

UNIVERSITY OF GHANA
SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCE



FACTORS INFLUENCING ANTENATAL CARE SERVICE UTILIZATION IN
SEKONDI- TAKORADI METROPOLIS, WESTERN REGION, GHANA

BY

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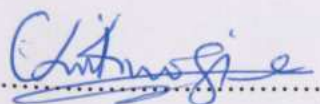
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THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN
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DECLARATION

I Vida Naana Kwofie hereby declare that except for other peoples' work that have been duly acknowledged, this thesis is the result of my own work, done under supervision and it does not contain any materials which has been accepted for award of any degree at a university.

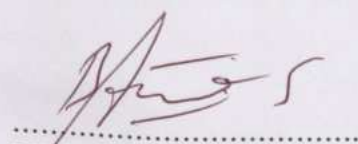


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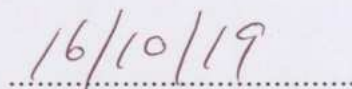


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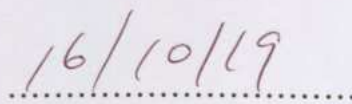


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DEDICATION

I dedicate this thesis to the memory of my late mother Madam Ernestina Botchwey, my brother Kingsley Kelvin Kwofie and his entire family as well as post- natal mothers in Sekondi-Takoradi Metropolis who took part in the study.

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LISTS OF ABBREVIATIONS

ANCs	Antenatal Care Services
CHN	Community Health Nurse
CHM	Community Health Midwife
HIV	Human Immune Deficiency Virus
IPTPs	Intermittent Prevention of Malaria in Pregnancy
MNCH	Maternal and Child Health
GPHA	Ghana Port and Harbour Authority Hospital
CHPS	Community-Based Health and Planning Services
PHC	Primary Health Care
PNC	Post-natal Care
PHN	Public Health Nurse
RM	Registered Midwife
RN	Registered Nurse
SDG	Sustainable Development Goal
TBA	Traditional Birth Attendant
MDG	Millennium Development Goals
UN	United Nations
UNICEF	United Nations International and Children Fund
UNDP	United Nations Development Progmme
WHO	World Health Organization
WB	World Bank

ABSTRACT

Background: Antenatal Care (ANC) is a category of preventive healthcare services aiming to provide regular check-ups that permit health care professionals especially midwives and doctors to prevent and treat potential health problems during the pregnancy period as well as promoting healthy lifestyles to ensure their safety. Poor utilization of ANC services could lead to poor pregnancy outcomes that can affect achieving the Sustainable Development Goals (SDG) targets of reduced maternal and neonatal morbidity and mortality by the year 2030. This study therefore examined ANC services utilization and factors influencing its utilization in the Sekondi-Takoradi Metropolis in both public and private health facilities at the urban and rural settlements.

Methods: A cross-sectional study design with mixed methods (quantitative and qualitative) approach was employed to carry out this study. The study was conducted at Post -natal units of selected public and private health facilities in Sekondi-Takoradi Metropolis in the Western Region from April to May 2019. An interviewer-administered structured questionnaire was administered and data collected on clients' socio-demographic factors, health facility and community related factors which could influence ANC service utilization. In-depth interviews were also conducted among midwives. Using an interview guide two focus group discussions (one male, one female) were conducted in the communities in which the selected health facilities were located. Data was analyzed descriptively. Chi-square test was used to determine associations between independent variables and the outcome variable. Results was presented as frequencies and proportions in tables and graphs with Odds ratio as measure of associations at 95% confidence intervals with p-value

<0.05.

Results: A total of 414 mothers were involved in the quantitative aspect of the study. The median age was 29 years (IQR: 26-33). Ninety-six percent of the mothers had formal education,

89.1% resided in urban areas with 46.6% of the households being made up of four or five adult and children. ANC services utilization rate was found to be 30.7%. Proportion of mothers with good knowledge level on the benefits of ANC services was 15.2%. In the bivariate analysis, awareness of the required minimum (ie 4 ANC visits) service policy, was found to be significantly associated with ANC service utilization with p-value < 0.05. In the multivariate analysis, Mothers who lived in urban areas had 3.5 times (95% CI: 1.1-11.4) odds of ANC services utilization compared to those who lived in rural areas and this association was also statistically significant. In addition, mothers' who were married had 3.2 folds (95% CI: 1.22- 8.44) odds of ANC services utilization compared to those who were single. Likewise, mothers who were cohabiting also had a 14.05 times (95% CI: 2.95-65.87) odds more of ANC services utilization compared to those who were single. Again this association was statistically significant. Mothers who were employed had 4.5 folds (95% CI: 1.4-14.3) odds of ANC services utilization compared to those who were unemployed. Primiparous mothers had 5.0 folds (95% CI: 2.6-9.7) odds of ANC services utilization compared to multiparous mothers and this association was statistically significant. Mothers with good level of knowledge on benefits of ANC services, had 20.5 folds (95% CI: 7.6-55.1) odds of utilization of prenatal services as opposed to those with poor knowledge and this association was statistically significant.

Conclusions: ANC service utilization is largely under-utilized in Sekondi-Takoradi Metropolis. Knowledge on benefits of prenatal services and awareness of the required minimum four ANC visits for pregnant women without any complications in their pregnancies were low. In addition, there were additional payments by NHIS holders who went to access services from the various health facilities in the districts. Major preventive measure is to increase public awareness on the benefits of prenatal services utilization in STM and to strengthen the usage of NHIS.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Globally maternal deaths has been reduced in the past 25 years by 46.0%. Thus from 532,000 in 1990 to 303,000 in 2015 per 100,000 live births. This was achieved as a result of the introduction and implantation of the Millennium development (MDGs) goals four and five targets to reduce maternal deaths to two- thirds per hundred thousand live birth. About 99.0% of these mortalities happened in the developing countries with a higher proportion 66.0% occurring in Sub- Sahara Africa of which Ghana is included (World Health Organization, 2014). This number of maternal deaths was still more than the MDGs target. Implying that the MDGs targets were not achieved. This led to the introduction and implementation of the Sustainable Development Goals targets three and four.

A systematic review of maternal deaths from 27 eligible global database publications from 2003-2009 period revealed that majority of the maternal deaths were directly due to pregnancy and delivery complications such as bleeding, hypertension diseases and infections (Say et al., 2014).

A retrospective study of maternal deaths from 2008 to 2010 in Konfo Anokye Teaching Hospital Kumasi, Ashanti Region of Ghana indicated that direct causes of maternal deaths included hypertension disorders, bleeding and infection (Lee, Odoi, Opere-Addo, & Dassah, 2012). Hence the world leaders commitment into ensure health for all by the 2030 (World Health Organization, 2016).

In view of this, one of the roles of governments in the healthcare of a country is to ensure access to healthcare for all, most especially, the vulnerable groups such as women and children.

Health, according to the World Health Organization (WHO) is, “a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmities” (WHO, 1946).

It is therefore essential to promote health by helping individuals to maximize authority upon their lives in order to help better their health status (WHO, 2018). Healthiness ensures people’s involvement in the development of the country’s economy, increase productivity and well-being resulting in wealth creation through poverty reduction (Mugilwa, Willis, & Lineth, 2015).

Though medical care can prolong people’s life, however, economic and social conditions which usually make people sick are crucial.

Hence, access to mother’s reproductive wellness services becomes the integral part of public health and as a matter of urgency to all stakeholders for development. The full utilization of maternal health care aims to achieve the Sustainable Development Goals on maternal and child health which seek to ensure healthy lives and promote well-being for all at all ages and empower women of all ages (United Nations Development Program, 2016).

It is therefore essential to understand mothers’ health in their social context within the local setting in which they live. These includes; antenatal care, obstetric care, post- natal care, and family planning services.

Antenatal Care (ANC) is a category of preventive healthcare services aiming to provide regular check-ups that permit health care professionals especially midwives and doctors to detect and treat potential risk health problems like aneamia, hypertension diseases, infections like malaria and others during the pregnancy period as well as promoting healthy lifestyles that benefit both mother and their unborn babies to ensure their safety.

Antenatal Care service (ANC) is therefore, indispensable in the achievement of the Sustainable Development Goals (SDG 3) to reduce maternal deaths to less than 70 maternal deaths per 100,000 live births per year in all countries by the year 2030 (United Nations Development Program, 2016). These deaths are mostly due to pregnancy-related and delivery complications which are all preventable (Say et al., 2014).

The WHO Guidelines for Focused Antenatal care and recommendations on antenatal care for a positive pregnancy experience require that a pregnant woman makes a minimum of four ANC visits during a particular pregnancy (for uncomplicated pregnancy); one in the first and second trimesters and two in the third trimester. During which a particular service such as haemoglobin level checked at 28 weeks and 36 weeks, obstetric ultra sound scan at the third trimester provided to aid interventions (WHO, 2016).

Globally, 64.0% of pregnant women made the minimum of four ANC visits in 2016. In the Developed countries, 97.0% made the minimum of four visits, 99.0% had skilled delivery and 90% had post -partum care. However, in the developing countries, 65.0% made the minimum of four visits, 53.0% had skilled delivery and 30.0% had post-partum care (United Nations Development Program, 2016).

In Ghana, the national policy of ANC visits for pregnant women without any complications also recommends a minimum of four antenatal care visits with at least one each in first and second trimesters and two in third trimester (Ghana Health Service, 2017).

1.2 Problem Statement

In 2016, 995 women died out of a hundred thousand live births in Ghana according to the Ghana Health Service annual report (GHS, 2017). This number of maternal deaths was 10 times more

than the Sustainable Development Goal (SDG 3) target of less than 70 maternal deaths per 100,000 live births per year per country (United Nations Development Program, 2016).

Out of the 995 maternal deaths recorded, 150 occurred in the Western region with almost all the death occurring in the Sekondi-Takoradi Metropolis. This level of maternal mortality was also more than twice the SDGs target. From the same GHS 2017 annual report, ANC service utilization rate in Ghana was 74.0%.

According to the 2018 the mid-year performance review report of the Sekondi -Takoradi Metropolis, less than 20.0% of the total ANC clients made the required minimum of four ANC visits in the district. This rate was far below the national rate. Poor utilization of ANC services could lead to poor pregnancy outcomes that can affect achieving the SDG targets of reduced maternal mortality and high economic and social burden on the district, region and the nation as a whole.

As well as Though there are quite a number of studies on the factors of ANC services utilization in the region, fewer studies have examined the factors of the use by frequency of antenatal care visits comparatively. Other studies stratify utilization by urban and rural place of residence and less frequently by public and private.

1.3 Justification

The current study is therefore planned to investigate factors influencing utilization of ANC services in the Sekondi-Takoradi Metropolis in both government and private hospitals at the urban as well as rural settlements in the Western Region. In so doing, some setbacks within ANC services will come to light and recommendations can be made to the policy makers for an appropriate programme implementation thereby enhance hospital services in the district. In addition, increase awareness in the knowledge of benefits of ANC services will enhance ANC service utilization in the district to help curb and prevent the high maternal deaths in the district.

Improvement in health care services will indirectly improve the economic status as well as the well-being of the people in the district and the region as a whole (Mugilwa et al., 2015).

In addition, this study will contribute to the existing body of knowledge where future researchers could use as source material.

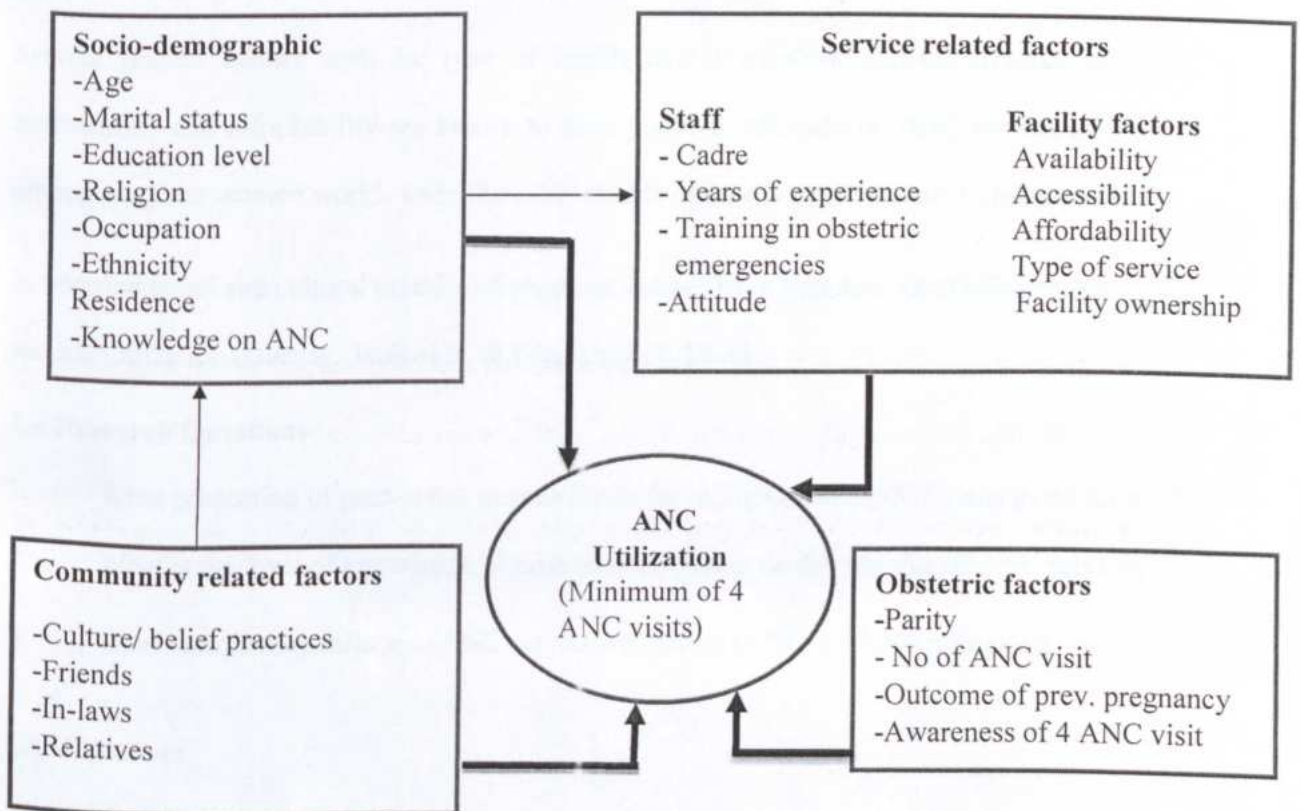


Fig. 1. Conceptual Framework of Factors Influencing Utilization of ANC Services

Figure 1 is a conceptualization of factors that can influence Antenatal Care services utilization among pregnant women. The socio- demographic characteristics of pregnant women including age, marital status, occupation, educational level, religious affiliation, ethnicity, household size and residence are known to also influence ANC service utilization among pregnant women as well

as type of pregnancy and outcome of previous pregnancy (Abor, Abekah-Nkrumah, Sakyi, Adjasi, & Abor, 2011). In addition, knowledge on ANC services and family planning among pregnant women also have been found in studies to influence ANC service utilization (Akowuah, Agyei-Baffour, & Awunyo-Vitor, 2018). Pregnant women who receive ANC service information from friends, relatives, other peers and in-laws has impact on their health seeking behaviors including regular visits to ANC clinic (Guimei, 2017).

