utilization of ANC services. This is supported by studies by (Srivastava *et al.,* 2015; Falowe *et al*., 2008; Tancred *et al.,* 2016) which suggested that the satisfaction of maternal health services includes structural outcomes as pregnant women feel satisfied with the physical infrastructure and clinic amenities.

The women expressed satisfaction with the availability and adequacy of health providers. This could be attributed to the fact that the introduction of CHPS compounds by the Ghana health service is bridging the gap of inequitable distribution of qualified health personnel of all grades and categories to every part of the nation in meeting the needs of the population for best health outcomes. A study in Tanzania (Tancred *et. al*, 2016) confirms this finding as clients showed that they were satisfied in meeting adequate health personnel at the health facilities during their visits.

The availability of medicines, supplies and services were rated as "good" by the women. Clients expect a facility to have a well-stocked pharmacy or dispensary, adequate medical supplies and equipment's at the various units of the facility that would enable health personnel's execute

services proficiently. Respondent's satisfaction concerning these indicators implies that all these were available when they utilized ANC services at the facility. This finding corroborate with a study in Tanzania (Tancred *et. al,* 2016) which showed that clients were satisfied with the availability of drugs, equipment, supplies and services at the health facility.

Respondents were also satisfied with promptness of care and the attitudes of health personnel's as they were assisted and attended to without delay. This can be due to the fact that health personnel's exhibited positive attitudes such as being caring and culturally sensitive to the health needs of the women. As stated in (Phillipi, 2013) review, a health provider who is caring and culturally sensitive to the needs of clients' results in clients' continual utilization of the services.

All the women were satisfied with the competency of service providers, cognitive and emotional support and privacy measures at the facility. The women probably were pleased with the efficiency of the health personnel's as they exhibited technical competencies, knowledge in health ethics making their ANC focused where care was one-on-one basis, confidentiality ensured, informed about issues concerning their pregnancies and allowed to ask questions. The health personnel's might also have been found to be gentle, compassionate and helpful during the client-provider interaction leading to relieving of fears and anxieties and good health outcomes. This finding confirm studies in Nigeria (Oladapo *et. al,* 2008), India (Srivastava *et. al,* 2015) and Tanzania (Tancred *et. al,* 2016) where they stated that consumers of ANC services were satisfied with the technical competency, cognitive and emotional support and the privacy they enjoyed whiles visiting the health facility.

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The study observed that responses from the women concerning access to the health facility was fairly good meaning that they were not all that satisfied with the location of the health facility which has an implication on the probability and frequency of ANC visits by the women. The health facility might have not been within their reach (Ghana Health Service, 2014). It is important that all stakeholders of health in Ghana ensure that most communities have CHPS compounds to enable pregnant women to easily access maternal health services.

Waiting time influenced the women's level of satisfaction. Clients who wait for shorter time to receive health services are more likely to be satisfied than those who wait for longer hours. Majority (62%) of the women in this study were satisfied with the waiting timing as it was between 30-60 minutes. Only 4% of the women were not satisfied with the waiting time as it took 2-4 hours before they were attended to by a health personnel and this can result in the reduced utilization of ANC services in the facility. Some of the reasons for waiting when one visits a health facility is the first-come-first served basis, inadequate staff at a unit and unavailability of an on-call health personnel such as a medical doctor, a laboratory technician or a sonographer. Generally, most women were satisfied with the overall quality of care.

CHAPTER SIX

6.0 Conclusions and Recommendations

This chapter summarizes key findings with figures and makes appropriate recommendations to specific stakeholders and interested parties.

6.1 Conclusions

The study concluded that in categorizing the women according to CTP tool, the inadequate group consisted of 17.7% of the population, 15.5% of the respondents fell into the intermediate group, the sufficient group consisted of 9.5% and more than half of the women (57.3%) fell in the appropriate category. It is interesting to know that even though the women fell into different categories, every pregnant woman who visited the ANC clinic had an ultra sound scan, blood studies and blood pressure measured. The CTP tool focuses on three basic interventions which cannot be solely used in assessing the quality of ANC as ANC encompasses more than these three interventions. The CTP tool should be revised to include other interventions to render it more accurate.

Socio-demographic characteristics such as age, parity, and NHIS status influenced the content of ANC. With regards to influence of socio-demographic characteristics on the timing of ANC, again age, parity, education level and NHIS status of the woman influenced timing of ANC.