Service related factors such as; type of health facility available and the services rendered, accessibility and affordability are known to have positive influence on ANC service utilization among pregnant women world- wide likewise attitude of Health professionals (Afulani, 2015).

In addition belief and cultural practice of pregnant women have been known to influence the ANC service utilization (Deepak, Jauhari N, & Dhungana H, 2018).

1.4 Research Questions

1. What proportion of post- natal women made the minimum four ANC visits in the district?
2. What is the level of knowledge of post –natal mothers on the benefits of ANC services?
3. What factors may influence ANC service utilization in STM, Western Region?

1.5 Objectives

Main objective

To determine the factors influencing ANC service utilization in STM, Western Region.

1.6 Specific objectives

1. To determine proportion of post- natal women who made the minimum four ANC visits in the district.
2. To assess level of knowledge of post –natal mothers on the benefits of ANC services.

3. To determine proportion of post- natal mothers who used National Health Insurance only to access ANC services in the district.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter sought to cover on studies other researchers and authorities have done in contributing to the concept of clients' related factors such as socio-demographic and obstetric factors which have influence on maternal healthcare utilization globally. There are numerous literature on maternal healthcare utilization as a result of its public health importance shown by researchers and other stakeholders. In addition, the chapter sought to explore other factors such as health facility and community related factors which directly or indirectly affect mothers ANC services utilization available at the various health facilities.

2.2 The literature review consists of four sections

The first section deals with the concept of health care and Antenatal Care Service Utilization. The second section involves the socio-economic and obstetric factors that have influence on ANC services utilization by mothers. The third section will focus on health facility related factors which include availability, accessibility, affordability, type of services rendered, staff attitude and experiences and quality of services provided. The last section will focus on community related factors such as culture and belief practices among the community members, type of road network and transportation system and social support which have influence on ANC service utilization.

2.3 Concept of health

Health due to its complex nature has been defined through three approaches; Medical, Holistic and wellness models. The Medical Model considers human body as a machine that need to be

repaired when broken done. Thus it places emphasis on specific physical disease and treatment therefore eliminate mental or social problems and being. It is concerned with resolving physical health problems rather than prevention. Logically, health is viewed by its absence of disease or death rate and optimal level of body's function.

The Medical model thus defined health as "the ability to perform personally valued family, work and community roles". Alternatively, when applied its' mechanical metaphor to society then a healthy society is one in which the various systems such as governance, legal and economy functions well. The Holistic Model was an expansion of the Medical model whilst the Wellness Model was developed through WHO health promotion initiative.

WHO then adapted the Medical model and with the Wellness Model defined health (Decker, Cs, & Cern, 2004). Health as defined by the WHO is "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity" (WHO, 1946). This definition depicts the holistic nature of health which constitutes the physical, mental, social, and sexual, dimensions which is supposed to be the optimal state of mankind. Therefore, health as defined by the WHO embodies both positive and negative aspects of health and well-being. It is difficult to measure well-being in the sense that it has both subjective and objective connotations.

Subjective well-being is defined as person's cognitive and affective on current assessment of his or her life which includes the individual having access to basic needs like housing, food, clothing, sense of belongingness and happiness (Centers for Disease Control and Prevention, 2016). This assessment is usually expressed in emotional terms; as soon as enquired about subjective well-being, respondent usually respond, "I feel well", therefore, "an individual's current evaluation of joy" (Griffin & Ward, 2015).

Objective well-being on the other hand is developed from the perspective of perception and ones evaluation of human society. From Webster's wordlist, healthiness is defined; "the condition of being sound in body, mind, or spirit; especially, freedom from physical disease or pain". A similar publication by the concept health is defined as "a conception of health as the extent to which an individual or group is able, on the one hand, to realize aspirations and satisfy needs, and, on the other hand, to change or cope with the environment (World Health Organization 1984).

Health is, therefore, seen as a resource for everyday life, not the object of living" as cited by (Akowuah, 2016) in his work. An on-going concept emphasizing on social, personal resources and physical capabilities of mankind within the context of where they are born, live, grow, age, and work; deduce health as "a resource for everyday life, not the objective of living" (WHO, 2013). Considering the above definitions, health is thought as being free from physical illness or pain. The concept of health as given by the World Health Organization, though is holistic but is thought to have been idealized to some researchers (Marmot, 2005; CSDH, 2008; Marmot and Bell, 2010) as cited by (Akowuah, Agyei-Baffour, & Awunyo-Vitor, 2018).

It misses out the spiritual, emotional and environmental dimensions of health which are essential for the concept of health.

The National Aboriginal Community Health Controlled Organization, however, defines the concept as, "health is not just physical well-being of an individual but the social, emotional and cultural well-being of the whole community in which each individual is able to achieve their full potentials as a human being, of an individual but the social, emotional and cultural well-being of the whole community in which each individual is able to achieve their full potentials as a human being, thereby bringing about the total well-being of their community" (NACCHO, 2001, p.1).

cited by (Akowuah et al., 2018).

Hence, an individual is said to be healthy when he or she observe healthy lifestyles such as abstinence from drugs and alcohol, eating nutritious food, good personal and environmental hygiene and with optimal level of mental, emotional and intellectual well-being. In addition, individuals should develop good social and community networks as social capital within society, as well as regular exercises, taking adequate rest and the ability to cope with stressful situations (Centers for Disease Control and Prevention, 2016). Meeting all these conditions that the individual is said to have attain a state of well-being.

To achieve this, "an individual or group must be able to identify and realize aspirations, to satisfy needs, and to change or cope with the environment"(WHO, 1986). In the null shell the definition of health as stated by WHO comprises of both curative and preventive aspects of health. Hence, maternal health service policies initiated by governments and other authorities in the various countries globally.

It is therefore paramount that these policies are enforced to prevent and reduce maternal and neonatal morbidity and mortality. Therefore antenatal care services utilization by women is very essential.

2.4 Antenatal Care Service Utilization

According to WHO Guidelines for Focused Antenatal care and recommendations on antenatal care for a positive pregnancy experience required that a pregnant women makes a minimum of four ANC visits during a particular pregnancy (for uncomplicated pregnancy); one in the first and second trimesters and two in the third trimester where a particular service is provided such as checking of the haemoglobin level and obstetric ultra sound scan at 36 weeks to rule out anemia as well as to decide on the mode of delivery (WHO, 2016).

Therefore a minimum of four ANC visits by pregnant women without any health problems is considered as prenatal services utilization. Whilst, ANC visits less than four visits by the pregnant women are considered non-utilization of the service as per the protocol. In the sense that they missed the service meant for that particular schedule which poses risk to them and their unborn babies.

Several researchers had also defined ANC service utilization as mother's attending ANC clinic at least four times at a specific date during each stage in their pregnancies as stated in a work done in Nepal on Antenatal care service utilization by (Sharma, Pokharel, Budhathoki, Yadav, & Pokharel, 2016). This was also indicated in an annual report by (United Nations Development Program, 2016), as well as in a Demographic Health Survey in Ghana (Ghana Statistical Service, Ghana Health Service, & The DHS Program ICF International, 2015) and an annual report in Ghana by (Ghana Health Service, 2017).

A similar study in Ghana also defined ANC service utilization as number of four ANC visits or more (Overbosch, Nsowah-Nuamah, van den Boom, & Damnyag, 2004). Another study on factors influencing ANC clinic attendance in Ho Municipality Ghana also stated ANC service utilization as a minimum of four ANC visits (Tumaku, Yemidi, Mahama, & Mensah, 2015).

Similar study in Ethiopia on utilization of ANC services also defined ANC utilization as attending a minimum of four ANC visits by (Amentie, 2015). Another study in Rwanda on determinants on maternal health service gave same definition (Guimei, 2017). Likewise in Uganda a work done on ANC utilization stated similar definition (Rutaremwana, Wandera, Jhamba, Akiror, & Kiconco, 2015). ANC service utilization is therefore influence by numerous factors according to researchers globally as indicated below.

2.5 Socio-demographic and obstetric factors (clients' related factors) on Antenatal Care Service Utilization

2.5.1 Socio-demographic factors such as mothers'

Age: Age to some researchers correlates to mother's ANC attendance. According to a study on determinants of utilization of prenatal care in Ghana indicated; mothers between the age group 24-29 as years attend ANC clinic more as compared to mothers who are in the age group below 24 years. This could be attributed to the mother's maturity (Nketiah-Amponsah, Senadza, & Arthur, 2013). A similar study in Nigeria titled factors affecting antenatal care services stated in his work that proportion of mothers who made four ANC visits and more were above twenty five years (Dairo & Owoyokun, 2011).

A study in India on determinants of ANC service utilization among post -natal women indicated that age was a predictor of ANC attendance (Roy, Mohan, Singh, Singh, & Srivastava, 2013).

Another study in Ethiopia on ANC care utilization and association factors reported that mothers between age 35 and 49 uses ANC less as compared the younger women (Wondimu, Girma, & Agedew, 2017). A publication in Nepal on ANC health care services utilization among women in their reproductive age revealed that, women between age group 20- 35 years used ANC more compared with their older counterparts (Sharma, Pokharel, Budhathoki, Yadav, & Pokharel, 2016).

Marital status: In literature over the years, marital status of women have been found to influence antenatal clinic attendance among women. A study in Nigeria on factors affecting prenatal care services in pregnant women in Ife indicated in his work that married women makes the minimum four ANC (Onasoga, Afolayan, & Oladimeij, 2012).

Another study in Uganda on determinants of maternal health utilization among women reported

that married women used ANC services less as opposed to their counterparts who were single (Rutaremwā, Wandera, Jhamba, Akiror, & Kiconco, 2015).

A publication in Rwanda on determinants of poor ANC service utilization among post-natal women stated that single mothers used ANC services less as compared to their counterparts who were married (Amentie, 2015).

Residence: Work from South West Shoa Zone, Ethiopia on maternal service depicted that mothers living in urban areas were found to use ANC services more (Wilunda et al., 2015).

A publication in Ghana on socio-economic differentials by mothers and ANC service utilization stated that, being educated and living in urban is more likely to use ANC services as a result of better care for ANC services (Afulani, 2015).

A study on determinants on maternal health service among women in Uganda revealed that uptake of ANC service by rural women was below the required minimum four ANC visits (Rutaremwā et al., 2015). A community based work done in Northern Ethiopia on poor linkages in maternal health services evidence on ANC and institutional delivery reported that women living in urban areas used ANC services more compared to their counterpart in rural areas (Melaku et al., 2014).

It was revealed in a publication on factors influencing ANC service utilization among women in Hadiya Zone, Ethiopia that women who lived in urban areas utilized ANC more than those who lived in rural areas (Abosse, Woldie, & Ololo, 2011).

Educational background: Education of women have been known to have influence on the rate of utilization of ANC services. A study in Ghana on determinants of ANC services in developing

countries indicated women with high level education were found to use ANC services more (Nketiah-Amponsah, Senadza, & Arthur, 2013).

A study from Nigeria also indicated that educational level had great impact on ANC service utilization among women (Dairo & Owoyokun, 2011). Another publication in Nigeria on antenatal care service utilization and associated determinants reported that women with low or no educational background uses ANC services less (Dahiru & Oche, 2015).

It was stated in a study again in Nigeria on socio-demographic determinants on maternal health service utilization among rural women that women with higher level of education used ANC service more as opposed their counterparts without any formal education (Onyeonoro et al., 2014).

Household size: Number of persons in a household both adults and children were known in literature to be one of the factors that influenced ANC services utilization.

A publication on determinants of antenatal healthcare utilization by pregnant women in the third trimester in per-urban Ghana reported that household size was an essential determinant of ANC service utilization among pregnant women (Akowuah et al., 2018).

A study from Central Ethiopia on factors associated with ANC services utilization among women of reproductive age revealed that women with large household size used ANC services less (Birmeta, Dibaba, & Woldeyohannes, 2013).

A study from Rwanda on Factors associated with ANC services utilization among women indicated that, mothers with less household size uses ANC more (Guimei, 2017).

Religion: Religion had also been proven over the years to influence ANC service utilization

among women. A study in Nigeria on antenatal utilization among women reported that Muslim women and other religions were two times more likely to make the required minimum ANC services utilization as opposed to their colleagues who were Christian women (Dairo & Owoyokun, 2011).

A report from Uganda on the study of determinants of maternal health care service utilization stated in their report that the odds of utilization of maternal health care services such as ANC was less among Muslim women (Rutaremwya et al., 2015).

Another study in Hadiya zone, Ethiopia found Protestant less likely of ANC service utilization as compared to their counterparts of other religion (Abosse, Woldie, & Ololo, 2011).

A publication on factors influencing utilization of focus antenatal service in Kenya revealed that the odds of ANC service utilization was less in Muslim women compared to Catholic women (Chorongo et al., 2016).

Decision making: Some studies have shown that women who made decision for themselves attended ANC more as oppose to their fellows that others made decisions for them (Onasoga et al., 2012). Similar work on determents of ANC services utilization in Nigeria found women who made their own decisions tend to use ANC services more unlike the other women whom decision were taken for them (Sharma et al., 2016).

A study in India on utilization of maternal health care services and their determinants in Karnataka State indicated that women with less autonomy used maternal health services less (Vidler et al., 2016).

Ethnicity is another factor which have been found to influence mother's rate of prenatal services. A publication from Nigeria depicted that ethnicity had impact on ANC service

utilization among women (Onasoga et al., 2012). A study titled determinants of the use of maternal health services in Nigeria looking beyond individual and household factors revealed that ethnicity was one of the indicators which consistently influenced maternal health service utilization such as ANC (Babalola & Fatusi, 2009).

A work done in Ethiopia on determinants of maternal health services reported that ethnicity was one of the determinants that influenced ANC service utilization (Tarekegn, Lieberman, & Giedraitis, 2014).

Health seeking behaviour: The autonomy of women had been known to have influence on the rate of utilization of ANC services. A study on utilization of maternal health services and their determinants in Karnataka Stat, India (Vidler et al., 2016). A similar study in Ethiopia revealed that women with less autonomy turn to use ANC service less (Tarekegn et al., 2014).

Another study in Ethiopia on determinants of maternal health care services utilization in Holeta Town indicated that women with little autonomy were less likely to utilize ANC services (Birmeta, Dibaba, & Woldeyohannes, 2013).

Knowledge on the benefits of ANC services utilization: Knowledge level on the benefits of ANC service have been found over the past to influence ANC services among women. According to a study on factors affecting the utilization of ANC services in Ibadan, Nigeria; women with high level knowledge on the benefits of ANC services used ANC more as opposed to their counterparts with low level knowledge on benefits of ANC services (Dairo & Owoyokun, 2011).

A similar study from Uganda also reported that women with higher level of knowledge on benefits of ANC services used ANC more (Kavungezi et al., 2015).

A publication on utilization of ANC services in Dalit communities in Gorkha, Nepal reported that high level of knowledge on ANC services among women increased ANC services uptake (Awasthi et al., 2018).

Obstetric Factors: Obstetric factors have been proven over the period by some researchers to have significant impact on maternal health care service. A study on determinants on maternal health care utilization in Central Ethiopia revealed that parity was significantly associated with ANC service utilization with p-value <0.05 (Birmeta et al., 2013).

A publication on socio-demographic determinants of maternal health care services utilization among rural women in Anambra State, South-East Nigeria, reported that parity was significantly associated with timing of ANC utilization (Onyeonoro et al., 2014).

2.6 Health facilities related factors on ANC services utilization.

Health facility determinants such as presence of the structure, cost of service, accessibility, type of services rendered, staff attitude and experiences and quality of services have been proven over time have been proven to have effect on prenatal services uptake. Study from Lao PDR on factors affecting utilization of ANC services among women in Khan District, concluded that distance, availability and cost of transportation, availability of health facility and cost of ANC services and type of services provided by the health facility were significantly associated with ANC service utilization with p value <0.05 (Ye et al., 2010). Again from Nigeria a study indicated that long waiting time, cost of ANC services at the health facilities as well as distance were positive determinants of ANC service utilization among women in Nigeria with significant value of less than 0.05 (Dairo & Owoyokun, 2011). Another study on factors influencing ANC attendance among pregnant women in rural areas of Ho Municipality, Ghana, indicated that women

covering long distance before accessing ANC services have less probability of utilizing ANC services (Tumaku et al., 2015).

2.7 Community related factors on ANC service utilization

Community factors such as certain beliefs and cultural practices among inhabitants of a community have negative influence on ANC services utilization. Type of road network within the community also influences ANC service utilization in the sense that most transport business owners may not want to ply rough roads due to the high risk of worn and tears it poses on their vehicles. On the other hand those who uses it tends to charge higher prices thereby making transportation very expensive which in the long run affect ANC services utilization. Social support network by the community members such as friends, relatives, community leaders and others helps promote good interpersonal relationship and gives assurance of belongingness which influences ANC services utilization. In the same study by Ye et al (2010), Lao PDR on factors affecting utilization of ANC services among women in Khan District, again found that 98% of the women who had social support utilizes ANC services more as opposed to those without any social support. He also found that low cost of transportation within a community positively affects ANC service utilization among the pregnant women. However in the same study, he found out that convenient road did not have positive impact on ANC service utilization among the women in the Khan district. Moreover in the same study he reported that presence of health facilities close to peoples' house has 2.9 times more of ANC service utilization among those women who were closer to the facilities than those who lived far away from the health facilities. This is so in the sense that women who stay closer will spend less on transportation and therefore will be able to go for their ANC service appointment as scheduled.

CHAPTER THREE

METHODS

3.1 Study Design

A cross-sectional study design with mixed methods (quantitative and qualitative) approach was employed to carry out this study. The study was conducted from April 2019 to June, 2019 at post-natal units of selected public and private health facilities in Sekondi-Takoradi Metropolis in the Western Region of Ghana.

Study Area

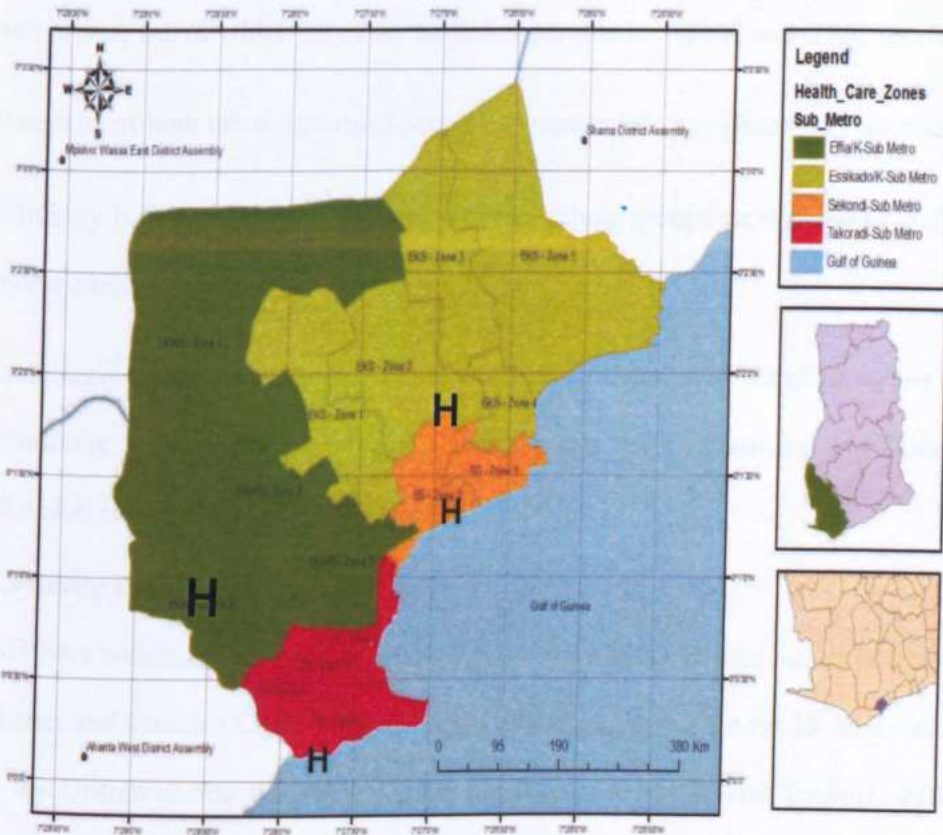


Figure 2: Map of Sekondi-Takoradi Metropolis.

The study was done at the Sekondi-Takoradi Metropolis (STM), one of the twenty two districts in the Western Region of Ghana. STM is bounded to the North by Mpohor-Wasa East District, to the South by the Gulf of Guinea, West by Ahanta West District and to the East by Shama District. It has a total land area of 219km square, with Sekondi as the administrative headquarters. From the 2010 census, the projected total population of Women in their Fertility Age (WIFA) and deliveries were estimated to be 710,517, 170,524 and 28,421 respectively in 2018 based on annual growth rate of 4%. It has four Sub- Metropolis namely, Takoradi, Affia - Kwesimintsim, Essikado- Ketan

and Sekondi. The district consists of 135 communities with 81 health facilities both Government and private out of which 38 of the facilities provide both PNC and CWC services.

It consist of both urban and rural population making it appropriate for this study.

Ethnicity is mainly Ahanta however all other ethnic groups such as Fante, Ashanti, Ewe, Ga and others exist.

Languages spoken are Ahata, Fante, Twi and others; with English as the official language.

Economic activities includes, none formal sectors such as farming and fishing. Formal sectors like civil servants and industrial firms.

3.2 Study Population

Mothers within the ages of 18 years-49 years who had delivered not more than a year within the district and attended Child Welfare Clinic (CWC) in any of the health facilities. Likewise resided in the District during the study period (April to June 2019) were eligible. Participants included health care providers from both public and private health facilities as well as community members within the district during the study period.

3.2.1 Inclusion criteria

1. Post-natal women between the ages of 18 years - 49 years.
2. Mothers who had delivered not more than one year prior to the data collection.
3. Mothers who were resident within the districts.
4. Mothers who consented to participate in the study.

3.2.2 Exclusion Criteria

1. Post- natal women who were unwell at the time of the study.

3.3 Data collection methods and tools

The post-natal mothers who had delivered less than a year and were present at the post-natal and the child welfare clinics at the selected study hospitals during the study period were counted. Likewise resided within the district and were within the ages of 18 years-49 years in order to curb recall bias.

Participants were enrolled using simple random sampling techniques. An interviewer-administered questionnaire was used to collect data on clients' socio-demographic factors, health facilities factors community related factors which had influenced on ANC service utilization.

We used two focus group discussions (FGDs) one each for male and female groups. Each group was made up of six members totaling (12) participants to explore their perception and attitudes towards ANC service utilization with regards to knowledge on benefits of ANC services. As well as their beliefs and cultural practices, reasons why some of the mothers do not attend ANC clinics and what they think could be done to improve ANC services utilization and curb the high maternal mortality in in Sekondi- Takoradi Metropolis.

Participants were different from those who participated in the quantitative study.

Among them were the relatives of the study participants such as husbands, family heads, in-laws, peers, friends and community leaders. Community members who had stayed in STM for more than a year and consented to participate were enrolled from the communities in the selected study facilities purposively. The FGDs were conducted at a convenient location and time suggested by the community members. In addition, eight midwives who had worked more than a year in the districts and consented to participate were also selected purposively. One each from the eight selected health facilities at the PNC/ CWC units and interviewed at their convenient time.

Table 1: Variable Table

Variables	Operational Definition	Measurement/Possible Value
Independent variables		
Client Related Factors		
Socio-demographic		
Age	Refers to age in years of the mother as reported during the interview	Continuous
Occupation	Refers to the work of the mother as reported during the interview Employed refers to woman who is a formal or informal worker. Unemployed refers to women not working. And any other refers to women who are students and so on.	Categorical Value: Employed Unemployed others
Educational Level	Refers to the educational status mention by the participant during the interview	Categorical Value: -No formal education -Primary /JHS -Secondary -Tertiary
Marital Status	Refers to the marital status of the participant as reported during the interview	Categorical Value: -Single -Married -Cohabiting -Divorced -Separation/Widow
Type of Pregnancy	Refers to the number of babies the participant had during her current delivery. Refers to single delivery. Refers to Twins delivery. Refers to triplet delivery.	Numerical
Parity	Refers to the number of deliveries participant had had. Refers to the surviving children. Refers to dead children	Numerical
Ethnicity	Refers to the tribe of the participant as mentioned during the interview	Categorical Value: -Akan -Ewe Ga-Dangme

	Refers to ultrasound scan participant took during her pregnancy Refers to physical examination participant had during her pregnancy	-Yes -No
Health education	Refers to health information participant received at ANC visits during her pregnancy	Categorical Value: -Yes -No
Place of delivery	Refers to the participant delivered at the same facility where she attended ANC during her pregnancy. Refers to participant referred to another hospital for the delivery as mentioned during the interview	Categorical Value: -Yes -No
Others	Refers to ITN given during pregnancy. Refers to IPTp given during pregnancy. Refers hematenics given during pregnancy. Refers to participant immunization status as reported in the ANC book	Categorical Value: -Yes -No
Availability	Refers to health facilities within the participant community Refers to if they provide ANC and or delivery services.	Categorical Value: -Yes -No
Accessibility	Refers to the distance participant's residence is located to the health facility. Refers to the working hours. Refers to working days.	Numerical
Affordability	Refers mode of payment for ANC services	Categorical Value: Self NHIS Others
Cadre	Refers to the position or rank of the staff	Categorical Value: RM ENM CHM CHN
Years of experience	Refers to the number of years staff have been working	Numerical
Training in obstetric emergencies	Refers to obstetric emergency training staff had had after post basic training	Categorical Value: -Yes

		-No
Staff attitude	Refers to participant's encounter with the Staff during her pregnancy as mentioned during the interview.	Categorical Value: Friendly Partially friendly Arrogant Disrespectful
Community Related Factors		
Friends	Refers to the participant close friends living together in the same community who may have influence on her health seeking behaviour	Categorical Value -Yes -No
Relatives	Refers to the participant own relatives who may have influence on her health seeking behaviour as mentioned during the interview. Refers to participant parents Refers to participant siblings Refers to others	Categorical Value: -Husband -In-laws -Family heads -Parents -others
Peer pressure	Refers to participant neighbours who may have influence on her health seeking behaviour as mentioned during the interview.	Categorical Value: -Yes -No
Dependent variable		
ANC services utilization	Attending a minimum of 4 ANC visits	-

3.5 Sampling

3.5.1 Sample size Determination: Using Cochran formula (1997),

The sample size was calculated assuming ANC service utilization rate of 50% (actual ANC service utilization among pregnant women was not available), secondly this formular offers lager sample size for the study that inferences could be made. A confidence interval of 95% and margin of error at 5 %. The sample size for this study was estimated as follows:

$n = (Z^2 \times PQ)/d^2$, where n represents the desired sample size.

Z is the normal standard deviation, whose value at 95.0% confidence level is 1.96.

P is assumed current rate; 50% (0.5).

Q is $1-P = 0.5$.

d is the set margin of error; 0.05.

Having computed, the minimum sample size, $n=384$. The figure was upwardly adjusted by 10% to cater for possible non-response in order not to affect the minimum sample size. The resultant sample size was 422.

3.3.6 Sampling Procedure

A multi-stage sampling technique was used for the selection of participants for this study.

First stage: Initially, post-natal/ child welfare clinic surveillance data of the Sekondi-Takoradi Metropolis from January 2019 to June 2019 was abstracted. Using children between 0-11 months old from the Ghana Health Service electronic data. Thus District Health Management and Information System (DHMIS2) to know the post-natal/ child welfare clinic population for the facilities within the STM after an approval from the Metro Health Director.

The four sub Metropolis were selected purposively to ensure representativeness.

Second stage: Eight health facilities (4 public and 4 Private) were selected from these sub-Metropolis purposively based on their high PNC and CWC population.

The facilities were stratified into urban and rural based on the communities in which they are located as demarcated by the Ghana Demographic Survey Department and selected purposively as well. From January 2019 to June 2019, the eight facilities with the highest post-natal and child welfare population within the Sekondi-Takoradi Metropolis were selected. Resulting in a total population of 5,715 which was used as the denominator for the calculation.

Proportionate to size (PPS) was used to allocate respondents to the selected health facilities based on their respective PNC and CWC population sizes to obtain the sample size of 422 for the study from April- May 2019. Example Ghana Port and Harbour Authority had a population of PNC/CWC 318. By $PPS = 318 \text{ divided by } 5,715 \text{ and multiply by } 422 \text{ (sample size)}$ which resulted in 24 respondents as shown in Table: 2.