Respondents perceived the physical environment (structure, water supply, electricity, and room space and seat arrangement) to be fairly good. The women expressed that they were satisfied with the availability and adequacy of health providers, competency of service providers, cognitive and emotional support and privacy measures at the health facility. 23.5% of the women expressed dissatisfaction with cost of care. The availability of medicines, supplies and services

were rated as "good" by the women. Respondents were also satisfied with promptness of care and the attitudes of health personnel's. The study observed that responses from the women concerning access to the health facility were fairly good. Majority of the women in this study were satisfied with the waiting time as it was between 30-60 minutes however, only 4% of the women were not satisfied with the waiting time as it took 2-4 hours before they were attended to by some health personnel.

6.2 Recommendations

Based on the results of this study, the following recommendations are suggested:

1. The Ministry of Health, the Christian Health Association of Ghana and Ghana Health Service in collaboration with the NHIS should intensify the awareness on the importance of people especially pregnant women enrolling on the NHIS in order to enjoy free maternal health services.
2. The National Commission for Civic Education in Ghana (NCCE), Ghana Health Service, CHAG, Ministry of Health and other stakeholders should intensify education on the availability of maternal health care services and the importance of ANC through the mass media (radio, television, print media in all the local dialects) and the community information centers, churches, mosques and markets especially in the rural areas where the use of mass media may not be very effective.
3. It is also recommended that the Ghana Health Services establish more CHPS compounds in the districts and equipped them with competent and qualified health personnel's, adequate medical supplies and equipment's so accessibility can be within the reach of pregnant women.
4. The quality assurance unit of the Holy family hospital should conduct annual evaluation on the services the facility renders to clients in order to improve upon their services.

5. It is recommended that the CTP Tool be revised to include other interventions to make it more accurate.

References

- ABOSSE, Z., WOLDIE, M. and OLOLO, S. (2010) Factors influencing antenatal care service utilization in hadiya zone, *Ethiopian Journal of Health Sciences*, 20(2), pp.75–82
- AFULANI, P. A. (2015) Rural/urban and socioeconomic differentials in quality of antenatal care in Ghana, *PLoS one*, 10(2), pp.1-28
- AJAYI, I.O., OSAKINLE, D.C. and OSAKINLE, E.O. (2013) Quality assessment of the practice of focused antenatal care (FANC) in rural and urban primary health centers in Ekiti State, *Journal of Obstetrics and Gynecology*, 3, pp. 319-326
- ALHASSAN, R. K., DUKU, S. O., JANSSENS, W., NKETIAH-AMPONSAH, E., SPIEKER, N., VAN OSTENBERG, P., ARHINFUL, D. K., PRADHAN, M. and RINKE DE WIT, T. F (2015) Comparison of perceived and technical healthcare quality in primary health facilities: implications for a sustainable national health insurance scheme in Ghana, *PLoS one* 10(10), pp.1-19
- ANDREW, E.V.W., PELL, C., ANGWIN, A., AUWUN, A., DANIELS, J., MUELLER, I., PHUANUKOONNON, S. and POOL, R. (2014) Factors affecting attendance at and timing of formal antenatal care: results from a qualitative study in Madang, Papua New Guinea, *PLoS one*, 9(5), pp.1-14

- ARTHUR, E. (2012) Wealth and antenatal care use: implications for maternal health care utilization in Ghana, *Health Economics Review*, 2(1), pp.40
- ASARE, M. and SUUK LAAR, A. (2016) Accessing the prevalence of stillbirth rate and associated factors among women who delivered in a rural hospital, *International Journal of Health Sciences & Research*, 6(1), pp.341-347
- ASUNDEP, N. N., CARSON, A. P., TURPIN, C. A., TAMERU, B.,AGIDI, A. T.,ZHANG, K. and JOLLY, P. E. (2013) Determinants of Access to antenatal care and birth outcomes in Kumasi, Ghana, *Journal of Epidemiology and Global Health*, 3(4), pp.279-288
- ATEKYEREZA, P.R. and MUBIRU, K. (2014) Influence of pregnancy perceptions on patterns of seeking antenatal care among women in reproductive age of Masaka District, Uganda, *Tanzania Journal of Health Research*, 16 (4), pp.1-12
- BBAALE, E. (2011) Factors influencing timing and frequency of antenatal care in Uganda, *The Australasian Medical Journal*, 4(8), pp.431–438
- BRAVEMAN, P. and GOTTLIEB, L. (2014) the social determinants of health: it's time to consider the causes, *Public Health Reports*, 129(2), pp.19–31
- CICEKLIOGLU, M., SOYER M.T. and OCEK, Z. A. (2005) Factors associated with the utilization and content of prenatal care in a western urban district of Turkey, *International Journal for Quality in Health Care*, 17(6), pp. 533–539
- DANIELS, A. A. (2013) Factors Influencing the utilization of Maternal Health Services: The Perspective of Rural Women in Ghana, *Journal of Public Administration and Governance*, 3(2), pp.121-141