Table 2: Proportionate to size sampling (Post Natal Clinic/Child Welfare Clinic mothers with children less than one year)

Facility	ownership	Community	Population	Respondents
GPHA	Private	Urban	318	24
Jemima Cresentsil Hosp.	Private	Urban	1271	94
Stratford Hosp.	Private	Rural	346	26
Naval Base CHPS	Private	Rural	40	3
ENRH	Public	Urban	2298	170
Essikadu Hosp.	Public	Urban	1294	96
New-Takoradi Health Centre	Public	Rural	40	3
Whindo CHPS	Public	Rural	108	8

Source: DHMIS2 2018(Postnatal Clinic/ Child Welfare Clinic Data)

Third stage: A simple random sampling was employed to select the participants from the selected facilities. Equal number of “Yes and No” answers were written on piece of papers totaling the study population folded and mixed into a container. The post- natal mothers were asked to pick one piece of paper in turns. Those who picked the paper written ‘Yes’ answers and consented to partake in the study were enrolled into the study and interviewed. This was done at each study location until the sample size was reached 424.

Qualitative study

Twelve participants were selected for the two focus group discussions which involved community members using convenient sampling. Eight KII consisting of health staff were selected using convenient sampling, making a total of 20 participants for the qualitative study.

3.6 Quality Control

The data was collected by the principal researcher and four other research assistants. Before the start of the data collection, the research assistants were taking through two days intensive training on research ethics, interviewing skills without coercion, researcher and participant privacy and confidentiality and how to handle non-responses. The training also included language training and interpretation of the questionnaires to local languages specifically Fante and Twi. The objectives and outcomes of the study were also explained to the research assistants. On daily basis, the principal researcher ensured the compilation of all administered questionnaires and replacement of incomplete questionnaire to be administered the next day. All administered questionnaires were coded and kept by the principal researcher and confidentiality was ensured throughout the research period.

3.7 Pre-testing of Questionnaires

Twenty questionnaires were pretested using 20 participants from two selected health facilities one urban and one rural in Shama District in the Western Region. This setting has almost the same business nature as the study area likewise is made up of urban and rural settings with the population predominantly engaged in farming and fishing activities. The pretesting gave opportunity to test the sensitivity of the questionnaires, accuracy and completeness. It also ensured that questionnaires were useful for this type of study and modification were done before the commencement of the study.

3.8 Data Processing and Analysis

Microsoft Excel version 2013 was used for data entering and cleaning and stored in CSV file. Data was imported into STATA version 15 and was used to compute both descriptive and analytical statistics analyses. Age as the continuous variable in the study were grouped into eight categories: < 20 years, 20-24 years, 25-29 years, 30-34 years, 35-39 years, 40-44 years and 45-49 years. Descriptive analysis was done and categorical variables were presented as proportions in graphs and tables. Bivariate analysis of each of the independent variables (factors) and the dependent variable (minimum of four ANC visits) was done using the Pearson Chi-square test to determine factors that were significantly associated with the minimum 4 ANC visits. Factors with p-value less than 0.05 were considered statistically significant. Multivariate analysis was performed for significant factors using Logistic regression to determine the strength of the association and the directions. The measure of association was Odds Ratio at the corresponding 95% confidence level.

Interviews from KII and the FGDs were transcribed verbatim and translated into English by an expert in all the languages used for the interviews (Fante, Twi and English). Major themes were identified and similar sub-themes were derived from major themes manually and described. Subsequently, recorded interviews and field notes were used to verify the translated recordings. Themes were coded into categories that measure the study objective after which triangulation was done for the verification before the final interpretation of the results.

3.9 Ethical Consideration

Approval for this study was obtained from the Ghana Health Service Ethics Review Committee (GHS-ERC025/02/19). In addition, permission was sought from the Western Regional and Sekondi-Takoradi Health Directorates. Likewise, Heads of the study facilities as well as the

community leaders before the commencement of the study to determine the factors influencing ANC service utilization among post-natal women in the Sekondi -Takoradi Metropolis in the Western Region. The objective of the study was explained to the participants and adequate time was given to them to enable them make an informed decision whether or not to participate in the study. The research assistants in turn explained the purpose of the study to the participants that the study was for research purposes and would provide information to help improve on the well-being of the pregnant women and their unborn babies and the community as a whole. After which a written informed consent was obtained from the participants.

3.9.1 Voluntary consent/ Withdrawal

The participants were made aware, participating in this study was voluntary and they were not under any obligations except out of their own free will, to take part. Therefore they have right to reject to participate or withdraw from the study at any point in time without explanation. In addition they were made aware of the fact that there would be no direct benefits or risks involved in this study except some of the questions may be slightly uncomfortable. Participants were assured of confidentiality throughout the study. Only willing participants took part in the study and interviews were conducted at their convenience on one-on-one basis. Data obtained were used only for the set objectives of this study. The participants were identified by code numbers and data stored both electronically and in hard copies with access given only to the research team.

3.9.2 Possible Risk and Discomfort

We do not foresee any direct harm to research participants except for possible slight uneasiness when answering certain questions. They had the right to refuse to answer any question if they feel uncomfortable about it.

3.9.3 Possible Benefits

The participants were made aware of the fact that there were no direct benefits. Participants were given health education on benefits in ANC service utilization and modification in their health seeking behaviour after the interview. The findings from the study would benefit the Regional and District Health Management Team in planning programme interventions and implementation to improve health care delivery in the district and the region as a whole.

3.9.4 Confidentiality

Confidentiality was maintained throughout the study. Names of participants were not captured on questionnaires instead identification numbers were used and codes were applied to them. The information was securely stored without names and was only accessible to the research team. The results of this study were disseminated in such a way that no information was linked to the identity of the participants.

3.9.5 Compensation

Participation in this study was purely voluntary and there was no monetary compensation to the participants for accepting to be part of this study except water and snack for those.

3.9.6 Choice of Participation

Participants do not have to participate in this study if they do not wish to. They were informed that their refusal to participate would not attract any penalty. If they agree to participate, they could withdraw their consent and discontinue participation at any time. This would not affect them in any way.

CHAPTER FOUR

RESULTS

4.1 Descriptive characteristics of the study participants

A total of 414 study participants were involved in the quantitative aspect of the study. The median age of the study participants was 29 years with interquartile range of 26-33 years. A third (33.6%) of the study participants were within the age range 24-29 years, 27.1% were within the age range 30-34 years with a few of them aged below 20 years or above 39 years. Ninety-six percent of the mothers had formal education; basic, 32.4% and tertiary 31.2% (Table 3). Majority (76.8%) of the mothers were married and 11.1% were single. Majority (87.2%) of the mothers were employed. Three hundred and sixty-nine (89.1%) of the mothers resided in urban areas with 46.6% of the households being made up of four or five persons (Table 3). Majority (78.0%) of the mothers were Akans and 90.0% were Christians.

Sixty- six percent of the mothers had more than one child whilst 67.0% obtained their ANC services from the public health facilities within the districts as shown in Table 3.

Table 3: Descriptive characteristics of study participants

Variables	Frequency (N=414)	Percentage (%)
Age group		
<20 years	15	3.6
20-24 years	70	16.9
24-29 years	139	33.6
30-34 years	112	27.1
35-39 years	61	14.7
40-44 years	16	3.86
45-49 years	1	0.2
Educational level		
No formal education	18	4.4
Basic	134	32.4
Secondary	133	32.1
Tertiary	129	31.2
Marital status		
Single	46	11.1
Cohabiting	50	12.1
Married	318	76.8
Ethnicity		
Akan	327	79.0
Ewe	37	8.9
Ga-Dangbe	13	3.1
Mole-Dagbon	37	8.9
Religion		
Christian	376	90.8
Muslim	38	9.2
Occupation		
Employed	361	87.2
Unemployed	53	12.8
Parity		
Primip	140	33.8
Multiparous	274	66.2
Residence		
Rural	45	10.9
Urban	369	89.1
Household size		
Household size		
<4 members	109	26.3
4 or 5 members	193	46.6
>5 members	112	27.1
Facility type		
Private	136	32.9
Public	278	67.2

Frequencies/ proportions

4.2 ANC Services Utilization

All eight study health facilities had designated rooms for ANC services. All (414) mothers who were enrolled in this study had routine ANC screening done. Out of 414 mothers 45.0% had their first dose of Tetanus toxoid diphtheria immunization, 25.0% their second dose and 30.0% their third dose respectively. All the 414 mothers were given health education as well as received their routine ANC drugs and were supplied with treated mosquito net (ITN) except one participant who did not receive ITN. Participants during the course of their pregnancy received management for their ailments as and when they needed. Out of the 414 mothers, 396 (95.7%) had health facilities in their communities with 50.5% providing ANC services and 49.5% providing both ANC and delivery services. All participants had support from a family member or a member in their communities.

Out of the 414 mothers, 4.3% delivered at facilities other than where they received their ANC services with the following reasons; 66.7% claim health facilities were closer, 16.7% were referred for incubator services and 11.1% delivered at home because the grandmother is a TBA.

Among the 414 mothers, 30.7% made the required minimum of four ANC visits whilst majority (69.3%) of them made less than the required minimum four ANC visits at the various health facilities within the Sekondi-Takoradi Metropolis as shown in figure 2.

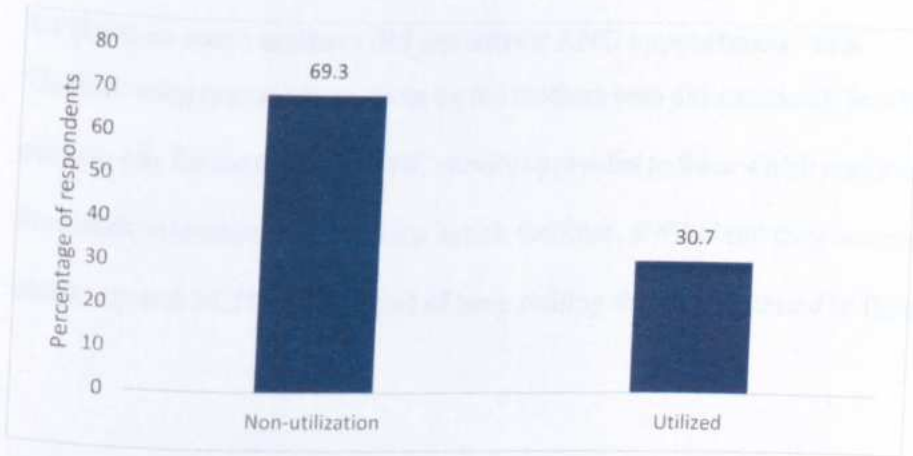


Figure 2: ANC services Utilization at the study health facilities.

4.3 Appointment for ANC visits.

Usually pregnant women are scheduled for their ANC visits, in which at each visit a specific service is provided to them. Out of the 414 mothers involved in the study, 99.5% were given appointment dates for their ANC visits of which 48.8% attended and 51.2% did not attend as depicted in figure: 2.

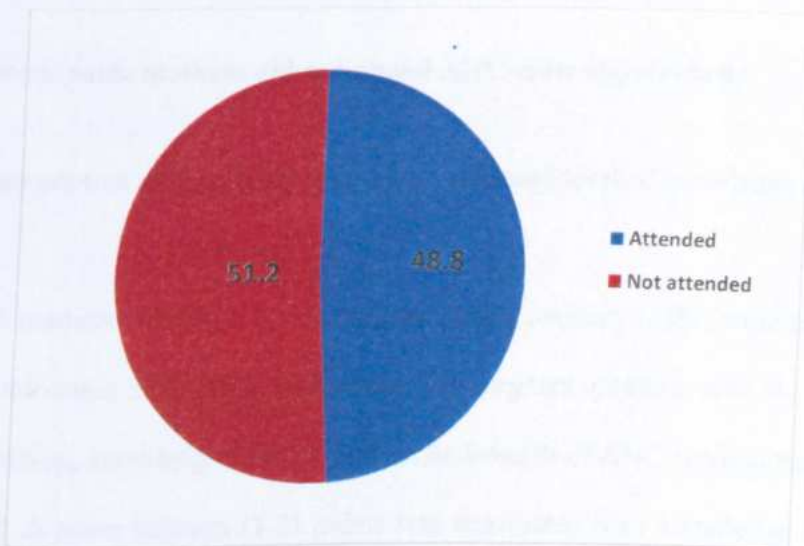


Figure 3: Appointment for ANC visits

4.4 Reasons some mothers did not attend ANC appointment visits

The following reasons were given by the mothers who did not attend; 66.4% complained they were made to pay for most of their ANC services provided to them which previously were covered under the health insurance at the various health facilities, 9.4% claim they were not sick so did not need check- up and 24.2% complained of long waiting time as illustrated in figure 4.

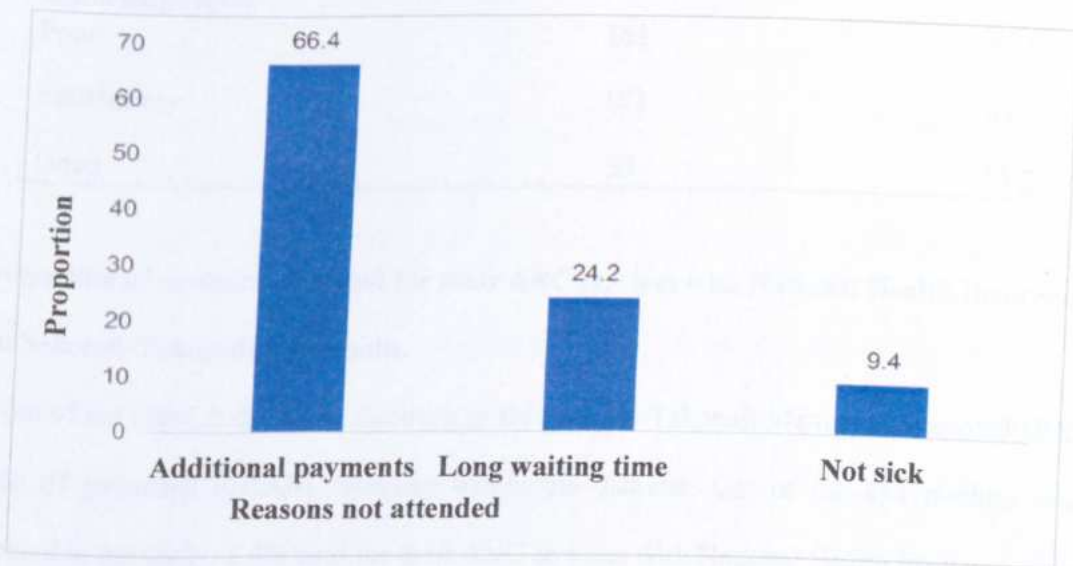


Figure 4: Reasons some mothers did not attend ANC visits appointment.