- DHAHI, Z. K., ISSA, S.S. and HAMEED, L. A. (2015) A study on pregnant women's satisfaction with primary health care services in Basra, *International Journal of Research in Humanities, Arts and Literature,* 3(1),pp. 7-20
- EBEIGBE, P. N., NDIDI, E. P., IGBERASE, G. O. and OSEREMEN, I. G. (2010) Reasons given by pregnant women for late initiation of antenatal care in the Niger delta, Nigeria, *Ghana Medical Journal*, 44(2), pp.47–51
- EKABUA, J., EKABUA, K. and NJOKU, C. (2011) Proposed framework for making focused antenatal care services accessible: a review of the Nigerian setting, *International Scholarly Research Network Obstetrics and Gynecology*, pp. 1-5
- EJIGU, T., WOLDIE, M. and KIFLE, Y. (2013) Quality of antenatal care services at public health facilities researches of Bahir-Dar special zone, Northwest Ethiopia, *BMC Health Services,* 13(1), pp.1-8
- EMELUMADU, O., UKEGBU, A., EZEAMA, N., KANU, O., IFEADIKE, C. and ONYEONORO, U. (2014) Socio-demographic determinants of maternal health-care service utilization among rural women in Anambra state, South East Nigeria, *Annals of Medical and Health Sciences Research*, 4(3), pp.374-382
- FAGBAMIGBE, A. F, and IDEMUDIA, E. S. (2015) Assessment of quality of antenatal care services in Nigeria: evidence from a population-based survey. *Reproductive Health* 12(1), pp.88
- FAWOLE, A. O., OKUNLOLA, M.A. and ADEKUNLE, A.O. (2008) Clients' perceptions of the quality of antenatal care, *Journal of the National Medical Association*, 100(9), pp.1052-1058

- FESSEHA, G., ALEMAYEHU, M., ETANA, B., HAILESLASSIE, and ZEMENE, A. (2014) Perceived quality of antenatal care service by pregnant women in public and private health facilities in Northern Ethiopia, *American Journal of Health Research*, 2(4), pp. 146-151
- GEBREMESKEL, F., DIBABA, Y., and ADMASSU, B. (2015) Timing of First Antenatal Care Attendance and Associated Factors among Pregnant Women in Arba Minch Town and Arba Minch District, Gamo Gofa Zone, South Ethiopia, *Journal of Environmental and Public Health* 2015, pp. 1-7
- GHANA HEALTH SERVICE, (2013) *Annual Report*
- GHANA HEALTH SERVICE, (2014) *Family Health Annual Report*
- GHANA HEALTH SERVICE, (2015) *District Health Information Management System* [Internet]. Available from: http://www.chimsgh.org[Assessed 02/07/16]
- GHANA NEWS AGENCY, (n.d) *Ghana's Institutional Maternal Mortality Ratio* [Internet] Available from: http://www.cityonline.com./2016/02/28/ghanas-instional-maternal-mortality-ratio-falls-report [Assessed 07/07/16]
- GHANA STATISTICAL SERVICE (GSS), GHANA HEALTH SERVICE (GHS), and MACRO INTERNATIONAL. (2009) *Ghana Maternal Health Survey 2007*, Calverton, Maryland, USA: GSS, GHS, and Macro International, pp. 63-76
- GHANA STATISTICAL SERVICE, (2014*) Kwahu West District Analytical Report*.
- GHANA STATISTICAL SERVICE (GSS), GHANA HEALTH SERVICE (GHS), and ICF INTERNATIONAL. (2015) *Ghana Demographic and health survey 2014,* Rockville, Maryland, USA: GSS, GHS, and ICF International, pp.109-113