4.5 Mothers' awareness of minimum four ANC visits and level of knowledge on benefits of ANC services.

Among the 414 mothers who were involved in this study, majority (54%) were not aware of the recommended minimum four ANC attendance for pregnant mothers who do not have any problems. In addition, knowledge level of mothers on benefits of ANC services were assessed on a score of (1-5). A score between (1-2) points was considered poor knowledge level, 3 points satisfactory and between (4-5) points was good knowledge level. Of the 414 mothers involved in

the study, 15.2% had good knowledge level on benefits of ANC services, 44.2% had satisfactory and 40.6% had poor knowledge level respectively as shown in **Table 4**.

Table: 4 Awareness and Knowledge level of mothers in the study

Mothers awareness	Frequency (N=414)	Percentage (%)
Aware	190	46.0
Not aware	224	54.0
Knowledge level		
Poor	168	40.6
Satisfactory	183	44.2
Good	63	15.2

4.6 Proportion of mothers who paid for their ANC services with National Health Insurance only in Sekondi-Takoradi Metropolis.

Seven out of the eight study health facilities in the Sekondi-Takoradi Metropolis accepted NHIS as mode of payments for ANC services within the districts. Out of the 414 mothers who participated in the study, 2.4% paid for their ANC services with National Health Insurance only. Ninety one point six percent of the mothers though they were NHIS holders yet made an additional payment for their ANC services and 6.0% paid for their ANC services without using NHIS at the various health facilities within the districts as depicted in figure 5.



Figure 5: Proportion of Mothers who paid for Antenatal care services with national health insurance only.

4.7 Association between demographic characteristics and utilization of ANC services

In assessing the factors that were significantly associated with utilization of ANC services, the Pearson's chi-square test was employed. All demographic factors measured except ethnicity and religion showed significant association with utilization of ANC services among the study participants ($p\text{-value} < 0.05$). One's age group, education level, conjugal status, occupation, parity, family size likewise residence type of the respondents had significant influence with utilization of ANC services.

Proportion of married women (36.5%) who utilized the ANC services was significantly higher as opposed to those who were single (19.6%) or cohabiting (4.0%). Significantly a higher proportion of those who were employed (33.8%) utilized ANC services compared to those who were un-employed (9.4%). Additionally, proportion of the study participants who had less than 4 household members (35.8%) or between 4 and 5 household members (35.2%) were significantly higher in the ANC service utilization than those study participants with more than 5 household

members (17.9%). Proportion of study participants who utilized ANC services was significantly higher among those who lived in urban areas (32.5%) compared to those who lived in rural areas (15.6%). Likewise, proportion of mothers who were between the age groups 24 -29 years or 30-34 years were significantly higher in the ANC service utilization than those below 20 years or 40 years and above as shown in Table 5.

4.8 Association between obstetric characteristics and utilization of ANC services

Table 6, shows the association between obstetric characteristics of mothers on utilization of ANC services. All observed obstetric characteristics showed significant association with utilization of ANC services except for payment of ANC cost by husband.

ANC services utilization was significantly higher among mothers with their first child (39.7%) compared to those who had given birth before (26.6%). Comparably, a percentage of ANC utilization among those who pay ANC costs by themselves was significantly higher than those who do not pay ANC services by themselves (40.6% vs. 27.5%). The percentage of ANC service utilization among those with Good knowledge level on the benefits of ANC services (61.9%) was significantly higher than those with satisfactory (41.5%) or those with poor (7.1%) level of knowledge on the benefits of ANC services.

Table: 6 Association between obstetric and other background characteristics of mothers and ANC services utilization

Variables	Utilization of ANC		Chi-square	P-value
	Non-utilization n (%)	Utilization n (%)		
Parity			7.4	0.007**
Primips	85 (60.7)	55 (39.3)		
Multiparous	202 (73.7)	72 (26.3)		
Attendance of ANC in previous pregnancy			#	<0.001***
Did not attend	210 (99.1)	2 (0.9)		
Attended	77 (38.1)	125 (61.9)		
ANC decision maker			22.2	<0.001***
Self	211(63.9)	119 (36.1)		
Others	76 (90.5)	8 (9.5)		
Awareness of 4 ANC visits			22.7	<0.001***
Not aware	154 (81.0)	36 (19.0)		
Aware	133 (59.4)	91 (40.6)		
Payment by self			6.2	0.013*
Not self	227 (72.5)	86 (27.5)		
Self	60 (59.4)	41 (40.6)		
Payment by NHIS			#	<0.001***
Not NHIS	4 (14.8)	23 (85.2)		
NHIS	283 (73.1)	104 (26.9)		
Payment by husband			1.4	0.233
Not husband/Partner	45 (63.4)	26 (36.6)		
Husband/partner	242 (70.6)	101 (29.5)		
Knowledge on benefits of ANC services			82.8	<0.001***
Score of 1-2(Poor)	156 (92.9)	12 (7.1)		
Score of 3 (Satisfactory)	107 (58.5)	76 (41.5)		
Score of 4- 5(Good)	24 (38.1)	39 (61.9)		

*: P-value <0.05. **: P-value <0.01. ***: P-value <0.001. #: Fisher's exact

4.9 Association between facilities related factors and ANC service utilization

Ownership type of the health facility, acceptance of NHIS by health facilities, provision of comprehensive services by the health facilities, quality of services provided by the health facilities and waiting time were health facility factors that showed significant association with utilization of ANC services among the mothers in the study as illustrated in the table 7 (p-value <0.05)

Table 7: Association between health facilities related factors and antenatal care service utilization

Variables	Utilization of ANC		Chi-square	P-value
	Non-utilization n (%)	Utilization n (%)		
Ownership of health facility			7.8	0.005**
Private	82 (60.3)	54 (39.7)		
Public	205 (73.7)	73 (26.3)		
Health facility accept NHIS			35.6	<0.001***
Don't accept NHIS	4 (16.0)	21 (84.0)		
Accept NHIS	283 (72.8)	106 (27.3)		
Service comprehensiveness			26.3	<0.001***
Basic services	182 (79.8)	46 (20.2)		
Comprehensive service	105 (56.5)	81 (43.6)		
Quality of service			23.3	<0.001***
Not-quality service	247 (74.9)	83 (25.2)		
Quality service	40 (47.62)	44 (52.4)		
Waiting time rating			14.3	0.001**
1-2 hours (Good)	49 (53.9)	42 (46.2)		
3-4hours (Satisfactory)	58 (69.1)	26 (31.0)		
More than 4 hours (Poor)	180 (75.3)	59 (24.7)		
Service rating			0.7	0.39
Satisfactory	77 (72.6)	29 (27.4)		
Good	210 (68.2)	98 (31.8)		
Staff attitude rating			0.3	0.579
Satisfactory	54 (72)	21 (28)		
Good	233 (68.7)	106 (31.3)		
Provide ANC services			1.5	0.227
Do not provide ANC	45 (71.4)	18 (28.6)		
Provide ANC	132 (63.2)	77 (36.8)		
Provide delivery services			0.7	0.401
Provide delivery	51 (68.9)	23 (31.1)		
Do not provide delivery	125 (63.5)	72 (36.6)		

*: P-value <0.05. **: P-value <0.01. ***: P-value <0.001.

4.10 Association between community related factors and utilization antenatal care service

Among community related factors such as, availability of health facilities in the community, distance to health facilities, road type to the facility and transport to the facilities. only availability of health facilities in the community that showed significant association with utilization of ANC services among the mothers in the study as illustrated in table 8 (p-value <0.05).

Table: 8 community related factors and antenatal care service utilization

Variables	Utilization of ANC		Chi-square	P-value
	Non-utilization n (%)	Utilization n (%)		
Distance to health facility			2.9	0.235
Less than 5 km	200 (48.3)	86 (21.0)		
More than 5	91 (22)	37 (9.0)	6.6	0.01*
Availability of health facility				
Don't have health facility	111 (77.1)	33 (22.9)	3.1	0.077
Have health facility	167 (64.7)	91 (35.3)		
Road type to facility			0.1	0.783
Untarred road	90 (75.6)	29 (24.4)		
Tarred road	197 (66.8)	98 (33.2)		
Transport facility				
Difficult transportation	32 (71.1)	13 (28.9)		
Easy transportation	255 (69.1)	114 (30.9)		

*: P-value <0.05.

4.11 Multivariate analysis of factors influencing ANC service utilization among mothers in the study facilities.

The simple and binary logistic regression model were used to determine the crude and adjusted odds ratio in assessing the factors that were significantly associated with utilization of ANC services among participants in the study. The backward elimination model with a threshold p-value of 0.20 was used in selecting factors into the final binary logistic regression model.

In the final model, waiting time ratings of the mothers was the only factor that did not show significant effect in the usage of ANC services among post-natal mothers who were involved in

the study with (p-value >0.05).

After adjusted for other covariates shown in **table 9**, the odds of utilization of ANC services was 3.5 folds (95% CI: 1.1-11.4) among mothers who lived in urban areas compared to their counterparts who lived in rural areas. In addition, mothers' who were married had a 3.2 fold (95% CI: 1.2-8.4) odds of ANC services utilization compared to mothers who were single. Mothers who were cohabiting also had a 14.1fold (95% CI: 3.0-65.9) odds of ANC service utilization as opposed to mothers who were single and this was statistically significant.

Mothers who were employed had 4.5 fold (95% CI: 1.4-14.3) odds of ANC services utilization compared to mothers who were unemployed. Mothers who were multiparous had 5.0 folds (95% CI: 2.6-9.7) odds of ANC services utilization compared to mothers who were primiparous and was statistically significant.

In terms of the knowledge level of mothers on benefits of ANC services, mothers with good level of knowledge had 20.5 fold (95% CI: 7.6-55.1) odds of utilization of prenatal care compared to their counterparts who had poor level of knowledge and was statistically significant as shown in **table 9**.

Table: 9 Multivariate analysis of factors influencing utilization of ANC services

Variables	Crude odds ratio		Adjusted odds ratio	
	COR (95% CI)	P-value	AOR (95% CI)	P-value
Residence		0.024*		0.034*
Rural	ref		ref	
Urban	2.6 (1.1, 6.0)	<0.001***	3.5 (1.1, 11.4)	<0.001***
Marital status				
Single	ref		ref	
Married	2.4 (1.1, 5.1)		3.21 (1.2, 8.4)	
Cohabiting	13.9 (3.3, 57.8)	0.001**	14.0 (2.95, 65.9)	0.011*
Employment status				
Unemployed	ref		ref	
Employed	4.9 (1.9, 12.6)	0.007**	4.5 (1.4, 14.3)	<0.001***
Parity				
Primips	ref		ref	
Multiparous	1.8 (1.2, 2.8)	0.014*	5.0 (2.6, 9.7)	0.024*
Payment of ANC services bills				
Not self	ref		ref	
Self	1.8 (1.1, 2.9)	0.001**	2.1 (1.1, 4.0)	0.114
Waiting time ratings				
Poor	ref		ref	
Good	1.91 (1.0, 3.6)		2.0 (0.9, 4.5)	
Satisfactory	2.62 (1.6, 4.3)	0.021*	2.0 (1.0, 4.1)	0.027*
Facility ownership				
Public	ref		ref	
Private	1.7 (1.1, 2.6)	<0.001***	2.4 (1.1, 5.4)	0.049*
Quality of service				
Poor quality	ref		ref	
Good quality	3.3 (2, 5.4)	<0.001***	2.1 (1, 4.4)	0.039*
Comprehensiveness of service				
Basic service	ref		ref	
Comprehensive service	3.1 (2.0, 4.7)	<0.001***	2.0 (1.0, 3.8)	
Knowledge level				
Poor level	ref		ref	<0.001***
Good level	21.1 (9.7, 45.9)		20.5 (7.6, 55.1)	
Satisfactory	2.3 (1.3, 4.1)		2.0 (0.9, 3.9)	

COR: crude odds ratio. AOR: adjusted odds ratio. CI: confidence interval. : reference category. *: p-value <0.05.

** : p-value <0.01. ***: p-value <0.001.

4.11.1 Results from the qualitative study

In all 20 participants were involved in the qualitative aspect of this study. Made up of eight midwives for key informant interviews and 12 members for two focus group discussions thus six members each (men and women) within Sekondi-Takoradi Metropolis. Participants were selected purposively with all ethical issues observed. The Two focus group discussions were conducted among community members within the Sekondi-Takoradi Metropolis. Participants were drawn from the communities within which the study health facilities were located through the help of the Queen Mother of the Essikado Traditional Area after the objectives of the study had been explained to her. Responses were analyzed manually using thematic approach, triangulated and presented as results from the study

4.11.2 Key Informant Interview

Key informant interviews were conducted among eight Midwives in the selected eight study facilities to access their cadre and working experience, training in obstetric emergencies, service schedules, and their perception on ANC attendance within the district.

4. 11.3 On the issue of cadre and working experience;

Eight midwives interviewed and four of them indicated they were senior nursing officers with 10 years working experience, whilst three of them indicated they were senior midwives with five years working experience and the other one also indicated she was a staff midwife with three years working experience respectively.

The following quotes represent some reflections by the midwives,

I am a Senior Nursing Officer with 10 years working experience, I have been working in this hospital for the past 5 years and as the ANC units' in-charge for 3years (ANC in-charge, Ghana Port and Harbour Authority Hospital, private).

"I am a Senior Nursing Officer with 10 years working experience I have been working in this hospital for the past 8 years and as the ANC unit in-charge for 4years now (Essikado Government Hospital, public)".

"I am Staff Midwife with 3 years working experience, I have been working at the ANC unit for the past 2 years (midwife form Jemima Crenstil Hospital, private)"

"I am Senior Midwife with five years working experience I have been in post -natal unit for the past 3 years (midwife form Effia-Nkwanta Regional Hospital, public)"

4.11.4 On the issue of training in obstetric emergencies;

Midwives interviewed mentioned that they ha had at least one training in obstetric emergencies in the past two years some of which were, safe motherhood, antepartum anemia, respectful motherhood, management of pre-eclampsia and eclampsia, post-partum, help new born breath and life -saving support. The following quotes represent some reflections by the midwives.

"I have had at least one training in obstetric emergencies in the past two years in safe motherhood, antepartum anemia, respectful motherhood, management of pre-eclampsia and eclampsia, post-partum, help new born breath and life -saving support (ANC in-charge, Ghana Port and Harbour Authority Hospital, private)"

"I have had at least one training in obstetric emergencies in the past two years in safe motherhood, antepartum anemia, respectful motherhood, management of pre-eclampsia and eclampsia, post-partum, help new borne breath (Essikado Government Hospital, public)".