- GROSS, K., ALBA, S., GLASS, T. R., AMSTRONG SCHELLENGBERG, J. and OBRIST, B. (2012) Timing of antenatal care for adolescent and adult pregnant women in south-eastern Tanzania, BMC *Pregnancy and Childbirth*,pp.1-12
- HALLE-EKANE, G.E., OBINCHEMTI, T. E., NZANG, J.N., MOKUBE, N. M., NJIE, M. M., NJAMEN, T. N. and NASAH, B. T. (2014) Assessment of the Content and Utilization of Antenatal Care Services in a Rural Community in Cameroon : A Cross-Sectional Study,*Open Journal of Obstetrics and Gynecology*, 4, pp.846–856
- HOLY FAMILY HOSPITAL, CHRISTIAN HEALTH ASSOCIATION OF GHANA, (n.d) *Profile of Holy Family Hospital, Nkawkaw*. [Email]. [Assessed 26/03/16]
- JOSHI, C., TORVALDSEN, S., HODGSON, R and HAYEN, A. (2014) Factors associated with the use and quality of antenatal care in Nepal: a population-based study using the demographic and health survey data. *BMC Pregnancy and Childbirth* 14, pp.94
- KALULE-SABITI, I., AMOATENG, A.Y. and NGAKE, M. (2014) The Effect of Socio-demographic Factors on the Utilization of Maternal Health Care Services in Uganda, *African Population Studies*, 28(1) ,pp.515-525
- KISUULE, I.,KAYE, D. K.,NAJJUKA, F.,SSEMATIMBA, S. K.,ARINDA, A.,NAKITENDE, G. and OTIM, L. (2013) Timing and reasons for coming late for the first antenatal care visit by pregnant women at Mulago hospital , Kampala Uganda. *BMC Pregnancy and Childbirth*, 13(1), pp.1-7
- KONDALE, M.,TUMEBO, T.,GULTIE, T.,MEGERSA, T.,YIRGA, H.,AZIMAREW, A. and GETAHUN, B. (2016) Timing of First Antenatal Care Visit and associated Factors among Pregnant Women Attending Antenatal Clinics in Halaba Kulito Governmental Health Institutions 2015, *Journal of Women's Health Care*, 5(2) pp.8-11

- KULKARNI, M. S. and NIMBALKAR, M. R. (2008) influence of socio-demographic factors on the use of antenatal care, *Indian J. Prev. Soc. Med.*, 39(3), pp.2-6
- KYEI, N. N. A., CHANSA, C. and GABRYSCH, S. (2012) Quality of antenatal care in Zambia: a national assessment, *BMC Pregnancy and Childbirth*, 12, pp.1-11
- MINISTRY OF HEALTH GHANA, (2014*) Ministry of Health Ghana Holistic Assessment of the Health Sector Programme of Work 2013 Ghana Report,* pp.22
- MOHAMED, A. and MOHAMED, E. Y. (2011) Quality of antenatal care provided for pregnant women in Ribat University Hospital, Khartoum, *Sudanese Journal of Public Health*, 6(2), pp.51-55.
- NGHITANWA, E. and TUWILIKA, N. (2017) Factors associated with the delay in seeking first antenatal care services among pregnant women at Katutura State hospital, Khomas region. *International Journal of Medicine*, 5(1), pp. 37-40
- NIKIEMA, L., KAMELI, Y., CAPON, G., SONDO, B. and MARTIN-PRÉVEL, Y. (2010) Quality of antenatal care and obstetrical coverage in rural Burkina Faso, *Journal of Health, Population, and Nutrition*, 28(1), pp.67–75
- NWAEZE, I. L., ENABOR, O. O., OLUWASOLA, T. A. O. and AIMAKHU, C. O. (2013) Perception and satisfaction with quality of antenatal care services among pregnant women at the university college hospital, Ibadan, Nigeria, *Annals of Ibadan Postgraduate Medicine*, 11(1) pp. 22-28
- NYAMTEMA, A. S., BARTSCH-DE JONG, A., URASSA, D. P., HAGEN, J. P., and VAN Roosmalen, J. (2012). The quality of antenatal care in rural Tanzania: what is behind the number of visits? *BMC Pregnancy andChildbirth,*12, (70), pp.1-5