4.12 On accessibility of ANC services to pregnant women within the district;

Midwives from the private health facilities mentioned that, ANC services were accessible, as they conducted ANC services three times in a week; thus Tuesday, Wednesday and Thursday from 8am- 3pm and sometimes beyond. In addition, they conducted pregnancy school every two weeks on Sunday afternoons where they showed films related to pregnancy, labour and child care and gave health talks. Again they sometimes called their clients to remind them of their

ANC visits.

Midwives from the public health facilities mentioned that, ANC services were accessible, as they conducted ANC services from Monday to Friday in a week; from 8am- 4pm and sometimes beyond. In addition, they conducted pregnancy school every two weeks on Sunday afternoons where they showed films related to pregnancy, labour and child care and health talks. Again they sometimes called their clients to remind them of their ANC visits.

The following quotes represent some reflections by the midwives.

"Our ANC services are accessible, we conducts ANC services three times in a week; thus Tuesday, Wednesday and Thursday from 8am- 3pm and sometimes beyond. In addition, we conduct pregnancy school every two weeks on Sunday afternoons where we show films related to pregnancy, labour and child care and give health talks and we also, sometimes call our clients to remind them of their ANC visits appointment (Midwife, Ghana Port and Harbour Authority Hospital, private)"

"Our ANC services are accessible because we conducts ANC services from Monday to Friday in a week; from 8am- 4pm and sometimes beyond, in addition we conducts pregnancy school every two weeks on Sunday afternoons where we show films related to pregnancy, labour and child care and give health talks, we again sometimes call our clients to remind them of their ANC visits appointment (Midwife, Essikado Government Hospital, public)"

14.13 On the issue of ANC attendance;

Midwives from both private and the public health facilities mentioned that ANC attendance was irregular and low within the Sekondi-Takoradi Metropolis and could be attributed to clients' beliefs and culture practices. Some of clients' beliefs and culture practices they mentioned were the use of herbal medicine, prayers, carrying of pot of water, application of white clay on their abdomen and influence by the elderly women.

The quote below were some of the reflections mentioned by midwives

"Some of the pregnant women beliefs herbal medicine has no effect hence are good for their babies so they prefer that to the orthodox medicine, hence will

stay at home and only report to the hospital when they are in labour hence the low ANC uptake (midwife, Essikado Government Hospital)"

"Some pregnant women prefers to go to church for a pastor to pray for them because they belief some spirit can harm them, others go to spiritual gardens where they apply white clay on their abdomen that is for protection, others carry pot of water on their head and stand in the sun for a while and are told it ward off evil spirit and because of that will not come to ANC clinic this is why ANC attendance is low in the district (Midwife, Effia- Nkwanta Regional Hospital)"

"Some pregnant women are influenced by the elderly women in the family that pregnancy is not a disease so ANC' clinic is not necessary hence they will not attend ANC clinic but only come when they are in labour or have a complication along the pregnancy period this could account for the ANC attendance (Midwife, Stratford Hospital private)"

4.14 Asked what could be done to improve the ANC attendance;

Midwives from both private and public health facilities indicated that the Sekondi Metro Health Directorate should embark on public health education on the benefits of ANC service utilization in the Sekondi –Takoradi Metropolis through radio, community durbars and others.

The quotes below were some of the reflections expressed by midwives

"I think the best way is for the Sekondi Metro Health Directorate in collaboration with other opinion leaders to embark on mass public health education on the benefits of ANC service utilization, through radio presentations, community durbars, churches and mosque (Midwife from Effia – Nkwanta Regional Hospital)"

"I have the opinion that, Sekondi Metro Health Directorate in collaboration with other stakeholders like church leaders, Muslim leaders, Chiefs and Queen mothers strategies and embark on mass public health education on the benefits of ANC service utilization, through radio presentations, community durbars, churches and mosque in the district (Midwife, Ghana Ports and Harbour's Authority)"

4.15 Two Focused Group Discussions (six members each for men and women) Men's

4.15.1 Knowledge on benefits of ANC attendance;

On the issue of benefits of ANC attendance, men demonstrated a good level of knowledge on benefits of ANC attendance. Participants indicated that ANC attendance was for monitoring of well-being of both mother and baby, early detection of problems, proper management, and reduced cost.

These were some reflections from the participants

"I think ANC clinic are very useful and important because the midwives and Doctors are specialists who have the knowledge to monitor both the pregnant mothers and the babies in their womb through various examinations like scans, laboratory as well as physical examinations, with this acts in-case there is a problem they are able to detect and manage appropriately to save both mother and the baby and in turn reduce cost participant Takoradi community)"

I think some of the benefits of ANC attendance is that it offers midwives and Doctors the opportunity to monitor the well-being of mother and baby, and ensure their safety and reduced cost (participant Essikado community)"

I think some of the benefits of ANC attendance is that it offers midwives and Doctors the opportunity to monitor the well-being of mother and baby, educate the pregnant women on how to take care of themselves what to eat, and some of the danger signs in pregnancy so they can report early for treatment and ensure their safety and reduced cost participant Kwesimintim community"

4.15.2 On the issue of why some pregnant women in their community do not attend ANC;

On issue of why some pregnant women in their community do not attend ANC clinic, Participants mentioned that some of the pregnant women did not respect their husbands or partners, husbands refused to give them money, laziness, hospitals were too expensive and National Health Insurance was not working well.

Below are some of reflections expressed by the study participants

“Some of the women do not respect their husbands or partners so they also refused to give them money that is why some of the pregnant women do not go for ANC clinic participant meanwhile National Health Insurance is not working well and the hospital charges for the ANC clinic are too high we thought Government had made ANC free, then why the charges (Sekondi community)”

“Some pregnant women are just lazy they cannot control themselves, so they sleep almost the whole day moreover, the National Health Insurance is not working well formally pregnant women did not pay any money when-ever they access the clinic (participant, Essikado community)”

Some health staff are rude to the pregnant women, so it prevent them from going to the ANC hospital charges are too much, National Health Insurance is not working even if you have NHIS card you will still be made to pay for your ANC bills (participant, Takoradi community)”

4.15.3 On beliefs and cultural practices:

On beliefs and cultural practice participant mentioned that some pregnant women believed people may looked at them with evil eyes to cause harm to them or their babies hence went to shrine or a spiritual pastor for protection who put fear in them that they will die if they go to ANC clinic.

These are some of the reflections that cropped up,

“I think some of pregnant women belief people have evil eyes that when they looked at them will case their baby to die, so they sought to prayer camps and the pastors put fear in them (participant, Essikado community)”

“Some pregnant women has shrines in their family which forbid them to go for ANC clinic, anyone who disobey that rule dies putting fears in them, a friend of mine shared her experience (participant Essikado community)”

“My niece was pregnant and the mother toke her to a spiritual garden, the healer applied white clay on the abdomen and told her it will ward off evil spirit so they kept on going to her instead of the ANC clinic (participant Kwesimintsim community)”

Takoradi Community)"

Am of the view that both the Regional and Metro Directors should equipped the health facilities within the Sekondi –Takoradi Metropolis to embark on mass education on benefits of ANC service utilization in our communities, churches, mosque, durbars as well as health talks at the radio stations (female participant, Essikado community)"

Takoradi Community)"

Am of the view that both the Regional and Metro Directors should equipped the health facilities within the Sekondi –Takoradi Metropolis to embark on mass education on benefits of ANC service utilization in our communities, churches, mosque, durbars as well as health talks at the radio stations (female participant, Essikado community)"

CHAPTER FIVE

DISCUSSION

5.1 Introduction

WHO Guidelines for Focused Antenatal care and Recommendations on Antenatal Care for a Positive Pregnancy Experience recommends minimum of four ANC visits for an uncomplicated pregnancy; one each in first and second trimesters and two in the third trimester during which a specific service is provided to the pregnant women (WHO, 2016). Almost all maternal deaths are related to pregnancy and delivery complications (United Nations Development Program, 2016). Uptake of ANC services is one of the most effectual health interventions for preventing maternal and infant's morbidity and mortality in the district and the country as a whole.

5.2 Main findings

A total of 414 mothers were involved in this study. Uptake of ANC services in Sekondi-Takoradi Metropolis was 30.7%. Only 15.2% of mothers had good level of knowledge on benefits on ANC services. Likewise only 2.4% of the mothers paid for their ANC services using their national health insurance only. Socio-demographic factors associated with ANC service utilization were being married or cohabiting, mothers paying ANC service bills, urban residence, being employed, and having satisfactory or good knowledge level on benefits of ANC services. Provision of comprehensive maternal health care services, being private, shorter waiting times and provision of quality services were facility level factors associated with ANC services utilization. Being multiparous was the obstetric factor associated with ANC services utilization.

5.3 ANC service utilization rate

This study revealed that ANC service utilization rate among the 414 post-natal mothers in the Sekondi-Takoradi Metropolis was 30.7%. This could be attributed to the additional payments that

pregnant women (91.6%) were made to pay at the various health facilities for ANC services within the districts although they were NHIS holders. Secondly poor knowledge level on benefits on ANC services among the women could also account for the low rate of ANC service utilization. As well as mothers' lack of awareness of the minimum four ANC visits and the long waiting time that pregnant mothers spent to access prenatal care in the various hospitals in the districts. This is contrary to the global and sub-Sahara Africa rates in which ANC services utilization were 64.0% and 65.0% respectively according to the annual report of (United Nations Development Program, 2016). It also differs from a survey in Ghana in which ANC service utilization was found to be 87.0% (Ghana Statistical Service et al., 2015). Likewise, an annual report in the country also indicated that ANC service utilization rate was 76.0 % (Ghana Health Service, 2017). A similar study in Amenfi West District in Western Region, Ghana reported that ANC service utilization rate was 54.0 % (Kparu, 2016). A study in Ethiopia on the use of ANC services among women in reproductive age found utilization of ANC services to be 50.2% among 430 post- natal women (Amentie, 2015). Another study in Uganda on determinants of maternal health reported ANC service utilization was 48.0 % (Rutaremwana et al., 2015). Also a work in Rwanda on factors linked to poor uses of prenatal care among post-natal women reported ANC service utilization rate was 46.0 % (Guimeji, 2017).

However, the study finding was consistent with other similar studies in other parts of the world such as a work in Southern Ethiopia on factors affecting ANC services patronage indicated rate of utilization of ANC services was 29.1% (Amentie, 2015). Again a study in Nepal on the rate of ANC services among mothers found to be 35.7% (Sharma et al., 2016). Another work on utilization of ANC among mothers in the reproductive age in Ari Woreda in Ethiopia indicated rate of ANC as 27.0 % (Wondimu et al., 2017). Similarly in Khan District in Leo PDR a

study on determinants associated with utilization of Antenatal care, reported in their results that rate of ANC utilization by women was as low as 37.0 % (Ye et al., 2010).

In all instances the findings were below the recommended minimum four ANC visits attendance policy from World Health Organization.

5.4 Level of knowledge on benefits of ANC services utilization

This study also investigated into the mothers' level of knowledge on benefits of ANC service utilization. It was revealed in the study that out of the 414 mothers who were enrolled into the study, only 15.2% had good level of knowledge on benefits of ANC services, 44.2% had satisfactory and 40.6% had poor knowledge level respectively. This may be as a result of inadequate health education on good effects of antenatal care attendance. As well as lack of awareness of the minimum four prenatal attendance for pregnant mothers in the district by the health care providers. This differ from a study in Nigeria on assessment of mothers knowledge level on importance of ANC services reported in their findings that more than two-thirds of the mothers who participated in the study had good level of knowledge on of ANC service usage (Onasoga et al., 2012). From the same study, it was reported that, women with good level of knowledge on importance of prenatal care were twice likely to make the recommended lest ANC visits by WHO as compared with those women who had no or less knowledge on benefits of ANC services.

5.5 Factors influencing ANC services utilization

5.5.1 Socio-demographic factors

In addition, this study sought to look into factors influencing ANC service utilization in STM. From the client's socio-demographic related factors being employed influenced the utilization of ANC services. It was found in this study that mothers who were employed had 4.5folds (95% CI:

1.4-14.3) odds of ANC services utilization as compared to their colleagues who were unemployed. This could be that mothers who were employed could afford to pay their additional ANC service bills should the need arose. This finding was in conformity with a study in Woreda, Southern part of Ethiopia on Antenatal care service utilization in reproductive mothers where women with formal education had more than four times probability of ANC service utilization compared to their counterparts who had no formal education (Wondimu et al., 2017).

In this study, mothers' who were married or cohabiting had 3.2folds (95% CI: 1.22-8.44) odds and 14.1 folds (95% CI: 2.95-65.9) odds of ANC services utilization respectively, as compared to those who were single. This could be that the married and cohabiting women were accompanied by their partners to the ANC clinic which facilitated their access to ANC services thereby increasing their ANC service utilization. This agrees with work in Hadiya Zone, Ethiopia on factors influencing ANC utilization found married women using ANC services more compared to women who were single (Abosse et al., 2011).

Educational level of mothers was also found to have influenced on the required ANC usage in the Sekondi –Takoradi Metropolis. It was revealed in this study that, mothers who had formal education had 4.5 folds (95% CI: 1.4-14.3) odds of ANC services utilization as compared to their counterparts with no formal education. This could be due to the fact that mothers with formal education may have more access to informational sources like the internets, books, news-papers and others to read to complement the information being given by the health care professionals. Thereby having better understanding on the benefits of ANC services which increases their ANC patronage. Again this finding is consistent with a work on use of ANC

services and influencing determinants in West Ethiopia; where it was discovered that women with formal education were seven times more likely to use ANC services as opposed to their counterparts who had no formal education (Amentie, 2015).

Mother's residence also showed a significant influence on ANC service utilization in this study. Having adjusted for other covariates, mothers who lived in urban areas had 3.5folds (95% CI: 1.1-11.4) odds of ANC services utilization as compared to mothers who lived in rural areas. This could be attributed to the availability of many health facilities in the urban communities which provide comprehensive health care services compared to the rural communities. This finding is in conformity with a work from Upcountry areas in Uganda on attendance and utilization of ANC services which stated women have twice less probability of using ANC services in rural settlements compared to their counterparts living in urban settlements (Kawungezi et al., 2015).

Household size have been proven over the years to have influenced on the use of antenatal care services. Findings from this study showed that household size was significantly associated with ANC services utilization with p-value <0.05. Indicating statistically significant. This could be due to more demand on the families' finances which is consistent with a study done in Hadiya Zone Ethiopia where it was indicated that family size was significantly associated with ANC service utilization with p-value <0.05.