- OLADAPO, O. T., IYANIWURA, C.A., and SULE-ODU, A.O. (2008) Quality of antenatal services at the primary care level in southwest Nigeria, *African Journal of Reproductive Health*, 12(3) pp.71-92
- ONASOGA, O. A., AFOLAYAN, J. A. AND OLADIMEIJ, B. D. (2012) Factors influencing utilization of antenatal care services among pregnant women in Ife Central Lga, Osun State Nigeria National Hospital Abuja, Nigeria, *Advances in Applied Science Research*, 23(3), pp.1309-1315
- PATHMANATHAN, I., LILJESTRAND, J., MARTINS, J.M., RAJAPAKSA, L.C., LISSNER, C., SILVA, A. D., SELVARAJU, S. and SINGH, P.J. (2003) Investing in maternal health: learning from Malaysia and Sri Lanka, *World Bank Publication.*
- PELL, C., MEÑACA, A., WERE, F., AFRAH, N. A., CHATIO, S., MANDA-TAYLOR, L., HAMEL, M. J., HODGSON, A., TAGBOR, H., KALILANI, L., OUMA, P. and POOL, R. (2013) Factors affecting antenatal care attendance: results from qualitative studies in Ghana, Kenya and Malawi, *PLoS one*, 8(1), pp.1-11
- PHILLIPI, J.C. (2013) Women's perceptions of access to prenatal care in the United States: A literature review, *Journal of Midwifery & Women's Health*, 54(3) pp.219-225
- SAAKA, M., EMMANUEL, K. AND FARRUZA, I. (2016) Adequacy of Prenatal Care Utilization and its Effect on postpartum Infant Feeding Behaviors in Northern Ghana. *Journal of Human Nutrition and Food Science*, 4, pp.1-8
- SHOLEYE, O.O., ABOSEDE, O. A., and JEMINUSI, O.A. (2013) Client perception of antenatal care services at primary health centers in an urban area of Lagos, Nigeria, *World Journal of Medical Sciences*, 8(4) pp.359-364

- SOLIMAN, F. E. (2015) Satisfaction of rural pregnant women on quality as indicator for provided antenatal care, *International Journal of Scientific and Research Publications*, 5(3), pp.1-9
- SRIVASTAVA, A., AVAN, B. I., RAJBANGSHI, P., and BHATTACHARYYA, S. (2015) Determinants of women's satisfaction with maternal health care: a review of literature from developing countries, *BMC Pregnancy and Childbirth,* 15, pp.1-12
- SWORD, W., HEAMAN, M., BIRO, M. A., HOMER, C.,YELLAND, J., AKHTAR-DANESH, N. and BRADFORD-JANKE, A. (2015) Quality of prenatal care questionnaire: psychometric testing in an Australia population, *BMC Pregnancy and Childbirth*,15, pp.214
- TANCRED, T., SCHELLENBERG, J. and MARCHANT, T. (2016) Using mixed methods to evaluate perceived quality of care in southern Tanzania, *International Journal for Quality in Health Care*, 28(2), pp. 233–239
- TEMESGEN, W. G. (2015) Proportion and Factors Associated with late Antenatal Care Booking among Pregnant Mothers in Gondar Town, North West Ethiopia, *African Journal of Reproductive Health,* 19 (2), pp. 94-100
- THE WORLD BANK GROUP, (2016) Health systems-maternal and reproductive health services [Internet] Available fromhttp://web.worldbank.org/WEBSITE/EXTERNAL/TOPICS[assessed 10/01/16]
- UNITED NATIONS, (2015) *The Millennium Development Goals Report 2015* [Internet] Available from http://www.un.org/2015 [Assessed 26/07/16]
- WHO & UNICEF (2003) Antenatal care in developing countries: promises, achievements and missed opportunities: an analysis of trends, levels and differentials

- WORLD HEALTH ORGANIZATION (2008) WHO antenatal care randomized trial. [Internet] from: http://www. whqlibdoc.who.int/hq/2001/WHO_RHR_01.30[Assessed 18/11/17]
- WORLD HEALTH ORGANIZATION (2015) *Maternal Mortality* [Internet]. Available from: http://www.who.int/mediacentre/news/releases/2015/maternal-mortality/en/[Assessed 12/11./15]

Appendices

DATA COLLECTION TOOL

QUESTIONAIRE

SCHOOL OF MEDICAL SCIENCES

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

K. N. U. S. T. – KUMASI

TOPIC: ASSESSING THE QUALITY OF ANTENATAL CARE: CONTENT AND TIMING AT THE HOLIY FAMILY HOSPITAL, NKAWKAW AND KWAHU GOVERNMENT HOSPITAL ATIBIE, EASTERN REGION GHANA

Introduction

Dear participant, this questionnaire is designed to collect information on the above subject matter. Confidentiality is assured on the information you provide which is solely for research purposes. At any point in time, you can exclude yourself from taking part. I ask for your full co-operation. Thank you.

SECTION A. SOCIO-DEMOGRAPHIC CHARACTERISTICS

Question no.	Questions	Coding category	Answer
Q.1	What is your age?		……..
Q.2	What is your ethnicity?	1. Akan 2. Ga/Dangme 3. Ewe 4. Northern	
Q.3	What is your education level?	1. Primary school 2. Junior high School 3. Senior high school 4. Tertiary 5.Undergraduate 6. Post graduate 7.No education	
Q.4	What is your marital status?	1. Married	

		2. Separated 3. Widowed 4. Divorced 5. Single 6. Cohabiting	
Q.5	What is your occupation?	1.Student 2. Artisan 3. Farmer 4. Trader 5. Self-employed 6. Public/ Civil servant 7. unemployed 8. Other specify ……	
Q.6	Are you on the National Health Insurance Scheme?	1. Yes 2. No	
Q.7	Is the Insurance active?	1.Yes 2.No	
Q.8	What is your husband/Partner's education level?	1. No education 2. Primary 3. Junior High 4. Senior High 5. Tertiary 6.Undergraduate 7. Post graduate 8.Dont know	
Q.9	What is your husband/Partner's occupation?	1.Unemployed 2.Student 3.Farmer 4.Artisan 5.Trader 6. Public/ Civil Servant 7.Transporter 8.Self employed 9.Dont know	
Q.10	What is your religion?	1.Christianity 2. Islam 3. Traditionalist 4. No religion	
Q.11	Who makes the decision for your attendance at the ANC	1. Self 2. Husband/partner	

	clinic?	3.Client and husband/partner 4.Parents	
Q.12	What parity are you?	1.Para 1 2. Para 2 3. Para 3 4. Para 4 5. Para 5 6. Para 6 7. Para 7 8. Para 8 9. Para 9 10 Para 10	

SECTION B. TIMING OF ANC

Q.13	What was your gestational age (weeks) at Initiation of ANC?		……..
Q.14	How many visits did you make to the ANC clinic?	1. Three 2. Four 3. Five 4. Six 5. Seven 6.Eight 7.Nine 8. Ten 9. Eleven 10. Twelve	

SECTION C. CONTENT OF ANC

Q.15	How many times was your blood pressure measured in the first trimester with regards to this pregnancy/ birth?	1.1 2.2 3.3 4.4 5.5 6.6 7.Not done	
Q.16	How many times was your blood pressure measured in the	1.1 2.2	

	second trimester with regards to this pregnancy/ birth?	3.3 4.4 5.5 6.6 7.Not done	
Q.17	How many times was your blood pressure measured in the third trimester with regards to this pregnancy/ birth?	1.1 2.2 3.3 4.4 5.5 6. 6 7.Not done	
Q.18	How many times did you take ultrasound scan in the first trimester with regards to this pregnancy/ birth?	1.1 2.2 3. 3 4.Not done	
Q.19	How many times did you take ultrasound scan in the second trimester with regards to this pregnancy/ birth?	1.1 2.2 3.3 4. Not done	
Q.20	How many times did you take ultrasound scan in the third trimester with this pregnancy/ birth?	1.1 2.2 3.3 4.Not done	
Q.21	How many times was your blood taken for routine test in the first trimester with regards to this pregnancy/birth?	1.1 2.2 3.3 4.4 5. 5 6.Not done	
Q.22	How many times was your blood taken for routine test in the second trimester with regards to this pregnancy/ birth?	1.1 2.2 3.3 4.4 5. 5 6.Not done	
Q.23	How many times was your blood taken for routine test in the third trimester with regards to this pregnancy/birth?	1.1 2.2 3.3 4.4	