Obstetric factors also contributed significantly to the usage of prenatal services in most parts of the world according to global researchers. It was found in this study that parity, specifically, being multiparous had 5.0folds (95% CI: 2.6-9.7) odds of ANC service utilization as compared to mothers who were primiparous.

This could probably be due to the fact that multiparous women have had good pregnancy outcomes with previous pregnancies and so are motivated the more to utilize ANC services. This finding is in contrast to a study in Uganda in which it was reported that women with higher parity were less likely to attend prenatal care less (Kawungezi et al., 2015).

In terms of the knowledge level of mothers on benefits of ANC services, mothers with good and satisfactory level of knowledge were 20.5 (95% CI: 7.6-55.1) and 2.0 (0.9-3.9) times more likely respectively to utilize ANC services compared to those with poor level of knowledge. This could be attributed to the positive effects of good knowledge level on the attitude of the mothers towards ANC services utilization. Again this finding corresponds to the findings from a study in Southern Ethiopia on factors associated with the use of ANC services rural areas (Wondimu et al., 2017).

5.6 Health Facility related factors

Health facility factors such as availability of physical structure of health facilities in communities, how accessible it is for the people in the communities to obtain services for their health when the need arises as well as the cost and the mode of payments for the services they render be it basic or comprehensive; have been shown in various researches to have influence on ANC service utilization. Health facility factors such as being a private health facility, rendering comprehensive ANC services, shorter waiting time and provision of good quality services were associated with ANC service utilization. Women who spent about an hour in accessing ANC services had three times more probability of utilizing ANC services as opposed to their counterparts who spent longer time in accessing ANC services. This finding agrees with a study from Japan on factors affecting utilization of ANC services among women in Khan District, in which it was concluded that distance availability and cost of transportation, availability of health facility and cost of ANC services and type of services provided by the health facility were significantly associated with

ANC service utilization with p value < 0.05 (Ye et al., 2010). Again study in Nigeria indicated that long waiting time, cost of ANC services at the health facilities as well as distance were positive determinants of ANC service utilization among women in Nigeria with significant value of < 0.05 (Dairo & Owoyokun, 2011).

Contrary in this study, staff attitude, distance, transportation, religion affordability and ethnicity in this study had no influence on ANC services utilization. Another study on factors influencing ANC attendance among pregnant women in rural areas of Ho Municipality, Ghana; indicated that women covering long distance before accessing ANC services had less probability of ANC services utilization (Tumaku et al., 2015) which is contrary to the findings in this study.

A similar study in Ghana on socio-economic determinants of ANC services among pregnant women found staff attitude, to influence ANC services utilization. This was also contrary to the findings in this study (Akowuah, 2016).

It was also found in this study that affordability influences ANC services utilization which is consistent with a similar study in Ghana on determinants of usage of ANC services in developing countries reported, that affordability was a determinant in ANC services utilization (Nketiah-Amponsah et al., 2013).

5.7 Community related factors on ANC service utilization

Community factors such as belief systems and cultural practices among inhabitants of a community have negative influence on ANC services utilization. This was confirmed in the qualitative study during the focus group discussions. In all 20 participants took part in the qualitative study. An in-depth interview was conducted among eight midwives and two focus group discussions were conducted one each for males and females with six members each using an interview guide.

5.7.1 On beliefs and cultural practices (female participants):

Participants stated that some of the pregnant women believed orthodox medicines had side effect, abnormality in babies, traditional medicine, prayers and spiritual protection and application of clay on the abdomen were some of the beliefs and cultural practices that the participants mentioned.

Below are some of the reflections of the female participant,

"My mother in-law when during the time I was giving birth, took me to a shrine where I was forbidden to go to ANC clinic and that the day I will step my feet there I will die, this disturbed me for a long time until one day I met a friend told her and said it was a lie who then accompanied me to the ANC clinic, the labour became difficult and she took me to the hospital herself, I had a caesarian section performed on me and both my baby and I survived, then she said hospital is good if I had not brought you here you would have died on me" (female participant Essikado community)"

I was told by my mother that, orthodox medicine is not good for pregnant women because it has a lot of side effects that can cause an abnormality in my baby, rather I should use herbal because it has no side effect secondly it will make my baby strong and healthy in addition she gave me white clay to apply on my abdomen (participant Sekondi community)"

5.7.2 On beliefs and cultural practices (male participants):

On beliefs and cultural practice, participants mentioned that some pregnant women believed people may looked at them with evil eyes to cause harm to them or their babies hence went to shrine or a spiritual pastor for protection who put fear in them that they will die if they go to ANC clinic.

These are some of the reflections that cropped up participants male

"I think some of pregnant women belief people have evil eyes that when they looked at them will case their baby to die, so they sought to prayer camps and the pastors put fear in them (participant, male Essikado community)"

"Some pregnant women had shrines in their family which forbid them to go for ANC clinic, anyone who disobey that rule dies putting fears in them, a friend of mine shared her experience (participant Essikado community)"

"My niece was pregnant and the mother toke her to a spiritual garden, the healer applied white clay on the abdomen and told her it will ward off evil spirit so they kept on going to her interred of the ANC clinic (participant Kwesiminstim community)"

This findings indicated that certain beliefs and cultural practices had significant association in ANC service utilization as indicated in this study. This finding was similar to the findings in a publication on attendance and utilization of prenatal care, Up-county areas of Uganda which indicated that non- compliance to advice and ANC medications were considered by the mothers that they were meant for the treatment of morning sickness which is usually accompanied by early pregnancy hence will stay at home and take a local concoctions said to have made of a mixture of "herbs and clay" (Kawungezi et al., 2015).

Type of road network within the community also influences ANC service utilization in the sense that most transport business owners may not want to ply rough roads due to the high risk of wear and tears it poses on their vehicles. On the other hand those who use it tend to charge higher prices thereby making transportation very expensive which in the long run affect ANC services utilization. Social support network by the community members such as friends, relatives, community leaders and others helps promote good interpersonal relationship and gives assurance of belongingness which influences ANC services utilization. In the same study from Leo PDR; factors affecting utilization of ANC services among women in Khan District, findings showed

98% of the women who had social support utilized ANC services more as opposed to those without any social support. He also found that low cost of transportation within a community positively affects ANC service utilization among the pregnant women. However in the same study, he found out that good road did not have positive impact on ANC service utilization among the women in the Khan district. Moreover in the same study he reported that presence of health facilities close to people's house has 2.9 times more of ANC service utilization among those women who were closer to the facilities than those who lived far away from the health facilities (Ye et al., 2010). This finding was contrary to the findings in this study where transportation, ethnicity, region and staff attitude did not show any significant association on ANC services utilization among the mothers in the Sekondi- Takoradi Metropolis who participated in the study.

5.8 Study Limitation

In Sekondi-Takoradi Metropolis, majority of the population lived in urban areas. As a result, the post-natal and child welfare clinic population was low in the rural areas. Therefore it posed a challenge in the sample size which could affected the confidence interval. Although this could have been controlled by increasing the sample size. However, this was beyond my control due to the limited time for the study.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

ANC service utilization rate was found to be 30.7% in this study which is low. Majority of the mothers made less than the required minimum four ANC visits in the districts. Therefore ANC service utilization is still a problem in Sekondi-Takoradi Metropolis which poses a challenge on the achievement of the sustainable development goal 3 to reduce maternal deaths to less than 70 deaths per 100, 000 live births per year per country by the year 2030.

Lack of awareness by mothers on WHO minimum four ANC visits policy for pregnant women with no complications in their pregnancies was one of the factors found to influence ANC service utilization in the Sekondi-Takoradi Metropolis.

Insufficient knowledge on good effects of prenatal care among the mothers was also found to be one of the factors which influences ANC service utilization among women in the districts.

The additional payments made by pregnant women at the various health facilities within the districts although they were NHIS holders has strong influence on the ANC service utilization among the women in the districts as shown in both the quantitative and the qualitative aspects of this study.

6.2 RECOMMENDATIONS

Based on the above conclusions the following recommendations were made.

The Western Regional Health Directorates should prioritize Sekondi-Takoradi Metropolis in resource allocations and interventions to increase ANC service utilization to help curb maternal deaths in the districts.

Managements of the health facilities should encourage and equip health care providers especially Midwives and Doctors to create awareness on the minimum four ANC visits policy to help increase the awareness and improve the ANC service utilization to curb maternal deaths in the districts, and also help in the achievement of the SDGs (target 3 and 4) by the year 2030 as envisaged.

Metro Health Directorate and other stakeholders to intensify public health education on benefits of ANC services to increase rate of utilization among pregnant women in Sekondi-Takoradi Metropolis.

The Ghana Health Service, Ministry of Health (Ghana) and National Health Insurance Authority should strengthen the NHIS and free maternal health care policies to encourage its usage.

REFERENCES

- Abosse, Z., Woldie, M., & Ololo, S. (2011). Factors Influencing Antenatal Care Service Utilization in Hadiya Zone. *Ethiopian Journal of Health Sciences*.
<https://doi.org/10.4314/ejhs.v20i2.69432>
- Afulani, P. A. (2015). Rural/urban and socioeconomic differentials in quality of antenatal care in Ghana. *PLoS ONE*. <https://doi.org/10.1371/journal.pone.0117996>
- Akouwah, J. A. (2016). *Socio-economic determinants of antenatal care service utilization of pregnant mothers in selected health facilities in the Kwabre East district of Ghana*. Kwame Nkrumah University of Science and Technology.
- Akouwah, J. A., Agyei-Baffour, P., & Awunyo-Vitor, D. (2018). Determinants of antenatal healthcare utilisation by pregnant women in third trimester in peri-urban Ghana. *Journal of Tropical Medicine*. <https://doi.org/10.1155/2018/1673517>
- Amentie, M. (2015). Utilization of Family Planning Services and Influencing Factors Among Women of Child Bearing Age in Assosa District, Benishangul Gumuz Regional State, West Ethiopia. *Science Journal of Clinical Medicine*.
<https://doi.org/10.11648/j.sjcm.20150403.11>
- Birmeta, K., Dibaba, Y., & Woldeyohannes, D. (2013). Determinants of maternal health care utilization in Holeta town, central Ethiopia. *BMC Health Services Research*.
<https://doi.org/10.1186/1472-6963-13-256>
- Centers for Disease Control and Prevention. (2016). Concept | HRQOL | CDC.
- Dahiru, T., & Oche, O. M. (2015). Determinants of antenatal care, institutional delivery and postnatal care services utilization in Nigeria. *Pan African Medical Journal*.
<https://doi.org/10.11604/pamj.2015.21.321.6527>
- Dairo, M. D., & Owoyokun, K. (2011). Factors affecting the utilization of antenatal care services in Ibadan, Nigeria. *Benin Journal of Postgraduate Medicine*.
<https://doi.org/10.4314/bjpm.v12i1.63387>
- Decker, S. I., Cs, R. N., & Ccrn, M. S. N. (2004). Definitions of Health: *Nursing*. Ghana Health Service. (2017). *Ghana Health Service 2016 annual report*.
- Ghana Statistical Service, Ghana Health Service, & The DHS Program ICF International. (2015). Ghana. Demographic and Health Survey 2014. Key Indicators.
<https://doi.org/10.1007/s13398-014-0173-7.2>
- Griffin, P. W., & Ward, P. M. (2015). Happiness and Subjective Well-Being. In *Encyclopedia of Mental Health: Second Edition*. <https://doi.org/10.1016/B978-0-12-397045-9.00041-0>
- Guimei, M. K. (2017). Determinants of Poor Utilization of Antenatal Care Services among Recently Delivered Women in Rwanda: A Population Based Study. *MCN*

- The American Journal of Maternal/Child Nursing*.
<https://doi.org/10.1097/NMC.0000000000000382>
- Kawungezi, P. C., AkiiBua, D., Aleni, C., Chitayi, M., Niwaha, A., Kazibwe, A., Nakubulwa, S. (2015). Attendance and Utilization of Antenatal Care (ANC) Services: Multi-Center Study in Upcountry Areas of Uganda. *Open Journal of Preventive Medicine*.
<https://doi.org/10.4236/ojpm.2015.53016>
- Kparu, F. (2016). *Factors Influencing Adolescent Utilization of Antenatal Care Services in Aenfi West District of the Western Region*.
- Lee, Q. Y., Odoi, A. T., Opare-Addo, H., & Dassah, E. T. (2012). Maternal mortality in Ghana: A hospital-based review. *Acta Obstetrica et Gynecologica Scandinavica*.
<https://doi.org/10.1111/j.1600-0412.2011.01249.x>
- Mugilwa, L. O., Willis, W. O., & Lineth, O. N. (2015). Health care service utilization in Kenya.
- Nketiah-Amponsah, E., Senadza, B., & Arthur, E. (2013). Determinants of utilization of antenatal care services in developing countries: Recent evidence from Ghana. *African Journal of Economic and Management Studies*.
<https://doi.org/10.1108/20400701311303159>
- Onasoga, O. A., Afolayan, J. A., & Oladimeji, B. D. (2012). Factors influencing utilization of antenatal care services among pregnant women in Ife Central Lga, Osun State Nigeria. *Researchgate*, 3(3), 1309–1315. Retrieved from www.pelagiaresearch.com
- Overbosch, G. B., Nsowah-Nuamah, N. N. N., van den Boom, G. J. M., & Damnyag, L. (2004). Determinants of antenatal care use in Ghana. *Journal of African Economies*.
<https://doi.org/10.1093/jae/ejh008>
- Rutaremwaa, G., Wandera, S. O., Jhamba, T., Akiror, E., & Kiconco, A. (2015). Determinants of maternal health services utilization in Uganda. *BMC Health Services Research*. <https://doi.org/10.1186/s12913-015-0943-8>
- Say, L., Chou, D., Gemmill, A., Tunçalp, Ö, Moller, A. B., Daniels, J., Alkema, L. (2014). Global causes of maternal death: A WHO systematic analysis. *The Lancet Global Health*. [https://doi.org/10.1016/S2214-109X\(14\)70227-X](https://doi.org/10.1016/S2214-109X(14)70227-X)
- Sharma, D., Pokharel, H. P., Budhathoki, S. S., Yadav, B. K., & Pokharel, R. K. (2016). Antenatal Health Care Service Utilization in Slum Areas of Pokhara Sub-Metropolitan City, Nepal. *Journal of Nepal Health Research Council*.
- Tumaku, J., Yemidi, S., Mahama, F., & Mensah, S.-L. (2015). Factors Influencing Antenatal Clinic Attendance among Pregnant Women in Rural Areas of Ho Municipality. *IOSR Journal of Nursing and Health Science*, 4(6), 45–49.
<https://doi.org/10.9790/1959-04654549>
- United Nations Development Program. (2016). Goal 3: Good health and well-being |

- UNDP. WHO. Constitution of the World Health Organization (1946).
- WHO. (2013). WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience. *Ultrasound in Obstetrics and Gynecology*. <https://doi.org/10.1002/uog.12342>
- WHO. (2016). WHO | New guidelines on antenatal care for a positive pregnancy experience.
- WHO. (2018). The Ottawa Charter for Health Promotion. *American Journal of Preventive Medicine*. [https://doi.org/10.1016/s0749-3797\(18\)30556-7](https://doi.org/10.1016/s0749-3797(18)30556-7)
- Wilunda, C., Quaglio, G., Putoto, G., Takahashi, R., Calia, F., Abebe, D., Atzori, A. (2015). Determinants of utilisation of antenatal care and skilled birth attendant at delivery in South West Shoa Zone, Ethiopia: A cross sectional study. *Reproductive Health*. <https://doi.org/10.1186/s12978-015-0067-y>
- Wondimu, W., Girma, M., & Agedew, E. (2017). Antenatal Care Utilization and Associated Factors among Reproductive Age Mother in Ari Woreda, South Omo Zone. *Bioenergetics Open Access*. <https://doi.org/10.4172/2161-038x.1000200>
- World Health Organization. (2014). *Trends in Maternal Mortality: 1990-2013. Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division*. World Health Organisation. <https://doi.org/WHO/RHR/14.13>
- World Health Organization. (2016). World Health Statistic - Monitoring Health for the SDGs. *World Health Organization*. <https://doi.org/10.1017/CBO9781107415324.004>
- Ye, Y., Yoshida, Y., Harun-Or-Rashid, M., & Sakamoto, J. (2010). Factors affecting the utilization of antenatal care services among women in Kham District, Xiengkhouang province, Lao PDR. *Nagoya Journal of Medical Science*.