		5. 5 6. Not done	

SECTION D. CLIENT'S PERSPECTIVE ON QUALITY OF ANC

Q.24	How would you rate the hospital's physical environment (structure, water supply, electricity, and room space and seat arrangement)?	1.Poor 2.Fair 3.Good 4.Very good 5. Excellent 6. Don't know	
Q.25	What do you think of the cleanliness of the hospital?	1.Poor 2.Fair 3.Good 4.Very good 5.Excellent 6.Dont know	
Q.26	Are you satisfied with the availability and adequacy of human resources (nurses, midwives and doctors and non-health personnel) during your visit to the hospital?	1.Yes 2.No	
Q.27	In your opinion how would you assess the availability of medicines, supplies and services during your visit to the hospital?	1.Poor 2.Fair 3.Good 4.Very good 5.Excellent 6. Don't know	
Q.28	What do you think of the promptness of care? you received during your visit to the hospital?	1.Poor 2.Fair 3.Good 4.Very good 5.Excellent 6.Dont know	
Q.29	Do you think the competency of the health	1.Yes 2.No	

	personnel who attended to you during your visit to the hospital is satisfactory?		
Q.30	How satisfied are you with the cognitive support for your involvement in your care (asking questions and next appointment date) when you visited the hospital?	1.satisfied 2.very satisfied 3.Dissatisfied	
Q.31	How would you rate the attitude of health personnel during your visit to the hospital?	1.Poor 2.Fair 3.Good 4.Very good 5.Excellent 6.Dont know	
Q.32	How would you rate convenience of access to the hospital?	1.Poor 2.Fair 3.Good 4.Very good 5.Excellent 6.Dont know	
Q.33	How satisfied are you with the cost of health care during your visit to the hospital?	1.Satisfied 2.Very satisfied 3.Dissatified	
Q.34	How long did you have to wait at any unit before being attended to during your visit to the hospital?	1.30-60mintues 2.1-2hours 3.2-4hours 4.more than 4 hours 5.Can't remember	
Q.35	Did you have your privacy during your visit to the hospital?	1.Yes 2.No	
Q.36	In general how satisfied are you with the quality of care you received during your visit to the hospital?	1.Satisfied 2.Very satisfied 3.Dissatisfied	

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SCHOOL OF PUBLIC HEALTH

K. N. U. S. T. – KUMASI

TOPIC: ASSESSING THE QUALITY OF ANTENATAL CARE: CONTENT AND TIMING AT THE HOLIY FAMILY HOSPITAL, NKAWKAW AND KWAHU GOVERNMENT HOSPITAL ATIBIE, EASTERN REGION GHANA

Introduction

Dear participant, this questionnaire is designed to collect information on the above subject matter. Confidentiality is assured on the information you provide which is solely for research purposes. At any point in time, you can exclude yourself from taking part. I ask for your full co-operation. Thank you.

SECTION A. SOCIO-DEMOGRAPHIC CHARACTERISTICS

Question no.	**Questions**	**Coding category**	**Answer**
Q.1	What is your age?		……..
Q.2	What is your ethnicity?	1. Akan 2. Ga/Dangme 3. Ewe 4. Northern	
Q.3	What is your education level?	1. Primary school 2. Junior high School 3. Senior high school 4. Tertiary 5.Undergraduate 6. Post graduate 7.No education	
Q.4	What is your marital status?	1. Married 2. Separated 3. Widowed	

		4. Divorced 5. Single 6. Cohabiting	
Q.5	What is your occupation?	1.Student 2. Artisan 3. Farmer 4. Trader 5. Self-employed 6. Public/ Civil servant 7. unemployed 8. Other specify ……	
Q.6	Are you on the National Health Insurance Scheme?	1. Yes 2. No	
Q.7	Is the Insurance active?	1.Yes 2.No	
Q.8	What is your husband/Partner's education level?	1. No education 2. Primary 3. Junior High 4. Senior High 5. Tertiary 6.Undergraduate 7. Post graduate 8.Dont know	
Q.9	What is your husband/Partner's occupation?	1.Unemployed 2.Student 3.Farmer 4.Artisan 5.Trader 6. Public/ Civil Servant 7.Transporter 8.Self employed 9.Dont know	
Q.10	What is your religion?	1.Christianity 2. Islam 3. Traditionalist 4. No religion	
Q.11	Who makes the decision for your attendance at the ANC clinic?	1. Self 2. Husband/partner 3.Client and husband/partner 4.Parents	

Q.12	What parity are you?	1.Para 1 2. Para 2 3. Para 3 4. Para 4 5. Para 5 6. Para 6 7. Para 7 8. Para 8 9. Para 9 10 Para 10	

SECTION B. TIMING OF ANC

Q.13	What was your gestational age (weeks) at Initiation of ANC?		……..
Q.14	How many visits did you make to the ANC clinic?	1. Three 2. Four 3. Five 4. Six 5. Seven 6.Eight 7.Nine 8. Ten 9. Eleven 10. Twelve	

SECTION C. CONTENT OF ANC

Q.15	How many times was your blood pressure measured in the first trimester with regards to this pregnancy/ birth?	1.1 2.2 3.3 4.4 5.5 6.6 7.Not done	
Q.16	How many times was your blood pressure measured in the second trimester with regards to this pregnancy/ birth?	1.1 2.2 3.3 4.4	

		5.5 6.6 7.Not done	
Q.17	How many times was your blood pressure measured in the third trimester with regards to this pregnancy/ birth?	1.1 2.2 3.3 4.4 5.5 6. 6 7.Not done	
Q.18	How many times did you take ultrasound scan in the first trimester with regards to this pregnancy/ birth?	1.1 2.2 3. 3 4.Not done	
Q.19	How many times did you take ultrasound scan in the second trimester with regards to this pregnancy/ birth?	1.1 2.2 3.3 4. Not done	
Q.20	How many times did you take ultrasound scan in the third trimester with this pregnancy/ birth?	1.1 2.2 3.3 4.Not done	
Q.21	How many times was your blood taken for routine test in the first trimester with regards to this pregnancy/birth?	1.1 2.2 3.3 4.4 5. 5 6.Not done	
Q.22	How many times was your blood taken for routine test in the second trimester with regards to this pregnancy/ birth?	1.1 2.2 3.3 4.4 5. 5 6.Not done	
Q.23	How many times was your blood taken for routine test in the third trimester with regards to this pregnancy/birth?	1.1 2.2 3.3 4.4 5. 5 6. Not done	

SECTION D. CLIENT'S PERSPECTIVE ON QUALITY OF ANC

Q.24	How would you rate the hospital's physical environment (structure, water supply, electricity, and room space and seat arrangement)?	1.Poor 2.Fair 3.Good 4.Very good 5. Excellent 6. Don't know	
Q.25	What do you think of the cleanliness of the hospital?	1.Poor 2.Fair 3.Good 4.Very good 5.Excellent 6.Dont know	
Q.26	Are you satisfied with the availability and adequacy of human resources (nurses, midwives and doctors and non-health personnel) during your visit to the hospital?	1.Yes 2.No	
Q.27	In your opinion how would you assess the availability of medicines, supplies and services during your visit to the hospital?	1.Poor 2.Fair 3.Good 4.Very good 5.Excellent 6. Don't know	
Q.28	What do you think of the promptness of care? you received during your visit to the hospital?	1.Poor 2.Fair 3.Good 4.Very good 5.Excellent 6.Dont know	
Q.29	Do you think the competency of the health personnel who attended to you during your visit to	1.Yes 2.No	

	the hospital is satisfactory?		
Q.30	How satisfied are you with the cognitive support for your involvement in your care (asking questions and next appointment date) when you visited the hospital?	1.satisfied 2.very satisfied 3.Dissatisfied	
Q.31	How would you rate the attitude of health personnel during your visit to the hospital?	1.Poor 2.Fair 3.Good 4.Very good 5.Excellent 6.Dont know	
Q.32	How would you rate convenience of access to the hospital?	1.Poor 2.Fair 3.Good 4.Very good 5.Excellent 6.Dont know	
Q.33	How satisfied are you with the cost of health care during your visit to the hospital?	1.Satisfied 2.Very satisfied 3.Dissatified	
Q.34	How long did you have to wait at any unit before being attended to during your visit to the hospital?	1.30-60mintues 2.1-2hours 3.2-4hours 4.more than 4 hours 5.Can't remember	
Q.35	Did you have your privacy during your visit to the hospital?	1.Yes 2.No	
Q.36	In general how satisfied are you with the quality of care you received during your visit to the hospital?	1.Satisfied 2.Very satisfied 3.Dissatisfied