APPENDIX QUESTIONNAIRE FOR QUANTITATIVE

Date: Introduction Dear Respondent,

I am a student of University of Ghana, School of Public Health, Faculty of Applied Epidemiology and Disease Control.

This questionnaire is designed to collect data on the topic;

FACTORS INFLUENCING ANTENATAL CARE SERVICE UTILIZATION IN SEKONDI-TAKORADI MATROPOLIS, WESTERN REGION

Respondent's contact (Phone Number):

Respondent's code:

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

Please tick the appropriate answer

Question number	Question	Response
001	Residence	Urban <input type="checkbox"/> Rural <input type="checkbox"/>
002	Number of people in your household	<input style="width: 40px; height: 20px;" type="text"/>

003	Age (years)			
004	Level of education:	No formal education [] Primary/ JHS [] Secondary [] Tertiary []		
005	Marital status	Married [] Single [] Cohabitation [] Divorced [] Separation/ Widow []		
006	Ethnicity	Akan [] Ewe [] GA-Dangme [] Guan [] Mole-Dagbon []		
007	Religion	Christian [] Moslem [] Traditional [] Atheist []		
008	Occupation:	Employed [] Unemployed []		
Respondent's obstetric related factors				
009	Parity	<table border="1" style="width: 100%; height: 30px;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table>		

010	Previous ANC visit	Yes [] No []			
011	Type of pregnancy	Single [] Twins [] Triplet [] others []			
011	Outcome of previous pregnancy	Alive [] Aborted [] Dead []			
012	Did you attend ANC during your current delivery?	Yes [] No []			
013	Number of ANC visits	Just state the number <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>			
014	Given next date of ANC visit?	Yes [] No []			
015	Did you attend?	Yes [] No []			
016	If no give reasons			
017	Are you aware pregnant women should attend at least four ANC visits before delivery?	Yes [] No []			
018	State five importance and benefits of ANC				

Health seeking behaviour			
019	Who make the decision for you to attend ANC?	Self	<input type="checkbox"/>
		Husband / Partner	<input type="checkbox"/>
		Others	<input type="checkbox"/>
Affordability			
020	Who pays for your ANC bills	Self	<input type="checkbox"/>
		NHIS	<input type="checkbox"/>
		Husband/Partner	<input type="checkbox"/>
		Others	<input type="checkbox"/>

SECTION B

SERVICES RELATED FACTORS

21. Where do you usually go for your ANC visit when Pregnant?
- Government hospital/ clinic
 - Private hospital
 - Traditional birth attendance
 - None
22. Can you give any reasons for your choice?
- Accept NHIS
 - Provide Comprehensive care
 - Provide Quality care
 - Nearer
23. How far is your house to the ANC clinic you attended during your pregnancy?
- Less than 5 km (Good)
 - 5 km and more (poor)

24. Where was the ANC service conducted during your ANC visit?
- a. Room built for ANC
 - b. Under a tree
 - c. Under a tent
25. Which of the following service did they render to you?
- a. Screening
 - b. Immunization
 - c. Health education
 - d. Supply of ITN
 - e. Management of ailment
 - f. Other (specify).....
026. Place of delivery
27. Same place as where you attended ANC?
- a. Yes
 - b. No
28. If No give reasons
- a. Closer to birth companionship
 - b. Closer to facility
 - c. Referred
29. On the average what is the duration of time spent when you attended ANC clinic?
- a. 1 to 2 hours (good)
 - b. 3 to 4 hours (satisfactory)
 - c. More than 4 hours (poor))
30. How will you rate the ANC service rendered to you? On a scale of 1-5?
- a. 1 - Very poor
 - b. 2 - Poor
 - c. 3 - Satisfactory
 - d. 4 - Good
 - e. 5 - Very Good

31. How will you rate the attitude of health staff? On a scale of 1-5?

- a. 1 - Very poor
- b. 2 - Poor
- c. 3 - Satisfactory
- d. 4 - Good
- e. 5 - Very Good

SECTION 'C'

COMMUNITY RELATED FACTORS

31. Do you have health facility in your community?

- a. Yes
- b. No

32. Do they Provide delivery service?

- a. Yes
- b. NO

33. Did you get support from community members, friends and relatives during your pregnancy?

- a. Yes
- b. NO

34. What are the type of road within your community?

- a. Tiered road
- b. Un-tiered road
- c. Others
specify.....

35. Do you easily get transportation when needed to go to ANC clinic?

- a. Yes
- b. NO

Thank You for Participating.

QUESTIONNAIRE FOR QUALITATIVE

Key informant interview questionnaire (Health staff)

1. Number of years of experience.....
2. What is your Cadre
3. Have you have any obstetric training in the past?
4. What are your working days?
5. Working hours
6. What type of obstetric care do you provide
 - c. Basic []
 - d. Comprehensive []
7. Is the service accessible to the clients?
 1. Yes
 2. No
8. If yes explain.....

Thank You for Participating.

Interview guide for focus group discussions

1. Could you share with us some of the benefits of ANC services.....
2. What are some of the practices and beliefs in your community on pregnancy and ANC attendance?
.....
3. Why do you think some of the pregnant women in your communities do not attend Antenatal Care Clinic?
.....
4. What do you think could be done to encourage the pregnant women to attend Antenatal Care Clinic?
.....

Thank You for Participating.

INFORMATION SHEET

FACTORS INFLUENCING ANTENATAL CARE SERVICES UTILIZATION IN SEKONDI-TAKORADI METROPOLIS

Introduction

My name is Vida Naana Kwofie an MPhil Applied Epidemiology and Disease Control student from the University of Ghana, School of Allied Health Sciences, School of Public Health, and Faculty of Ghana Field Epidemiology and Laboratory Training Programme Accra.

My mobile phone number is +233 (0)277117988 and email is

vnkwofie@gmail.com Background

The topic of my research is Factors Influencing Antenatal Care Service Utilization in Sekondi-Takoradi Metropolis, Western Region. This is part of the requirements for the award of a master's degree in Applied Epidemiology and Disease Control.

Antenatal Care (ANC) is the care provided to both the women and their unborn babies during pregnancy by trained professionals.

Services provided includes monitoring of the blood pressure, weight, height, laboratory investigations, ultra sound scan of the baby helps to detect any problem and appropriate management given. In addition, supply and use of treated mosquito net to prevent malaria infections, given immunization against diseases such as Tetanus which can cause death to both the pregnant woman and her unborn baby, iron supplement to prevent anaemia in pregnancy which is one of the leading causes of death in pregnancy and delivery. Antimalarial prophylaxis for prevention of repeated malaria infections which can cause abortion, or kill the baby in the uterus, health education on nutrition, management of minor sickness in pregnancy rest and exercise and care of the new born baby and others. All these ensures that the pregnant women goes through

pregnancy, delivery, and post-natal safety.

Antenatal Care therefore plays an important role in the achievement of the Sustainable Development Goal 3 to reduce maternal deaths to less than 70 deaths per hundred thousand live births in a year by all countries by 2030 according to UN and its partners. As these deaths are mostly due to pregnancy related complications and child birth which are all preventable when detected early and appropriate management given by trained professionals. These could largely be done through regular visits to the antenatal clinic.

The World Health Organization Guidelines for Focused Antenatal Care (2000), World Health Organization Recommendation on Antenatal Care for Positive Pregnancy Experience (2016) recommended a minimum of four antenatal care visits for all pregnant women without any complications worldwide.

The study seeks to assess factors which may be influencing antenatal care service utilization among the inhabitants of the Sekondi-Takoradi Metropolis which could be service, client and community related factors which could help improve the quality of care to pregnant women and their unborn babies to prevent and curb deaths among them. By increasing awareness on the numerous benefits of regular ANC visits for pregnant women, their families as well as the communities as a whole the required minimum four antenatal clinic visits and thereby increase service utilization to curb the high deaths among the pregnant women in the district.

Nature of research

A cross-sectional descriptive study design with mixed methods (quantitative and qualitative) approach will be employed to carry out this study at Post-natal units of selected public and private health facilities in Sekondi-Takoradi Metropolis in the Western Region. About 500 Post-natal mothers between the ages of 18 years-49 years who had delivered less than a year within the district

and attends Child Welfare Clinic (CWC) in any of the selected health facilities within the district and resides there during the study period will be selected. Participants will be enrolled using random sampling techniques. An interviewer administered questionnaire will be used to collect data on clients' socio-demographic factors, health facility and community related factors that may have influence on ANC service utilization. In-depth interviews will be conducted among eight health staff that work directly with the pregnant and post-natal women providing care at PNC and the Child Welfare Clinics. Using interview guide two focus group discussions (one male, one female)

Study Population

All post-natal women between the ages of 18 years-49 years who had delivered less than a year within the district and attends Child Welfare Clinic (CWC) in any of the health facilities within the district and resides there as well during the study period is eligible. Participants will also include health care providers from both public and private health facilities as well as community members within the district at the time of the study. The objective of this study is to determine factors influencing antenatal care service utilization in Sekondi –Takoradi Metropolis, Western Region.

Participant involvement:

Duration /what is involved: Selected participants will be interviewed individually using questionnaire after they have been duly informed about the nature of the study and participants' information sheet given to them as well as ample time for them to read and fully understand the content to her or his satisfaction. The interview will be less than an hour.

Potential Risk: We do not foresee any direct harm to research participants except for possible

slight uneasiness when answering certain questions. They have the right to refuse to answer any question if they feel uncomfortable about it.

Benefit: There will be no direct benefits. Participants will be given health education on importance and benefits in ANC service utilization which will help in the modification of their health seeking behaviour after the interview. The findings from the study would benefit the Regional and District Health Management Team in planning programme interventions and implementation to improve health care delivery in the district and the region as a whole.

Costs: There will not be any additional cost as interview will be done at the post-natal / CWC clinics of the selected health facilities where the mothers have come for their post-natal/CWC services except sacrifice of their time.

Compensation: Participation in this study is purely voluntary and there will be no monetary compensation to the participants for accepting to be part of this study. However, we do appreciate participants' participation and will provide drinking water to quench their thirst.

Confidentiality: Names of participants will not be captured on questionnaires instead identification numbers will be used and codes will be applied to them. The information will be securely stored without names and will only be accessible to the research team. The results of this study will be disseminated in such a way that no information will be linked to the identity of the participants.

Voluntary participation/withdrawal: Participating in the study is voluntary and participant have the right to participate, refuse to participate or withdraw from the study at any point in time without explanation or any penalty to incur.

Outcome and Feedback: The results of this study will be disseminated among the research team and their partners for programme improvement and their implementation in such a way that no

information will be linked to the identity of the participants. Health education will be given to the participants to help improve their knowledge on the importance and benefits of ANC service utilization, thereby become an ambassador of ANC service utilization among their peers as well as their communities. In addition data may be stored for about three years by the researcher during which it could be used for another study should the need arise after which it will be burnt. **Funding**

information: This research is solely sponsored by the researcher.

Sharing of participants Information/Data: Information from this study will be owned by the researcher and shared with the University of Ghana, Ghana Health Service/ Ministry of Health and its partners.

Provision of Information and Consent for participants: A copy of the Information sheet and consent forms after it has been signed or thumb-printed will be given to you to keep.

Who to Contact for Further Clarification/Questions:

1. Name: Vida Naana Kwofie

Mobile:

0277117988

2. Name: Hannah Frimpong

Mobile:

0507041223

CONSENT FORM

FACTORS INFLUENCING ANTENATAL CARE SERVICES UTILIZATION IN SEKONDI – TAKORADI METROPOLIS

PARTICIPANTS' STATEMENT

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

I voluntarily agree to be part of this research.

The study may involve recording and or photograph taken during the process of interview.

Yes No

Name or Initials of Participant ID Code
..... Participants' Signature OR Thumb Print OR Mark
(Please specify)..... Date:

INTERPRETERS' STATEMENT (where applicable)

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named participant to the best of my ability in the language of (English Twi Fante his/her understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter

Signature of Interpreter Date.....

Contact Details

STATEMENT OF WITNESS (where applicable)

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language he/she understood (English, Twi & Fante)

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

Name:

Signature: OR Thumb Print OR Mark (please specify).....

Date:

INVESTIGATOR STATEMENT

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's Name: Vida Naana Kwofie

Signature:

Date:

APPENDIX: II ETHICAL CLEARANCE

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this letter should be quoted.



Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Tel: +233-302-681109
Fax + 233-302-685424
Email: ghsers@gmail.com
20th February, 2019

My Ref. GHS/RDD/ERC/Admin/App 19/19
Your Ref. No.

Vida Naatia Kwofie
University of Ghana
Post Office Box TD 380
Takoradi

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	GHS-ERC025/02/19
Project Title	Factors Influencing Antenatal Care Service Utilization in Sekondi-Takoradi Metropolis, Western Region
Approval Date	20 th February, 2019
Expiry Date	19 th February, 2020
GHS-ERC Decision	Approved

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.
- Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED: 
PROFESSOR MOSES AIKINS
(GHS-ERC VICES CHAIRPERSON)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra