

UNIVERSITY OF GHANA
COLLEGE OF HEALTH SCIENCES
SCHOOL OF NURSING AND MIDWIFERY



**DETERMINANTS OF UTILISATION OF MATERNAL HEALTH CARE
SERVICES AMONG PREGNANT WOMEN IN KWAHU SOUTH DISTRICT**

BY

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DECLARATION

This is to certify that this thesis is the result of research undertaken by Edmund Abusu Mante Asare towards the award of the Master of Philosophy Degree in the School of Nursing and Midwifery, University of Ghana. Except for the references I made from other peoples' work and textbook which have been duly acknowledged, this thesis is my own work.

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We hereby certify that this thesis was supervised in accordance with the procedures laid down by the University of Ghana.

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ABSTRACT

Maternal mortality remains a major Public Health challenge although various interventions have been devised by the international community to reduce it. Most of these deaths occur in Sub-Saharan Africa for which Ghana is no exception. The use of maternal health care services has been documented to reduce maternal deaths. However, utilisation of antenatal care has been declining. The study sought to examine the determinants of utilisation of maternal health care services among pregnant women using Andersen and Newman's health care utilisation model as a theoretical framework. The study site was Kwahu South District with the study population consisting of pregnant women. A quantitative, descriptive cross sectional survey was used and data was collected from 430 pregnant women using a structured questionnaire. Lubben social network scale, Euro Qol self-reported health status and a modified version of Kotel chuck index were used. Data were processed and analysed using Statistical Package for Social Science version 17.0 and Microsoft Excel. Descriptive statistics was used to describe socio-demographic variables whiles Pearson's chi square (X^2) was used to determine the relationship between the independent variables (environmental factors and population characteristics) and the dependent variable (utilisation). Bivariate and multivariate logistic regression was used to identify variables that predict the use of maternal health care service. Results show that 68.8% utilise antenatal care services adequately whiles 61.4% commenced ANC early. Environmental factors such as the presence of health personnel, logistics, reduced waiting time, coordination and control are strong determinants of utilisation. Age, marital status, education, occupation, partner's occupation, means of transport, income level and parity have a significant relationship with the utilisation of maternal health care services. The results also show that marital status, occupation and level of education accounts for 19% of the variance in utilisation. However, the significant predictors were marital status and

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occupation. Married women were twice more likely to have adequate utilisation than single women and women who are cohabiting (OR=2.046, CI: 1.024-4.086, P=0.043). Farmers (OR=0.186, CI: 0.361-0.563, P=0.003) and women who are unemployed (OR=0.364, CI: 0.165-0.824, P=0.015) were less likely to have adequate utilisation. These findings have implications for nursing practice and management, health promotion and education. Continuous public education about the need for adequate utilisation of maternal health care services is required.

DEDICATION

I devote this work to my wife Nana Yaa Addy for her constant support and encouragement

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I want to thank the Almighty God for giving me the strength to carry out this study.

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LIST OF SYMBOLS, NOMENCLATURE OR ABBREVIATIONS

ANC-	Ante Natal Care
BMI-	Body Mass Index
CI-	Confidence Interval
GDHS-	Ghana's Demographic and Health Survey
GHS-	Ghana Health Service
GSS-	Ghana Statistical Service
JHS-	Junior High School
KGH-	Kwahu Government Hospital
KSD-	Kwahu South District
MMR-	Maternal Mortality Ratio
MOH-	Ministry of Health
NHIS-	National Health Insurance Scheme
OR-	Odds Ratio
PICCAM-	Passion, Innovation, Commitment, Compassion, Accountability for Maternal and Neonatal Health
Qol-	Quality of Life
RRR-	Relative Risk Ratio
SHS-	Senior High School
SPSS-	Statistical Package for Social Science
TBA-	Traditional Birth Attendant
UNICEF-	United Nations International Children Educational Fund
WHO-	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background

The birth of a new born is a source of happiness and prestige. It is expected that every woman in labour goes through the process safely, but this is not always the case especially in low-income countries. Maternal mortality is a very delicate issue which has been looked at by various international organisations. Although numerous strategies have been devised by the international community to curtail the problem of maternal mortality, it still remains a foremost public health concern (Asamoah, Moussa, Stafström, & Musinguzi, 2011). A key measure of the functional health system is maternal health and it forms part of a continuum of care that connects essential maternal, new born and child health services (Sharma, Kishore, Gupta, & Semwal, 2012).

The global maternal mortality ratio from 1990 to 2013 declined by 45%, 380 deaths to 210 deaths per 100,000 live birth according to UN interagency estimates (UNICEF, 2014). This shows that there is an average annual reduction rate of 2.6%. Even though this is remarkable, it is less than half the 5.5% rate required to attain the three-quarter reduction in maternal mortality targeted for the then 2015 Millennium Development Goal five (UNICEF, 2014). The then Millennium Development Goal five was targeted at reducing maternal mortality by two-thirds from 1990 to 2015. As a result of this, the United Nations General Assembly adopted the sustainable development goals which were aimed to decrease maternal mortality rate to less than 70 per 100,000 live birth (Theron, 2016). The major way of assessing the quality of maternal health is the proportion of pregnant women who attend antenatal care and the proportion who attend skilled delivery (Hogan et al., 2010).

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A lot of proven interventions have been put in place to reduce death and disability associated with pregnancy and child birth but maternal death remains a major burden in low-income countries (Adewemimo, Msuya, Olaniyan, & Adegoke, 2014). There is the existence of antenatal care services for pregnant women of which most women are aware (Malonga, Dramaix-Wilmet, & Donnen, 2012). However, these women lack the knowledge of the advantages of the use of these antenatal care services. These women feel that the service is more advantageous to the fetus than themselves (Hagey, Rulisa, & Pérez-Escamilla, 2014; Malonga et al., 2012). Inadequate knowledge exhibited by women with respect to the benefits gained by both mother and fetus shows a gap in information delivery between health care providers and the community (Bhutta et al., 2010). Most women too are not able to access these services because of inflexible payment plans, travelling time to health facility and poor roads, beliefs about the value of health care service and impolite behaviour of health service personnel (Matsuoka, Aiga, Rasmey, Rathavy, & Okitsu, 2010). However utilisation of ante natal visits and skilled labour delivery will increase if mothers are provided with free access to free maternal health services and health workers provided with incentives (King, Jackson, Dietsch, & Hailemariam, 2015; Nguyen et al., 2012). The influence of antenatal care on maternal health has been documented. This is evidenced by the protective effect against maternal hospitalisation during the first six months after delivery, especially for mothers who had a spontaneous vaginal delivery. Meanwhile, these benefits of antenatal care are mostly underestimated (Liu, Chen, Chan, & Chen, 2015).

Major causes of maternal death globally are from direct obstetric causes which include haemorrhage, hypertension, abortion, sepsis, embolism and obstructed labour (Bolnga, Hamura, Umbers, Rogerson, & Unger, 2014; Say et al., 2014). There are secondary causes resulting from pre-existing conditions which are aggravated by pregnancy and this

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includes HIV. Most of these cases were seen in Sub-Saharan Africa and southern Asia (Say et al., 2014). Even in high-income countries, maternal mortality is most common among migrants who do not have residence permits (van den Akker & van Roosmalen, 2015). Women from Sub-Saharan Africa, Latin America and the Caribbean are the most vulnerable group because of the inability to access equal level of health care, language barrier (difficult communication problems), and sometimes communication is not possible at all (van den Akker & van Roosmalen, 2015). Maternal death has been found to be common in native people from the poor and most vulnerable group in the society. People from this group lack access to antenatal care services. Skilled birth attendants who are supposed to visit villages for antenatal care services cannot do so due to lack of supportive structures like roads and transportation system. Facilities that are situated in the towns and villages lack the basic equipment (Sri & Khanna, 2012).

Maternal mortality remains a key problem in Africa. Low-income countries have a higher maternal mortality as compared to high-income countries. The maternal mortality ratio (MMR) in low-income countries is fifteen times higher than in the high-income regions (WHO, 2012). Sub Saharan African countries have the maximum maternal mortality rate in the world with an average of 500 maternal deaths per 100,000 live births. This accounts for fifty percent of the world's total maternal deaths (WHO, 2012). Nigeria is the leading contributor to a maternal mortality rate of 560 per 100000 live births (Bhutta et al., 2010). Eight hundred women die each day as a result of complications of pregnancy and child birth and this usually occurs in low-income countries (WHO, 2012). There is an increase in the risk of maternal mortality because more women are getting pregnant, with rising levels of obesity, advancing maternal age and an increase in the proportion of women born outside the United Kingdom (Kemp & Knight, 2016). Despite all these, the overall maternal mortality fell to 10.1 per 100,000 maternities in the United Kingdom. Among the

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maternal mortalities, 1 in 10 did not receive any antenatal care and 25% received care below the minimum standard (Kemp & Knight, 2016).

The presence of restrictive socio-cultural norms negatively impacts the use of maternal health services in sub-Saharan Africa. Women, who live in areas where gender norms are relatively favourable to violence against women, are less likely to deliver with a health professional, to have four antenatal visits or start one antenatal clinic visit (Adjiwanou & LeGrand, 2014). Most women do not attend antenatal services and they also patronise traditional birth attendants during labour (Adewemimo, 2014). Coverage of postnatal care at the health facility is very poor. Mothers who attend postnatal care do so because of obstetric complications (Adewemimo, 2014). Women who patronise antenatal care utilise skilled birth attendants during delivery (Adewemimo et al., 2014). It is documented that implementation of best practices by skilled personnel is crucial in reducing maternal mortality that happens in the hospitals especially in women who have undergone caesarian section (Zongo et al., 2015). Young mothers have increased risk of pregnancy related complications due to their less experience of pregnancy than old mothers. This can make them less aware of the danger signs of pregnancy. Interestingly institutional delivery is much more common in younger mothers than older mothers. Promotion of antenatal services can help improve maternal health outcomes (Melaku et al., 2014). The quality of antenatal care cannot be overemphasised because it helps in the detection of early warning signs and those at risk so appropriate intervention can be initiated (Sarker et al., 2010)

Ghana's MMR is 319 per 100,000 live births (Unicef, 2015) and institutional Maternal Mortality Ratio fell from 216 per every 100,000 live births in 1990 to 144 in 2014. This represents a drop of 7.2% which is way up the global millennium development goal target of 54 per 100,000 live births (MOH 2014). Anderson and Newman's model of health care

utilisation was used as a guide to select variables that could affect maternal health care services utilisation.

1.2 Problem Statement

The introduction of the safe motherhood programme and national health insurance scheme were seen as interventions to improve maternal health, yet women still die from child birth (Mahamadu, 2012; Say & Raine, 2007). The Kwahu South District has not been an exception to this since the District has recorded some number of maternal deaths over the past three years. In 2013, the District recorded 1 maternal death from the 2037 deliveries (KGH, 2015). In 2014, the District recorded 6 maternal deaths from 2191 deliveries made and then in 2015 the number of maternal deaths were 6 out of 2077 deliveries made (KGH, 2015)

There has been a steady decline in antenatal visits and this has also translated into the number of deliveries attended by skilled personnel (GHS, 2014). Antenatal visits dropped from 90.8% in 2013 to 87% in 2014 nationwide. It is quite interesting to note that although the percentage of antenatal visits is high, the percentage of skilled delivery is low.

Percentage of skilled delivery in Ghana in 2014 was 56.7%. The situation is not different from the Eastern Region. Antenatal visits declined from 82.1% in 2013 to 77% in 2014 while skilled delivery also declined from 52.8% to 52.5% in 2014 (GHS, 2014).

A qualitative study in the Northern part of Ghana found that most women want the services of unskilled birth attendants due to the attitude/negligence on the part of health workers, transportation, cost and inability of the mothers to perform their cultural practices at the health facility (Akum, 2013). Factors such as poor staff patient relationship, long waiting time at the health facility, poor quality of care and privacy issues are factors in the health care system which influence the use of maternity care (Ganle, Parker, Fitzpatrick, &

Otupiri, 2014). These factors could be the reason why the Kwahu South District could not achieve its target on maternal mortality. With strategies like safe motherhood, free maternal care, primary health care and free care for children under five in place, the situation has still not improved much.

Table 1.1: Trends in ANC attendance in Kwahu South District

YEAR	NEW REGISTRANTS	ANC ATTENDANCE
2013	3657	19660
2014	2942	18901
2015	2955	14406

SOURCE: KSD Annual data Report

The Kwahu South District has not been able to meet its target of zero maternal death set for the District. However, the decline in ANC visits could be one of the reasons leading to increasing maternal death in the District. Some studies on maternal health have been done in the past. Most of these studies used a qualitative approach and usually focused on health care system factors but currently, there is little knowledge on quantitative research about the factors which influence utilisation of maternal health care services in Ghana and for that matter Kwahu South District. Thus, the study seeks to determine the factors that influence the use of maternal health care services.

1.3 Purpose of the study

The purpose of this study is to examine the determinants of utilisation of maternal health care services among pregnant women in Kwahu South District.

1.3.1 Specific Objectives

The specific objectives of this study are to:

1. Describe the environmental factors that influence utilisation of maternal health care services

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2. Assess the population characteristics (predisposing factors, enabling resources and needs) that influence utilisation.
3. Assess the health behaviour (utilisation) of pregnant women
4. Establish the relationship between environmental factors, population characteristics, and the use of maternal health care services
5. Describe the predictors of utilisation of maternal health care services

1.4 Research Questions

1. Which environmental factors influence maternal health care service utilisation?
2. What are the population characteristics that influence the use of maternal health care service?
3. What are the health behaviours of pregnant women?
4. Is there an association between environmental factors, population characteristics and the use of maternal health care service?
5. What are the predictors of health behaviour (utilisation of maternal health care services)

1.5 Hypothesis

1. There is a positive association between environmental factors and utilisation of maternal health care services.
2. Population characteristics such as age, parity, occupation and social network are associated with utilisation of maternal health care services.
3. Environmental factors can predict utilization of maternal health care services.
4. Population characteristics such as occupation, marital status, and social network can predict utilisation of maternal health care service.

1.6 Significance of the study

The findings of this research will be of benefit to the reproductive health unit of Ghana Health Service in appreciating maternal health care services utilisation in the District and the picture of what happens in the region as a whole. It will also help in the development of policies that will enhance the use of maternal health care services so as to decrease maternal mortality. The findings may also serve as a data that may be useful for literature for other researchers on the issue of maternal health and the findings may also serve as a policy direction to improving maternal health services in the District

1.7 Operational Definitions

Utilisation: Women who come to the hospital for maternal health care services

Environment: The health care system

Maternal health care services: The use of antenatal care and folic acid supplementation

Determinants: Factors influencing the use of maternal health care service.

Reproductive Women: Women between the ages of eighteen to forty-five

Young woman: A woman between the ages of 18-25years

Middle aged woman: A woman between the ages of 26-33 years

Older woman: A woman between the ages of 34-42 years

Net household income: The amount of money the person receives at the end of the month

Family size: The immediate number of people living with and being taken care of by the person

Early ANC: Women who start ANC within the first trimester of pregnancy

Late ANC: Women who start ANC after the first trimester

CHAPTER TWO

CONCEPTUAL FRAMEWORK/LITERATURE REVIEW

This chapter gives an overview of the model used and review of studies related to utilisation of maternal health care services. The first part of the chapter deals with explanation of the model that was used to guide the study and how the various constructs were applied in the study. The second section of this chapter reviews the literature on the study using the various objectives for the study as key words for the search of literature related to the study.

2.0 Conceptual framework

Andersen and Newman's health care utilisation model was used as the organising framework for this study.

2.1 Andersen and Newman's health care utilisation model

This health care utilisation model was designed to ascertain situations that either expedite or inhibit health service utilisation. The model has gone through four phases of development with the current phase developed in 1995. The first phase was developed in 1960 with the second, third and fourth phase developed in 1970, 1980-1990 and 1995 respectively. The model has been used by various authors notably Petrovic and Blank (2015), Feijen-de Jong et al. (2015), Rutaremwa, Wandera, Jhamba, Akiror, and Kiconco (2015); Willis, Glaser, and Price (2007). In Ghana, the model was used by Mahamadu (2012). Figure 1 below indicates the fourth phase of the model.

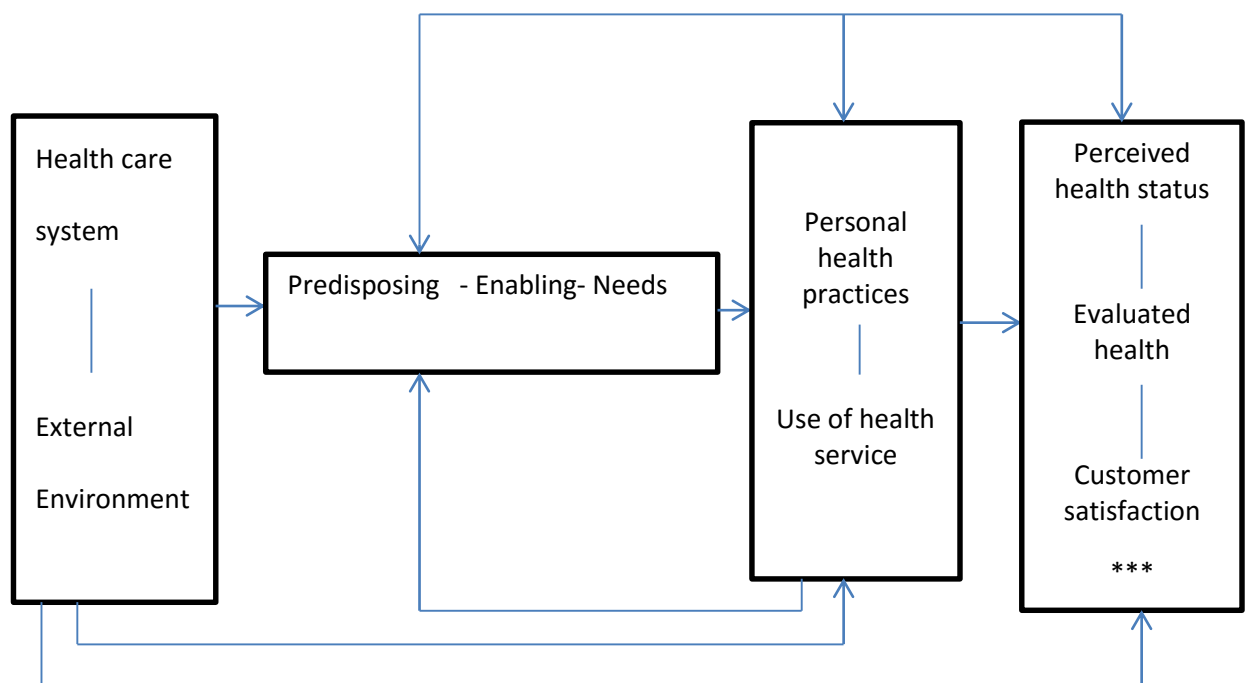
According to the model, utilisation of health care is reliant on the individual traits, population characteristics, and the environment. The environment consists of the external environment and the various health care systems. The external environment is made up of the physical structure, economic and political characteristics, while the health care system

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is made up of policies, resources and the organisational structure (Andersen & Newman, 1973). Individual utilisation of health care service is considered to be the interplay of three components. These are predisposing factors, enabling factors and need factors.

Predisposing factors are the individual's sociocultural practices that exist before the individual gets sick. These are related to demographic elements and social structure, including age, gender, residence, culture, occupation, education, ethnicity, attitudes, values and knowledge people have toward health. The enabling factors are the resources available for obtaining health. These enabling factors consist of community features that exist for access and availability of health, personal/family resources such as access to health care, income, health insurance, travel, regular source of care and quality of social inter-relationship (Andersen, 1995).

Environment Population characteristics Health behaviour Health outcome



*** This aspect of the model was not used

Figure 2.1: Andersen and Newman health care utilisation 1995 (Andersen, 1995)

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Andersen and Newman health care utilisation model was used in this study to predict elements that influence or impede utilisation of maternal health care service.

Pregnant women's use of health service will depend on the environment. The environment is made up of the health care system (Aday & Andersen, 1974). The health care system is made up of resources and the organisation. The process of the organisation consists of a structure of the health system and access. If government waives some amount of obstetric care and there is also reduced waiting time at the health facility, accessibility will increase (Wilunda et al., 2017). The structural component deals with activities that occur once the pregnant woman enters the health care system. This includes the obstetric practice and the midwife or skilled personnel who first see the pregnant woman at the hospital, the characteristics of care and the referral system in place (Andersen & Newman, 2005). The labour and the capital deployed to the health system constitute the resource. These include human resource, the physical structure in which health and education are provided and the equipment and materials used to provide obstetric care. The organisation explains what the health system does with the resources. How medical personnel and facilities are coordinated and controlled in providing obstetric care.

According to Andersen (1995), pregnant women's use of maternal health care services is dependent on their socio-demographic characteristics such as age, education, ethnicity, occupation and marital status. These socio-demographic factors may independently influence a pregnant woman either positively or negatively with regards to utilisation of maternal health care services. The health belief, attitude, values and knowledge pregnant women have concerning the health care system can influence the use of maternal health care services. Attitudes and beliefs are the knowledge pregnant women have about their health which may influence the use of maternal health care services. A pregnant woman with a positive health belief will use maternal health care services (Andersen, 1995).

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The ability of a pregnant woman to receive maternal health care services will also depend on the logistical aspect of obtaining care including her income, health insurance status, regular source of care, travel, the presence of health personnel, social network, facilities and waiting time. The availability of these logistical factors can cause a change in the behaviour of the pregnant woman so as to seek for health care (Andersen, 1995).

The need factor of the model relates to the functional ability of the woman or existing health problems that will cause the pregnant woman to use maternal health care services. According to the model, the need factor is categorised into perceived need and evaluated need. A pregnant woman's perceived health needs are how she views her general health and functional health state. It is believed that dysfunctional health state will cause the individual to use maternal health service. Evaluated health is the judgment health professionals make about the pregnant woman's health status and the need for medical care (Andersen, 1995).

Health behaviour component is in two folds. The first aspect is the various health practices pregnant women indulge in. These health practices can either be considered as negative or positive which will impact on the outcome of the pregnancy. The second aspect is the use of health services which for the purpose of this research was the utilization of maternal health care services.

2.2 Literature Review

Using key words based on the research objectives, a search was made using various databases like sciencedirect, PubMed, Cambridge, Taylor and Francis, EBSCOhost, Google scholar, JSTOR and website of key international agencies like UNICEF, WHO. This was done to review studies relevant to utilization of maternal health service. Key words like utilisation of maternal health service, environment and use of health service,

population characteristics and use of health service, predictors of health service utilisation were used for the search. The literature was organised based on the constructs of the model and objectives of the study as follows:

1. Environmental factors affecting maternal health care services utilisation
2. Population characteristics and use of maternal health care services
3. Health behaviour of pregnant women.

2.2.1 Environmental factors affecting maternal health care services utilisation

Maternal health service utilisation has been hampered by various factors. The structure of the health care system has been one of the reasons. Ganle (2015), conducted a study in Ghana and found that Muslim women refused to utilise maternal health service because the hospitals do not address adequately the needs of Muslim women. Muslim religious values require that women should not have intimate physical contact, especially with anyone if the person is not your husband. It is incumbent on those who married under Islamic law to maintain the purity of the female body. Therefore members of the opposite sex should not see your nakedness. However, health facilities in Ghana are not designed to have that religious balance. It is further compounded by the frequent examination of the pregnant women with associated exposure. Most women patronise the services of traditional birth attendants because they do not attend antenatal care services and this has also led to poor postnatal care (Adewemimo et al., 2014). Lack of accommodation at the health facility for accompanying relatives has also hampered the use of maternal health care services, as women who accompany pregnant women to health facilities to provide them with food are usually not accommodated by the health facilities (Gyaltsen, Gyal, Gipson, Kyi, & Pebley, 2014). In Uganda, ownership of health facility impacts on the use of antenatal care. Most women prefer the use of private hospitals as compared to

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Government hospitals. This is because most private hospitals are well resourced than government hospitals (Bbaale, 2011).

Srivastava, Avan, Rajbangshi, and Bhattacharyya (2015), reviewed literature on women satisfaction on maternal health care services and found that improved physical environment and good management are important assessment tools of health service by women and the use of maternal health service. A good physical environment includes infrastructure with good water supply, enough lighting, spacious room with adequate beds and waiting area (Tetui, Ekirapa, Bua, & Mutebi, 2013). The presence of qualified human resource in the health facility is also a factor that influences utilisation of maternal health care services. A study conducted in Lesotho after a comprehensive approach to improve maternal health care was implemented showed that training and provision of skilled personnel caused a dramatic increase in ANC and skilled birth delivery attendance (Satti et al., 2012). Provision of free maternal care, adequate skilled personnel, equipment and other medical supplies in the health care system are factors which affect the utilisation of maternal health care services. This revelation was made by Lang'at and Mwanri (2015) in Kenya when conducting a qualitative study on the perspectives of free maternal health care service policy.

Kinfu, Dal Poz, Mercer, and Evans (2009), posit that unavailability of health personnel in Africa puts a strain on the health care system to deliver quality health care. It has also been found in Afghanistan that, health facilities with an adequate number of trained midwives recorded a higher monthly average volume of ANC attendance as compared to health facilities with no midwives. Secondly, training of highly qualified midwives improves the quality of health care rendered to the client (Mansoor et al., 2013). The availability of trained health personnel influences utilisation as most women who use professional

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antenatal care utilises the entire content of antenatal care as compared to those who do not use professional antenatal care (Bbaale, 2011).

Kwambai et al. (2013), also contend that a good health care system with qualified health personnel will make ANC delivery conducive. This is because it has the qualified staff and the necessary logistics to handle pregnancy and its complications. Furthermore, the neatness of the hospital will also prevent infection to both mother and fetus. Health personnel also provide information about both the pregnant women and their babies. However, some women refuse to use maternal health care services because of the cost and cumbersome process involved.

The unfriendly environment at the health facilities has been observed to affect maternal health service utilisation. Dirty environment coupled with shortage of materials are some of the reasons why women in Tanzania do not utilise maternal health services. Secondly, at the health facility mothers are not allowed to perform their traditions and customs as compared to Traditional birth attendants. There is also an issue of long waiting time at the health facility before being seen by a doctor (Mahiti et al., 2015b). It is documented that free maternity services and comfortable facilities at the hospitals and health centres improve maternal health service use (King et al., 2015).

In Uganda, birth attended by skilled birth attendants declined from 52% to 38% following the implementation of the Africa Development Bank structural adjustment loan (Coburn, Restivo, & Shandra, 2015). A stable economy is important in maintaining government health care spending which adversely provides effective maternal health care resources to improve maternal health (Ng et al., 2015). This is evident in the fact that, providing free maternal health care by the government in Kenya caused an increase in utilisation of

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maternal health care service which also impacted on maternal health outcome. This policy caused a reduction in maternal mortality in Kenya (Lang'at & Mwanri, 2015)

According to Bertschy, Geyh, Pannek, and Meyer (2015), pregnant women have problems accessing maternal health service. Some of these challenges include difficulty identifying the health personnel with the requisite expertise, lack of available health facilities and supply of equipment and other supplies. Furthermore, they also have difficulty in accessing free maternity services and comfortable facilities at the hospitals and health centres (King et al., 2015). According to Kamal, Curtis, Hasan, and Jamil (2016) people from wealthy homes in Bangladesh prefer to use private hospitals than government hospitals because private hospitals seem to be well equipped than government hospitals. However, these studies failed to look at coordination and control of the environment and its influence on utilisation

2.2.2 Population characteristics and use of maternal health care services

In addition to environmental factors, population characteristics also influence utilisation of antenatal care services. An individual's level of education can have an influence on his state of health. Dixon, Tenkorang, Luginaah, Kuuire, and Boateng (2014) conducted a survey among ANC women in Ghana and found that the mean age was 29 years, majority were married and most of them had secondary school education or higher. Women with higher educational background and wealth are more likely to attend their first ANC in their first trimester. The study also found that 41.6% are enrolled on the national health insurance scheme (NHIS).

A related study in Uganda found that most women who attend private hospitals use all the components as compared to women attending government hospitals. Mothers with higher educational background use antenatal care services. Most women with post-secondary

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education receive all the component of antenatal care as compared to those with lower educational background. Access to media also plays a role in utilisation as reported by the results (Bbaale, 2011).

Similarly, Vora, Koblinsky, and Koblinsky (2015) argued that, in India women and husband educational status tend to predict the use of maternal health service as women with higher educational background are more likely to use maternal health service. It is believed that when women are educated they are informed about the advantages of using maternal health service and higher educational levels are also associated with good employment and increased income. This makes it easier for them to pay for maternal health services (Kamal et al., 2016). Most women in Ethiopia do not have any formal education. Educational level goes with a corresponding increase in income and this influence ANC utilisation. The higher the educational background and income level, the more likely the woman will use ANC (Tarekegn, Lieberman, & Giedraitis, 2014). A related study in Namibia showed that women from deprived household are mostly seen to have lower educational levels and are less likely to utilise pre natal care than those from rich homes who are mostly seen to have a higher educational level and they report higher use of pre natal care. Additionally, lack of education (OR=0.15; 95%, CI: 0.08-0.28) and women from the poor household (OR= 0.40; 95% CI: 0.02-0.81) were less likely to use pre natal care compared to women who had secondary education or higher and those from rich homes (Rashid & Antai, 2014).

According to Sado, Spaho, and Hotchkiss (2014), high ANC attendance in Albania is common in women with better education, employment and fewer children. Age at which a woman got married does not have any significant relation with the use of ANC. The study also revealed a positive association between women's autonomy and utilisation of maternal health services as women who make decisions in the family are highly educated

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women and are considered to have high autonomy in decision making and this translates into the number of ANC visits. Most of them are more likely to have four ANC visits as recommended by W H O. A related study in Uganda revealed that most women in Uganda have a low educational background but most of them are married. Although most women utilise maternal health services, education was seen to influence maternal health service utilisation. Women with higher education have an increased relative risk ratio of utilising maternal health service (RRR = 4.5; 95 % CI = 1.5-14.0) (Rutaremwya et al., 2015).

Another related study in Ethiopia by Geletu, Cunningham, Magalona, and Morgan (2015) found that wealth, age and education affect maternal health service utilisation independently. High social class predicts the use of maternal health service. Educated women are more likely to use ante natal care than uneducated women. Similarly, a study in India also found that uneducated women are more likely to have inadequate utilisation of ANC as compared to educated women (Singh, Rai, & Singh, 2012).

A quantitative study in India found that level of education and economic status is also associated with utilisation. Women with higher educational and economic status are more likely to use maternal health services as compared with those with lower education and low economic status. Women with an educational level below secondary (AOR=1.90; 95% CI: 1.71-2.11) and with secondary education and above (AOR=2.67; 95% CI:2.43-2.92) were more likely to have adequate utilisation than those without education (Singh & Singh, 2014). Another related study revealed that women's educational level has an association with utilisation. None educated or women who had primary education were less likely to have adequate ANC than those with higher education (OR = 0.20, 95%CI = 0.07–0.58, P = 0.003) (Yeoh, Hornetz, & Dahlui, 2016).

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Similarly, a community cross sectional survey on determinants of antenatal care (Tsegay et al., 2013) in Ethiopia revealed that higher levels of education predicts the use of antenatal care as proximity and having a husband with a non-farming occupation also predicts utilisation. Women with higher levels of education (AOR= 5.3, 95% (CI) 1.59–17.870) are five times more likely to utilise skilled delivery as compared to women with no formal education. Similarly, women having formal education were more likely to go for ANC as compared to other women (OR=1.703, CI: 1.216-2.384, P=0.002) (Sayami et al, 2014). Women who are educated are informed about the advantages of using maternal health services and higher educational levels are also associated with good employment and increased income. This makes it easier for them to pay for maternal health services (Kamal et al., 2016)

Most young women, especially in some African countries, marry early before the age of 18 years (Godha, Gage, Hotchkiss, & Cappa, 2016). These young marriages are predominately seen in the rural areas and people from the low socioeconomic group. Those who marry early do not utilise ANC. In this age group, the probability of ANC utilisation increases with increasing number of children. Urban women who marry at the age of 18 years and above have a higher adjusted probability of using ANC. Place of location also predicts the use of ANC as those in the urban areas use ANC and other maternal health services (Godha, Gage, Hotchkiss, & Cappa, 2016). A quantitative study in India also found that, women in the middle age group (20%) are more likely to utilize ANC adequately as compared to women in the younger (19%) and women in older (9%) age group ($p<0.01$) (Singh & Singh, 2014).

In contextual determinants of maternal health care, Ononokpono, Odimegwu, Imasiku, and Adedini,(2013) found that regular utilisation of antenatal care is common in a younger age group (25-34) years. Furthermore, middle aged women are 1.07 times (95%, CI: 1.01-

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1.12) more likely than those and those from the older age group less likely (AOR=0.42; 95% CI: 0.36-0.49) to receive adequate ANC as compared to the younger age group (Singh & Singh, 2014).

Doku, Neupane, and Doku (2012), conducted a study in Ghana and found that majority of women in Ghana have an average age of 30.8 and attend ANC while 43% attend ANC after the first trimester. The study found some factors which influence early ANC visit and this includes age, education, religion, wealth index and partner's education. People who are between the ages of 25-34 years were more likely (OR=1.5, CI=1.2-1.9,) to attend ANC early as compared to those between the ages of 15-24. Furthermore women who are 20-34 years were more likely (OR = 2.03, 95%CI = 1.28–3.20, P = 0.002) to utilize ANC adequately as compared to those who are ≤ 19 or ≥ 35 (Yeoh et al., 2016).

Sayami, Bhandari, Tamrakar, and Banjara (2014), studied health seeking behaviour among pregnant women in Nepal and found that only a few pregnant women do not attend ANC. Age was seen as a factor influencing maternal health behaviour. Women within the age group 25-34 were two times more likely to use ANC as compared to younger age group (OR=2.166, CI=1.526-3.076, P<0.001). Women who went for ANC for their previous pregnancies are more likely to attend ANC for their subsequent pregnancies. Single women are more likely to use ANC than married and divorced women. Single women in Namibia were less likely (OR=0.70; 95% CI: 0.53-0.92) to deliver with a skilled birth attendant than married women (Rashid & Antai, 2014). Furthermore, in Uganda women who were never married were less likely to utilize maternal health service (RRR = 0.4; 95 % CI = 0.2-0.8) (Rutaremwana et al., 2015).

Another related study in Ghana revealed that religion (p=0.00), place of residence (p=0.00), parity (p=0.03) and marital status (p=0.010) had a statistical significant

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association with utilisation. Maternal age, education, employment status do not have a statistically significant association with utilisation of prenatal care. However, marital status, parity, religion and place of residence were statistically related to place of delivery ($p < 0.05$). The likelihood for using delivery services were lower for mothers who are married or cohabiting than divorced/separated and single women. There was no association between education, ethnicity and employment status and use of delivery service (Asante-Sarpong, Owusu, Saravanan, Appiah, & Abu, 2016).

Furthermore, women and partners who are into agriculture or household domestic skilled workers report lesser access to pre natal care as compared to those with white collar jobs (Rashid & Antai, 2014). Educated women and employed women are more likely to make adequate utilisation of ANC as compared to uneducated and unemployed women (Woldemicael, 2010).

According to Kusuma, Kumari, and Kausha (2013), women from disadvantaged groups in the society are at risk of receiving inadequate maternal health care. Women who attend ANC are more likely to have hospital delivery. However some barriers to maternal health care use include lack of knowledge about the service and its benefit, financial difficulty, parity, educational level and access to health facility. Multiparous women and women with low educational background were seen not to utilize hospital delivery.

Gawde, Sivakami, and Babu (2016), studied utilisation of maternal health service among internal migrants in Mumbai India. The study results show that the mean age of the respondents were 23.56. Majority of the migrants were from the rural poor. They also argued that better social support and strong social network tend to influence women's decision making. Most pregnant women want to be in villages than in the city because of strong social network in the village.

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Possession of health insurance has also been seen to influence the use of health care. Most people in Tanzania are either enrolled on the national health insurance fund or community insurance fund. The majority of the affluent in the society possess the national health insurance. People with insurance tend to seek for prompt health care while those without insurance delay in seeking for health care. Reasons for the delay include financial difficulty (Chomi, Mujinja, Enemark, Hansen, & Kiwara, 2014). Furthermore, Osei Asibey and Agyemang (2017) analysed the influence of health insurance status on health seeking behaviour in Ghana and found that 36% of the people attained a basic level of education. Respondents had a lower monthly income with 43.8% having a monthly income of hundred Ghana cedis and below (< GHC100) and 36.7% having between hundred and one Ghana cedis (GHC101) to four hundred Ghana cedis (GHC400). . Majority of the people did not have national health insurance. The use of health care was very poor especially among non-insured population. Insured clients have a lower perceived health status and also have a better understanding on the quality of care and staff attitude hence the use of health care (Osei Asibey & Agyemang, 2017).

Sohn and Jung (2016), also used a longitudinal study design to examine the effect of public and private health insurance on utilisation and found that majority of people living in Korea are either having national health insurance (17.7%) or private health insurance (78%).

Steel, Adams, Frawley, Broom, and Sibbritt (2015), found that possession of private health insurance has an influence on utilization. Women who are employed have the capacity to enroll on private health insurance. Most of these women who possess private health insurance have the likelihood of utilizing maternal health service but not home service. Women also feel comfortable discussing their health issues with obstetricians than midwives. This is because women believe they are safe with the obstetrician during

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delivery (Steel et al., 2015). Pregnant women's visit to ANC is due to the symptoms they experience. Most of them get dissatisfied if they do not get relieve from medications given and this tend to influence their use of ANC (Munguambe et al., 2016; Wilunda et al., 2017).

Women with access to media use antenatal health service as compared to women with no access at all. The ability to pay for antenatal care services also has an influence on the use of the service. Financially endowed women use the entire component of antenatal care services while the less endowed uses little antenatal care. Lack of income has also been associated with poor maternal health service utilization. People from poor background cannot pay for drugs and supplies, cost of ambulance and transportation charges. These factors serves as a means to access health service (Wilunda et al., 2014). Lack of public or private means of transport coupled with long distance travel (Wilunda et al., 2017; Yuan, Qian, & Thomsen, 2013) also influence the use of maternal health care services. Another related study in China by Long, Zhang, Xu, Tang, and Hemminki (2010) revealed that there has been a rise in the number of prenatal visits and skilled delivery attendance with more women commencing pre natal care early. The study also found associations between income level and utilisation as women with greater level of income use more prenatal care and skilled delivery than women with low level of income. Similar findings in India revealed that higher household income has a positive influence on utilisation. Household wealth influences the person to seek for health care. Working women have a lower utilisation care compared to women who are not working. Household socio-economic state and education are strong predictors of adequate utilisation (Arokiasamy & Pradhan, 2013). According to Benova, Campbell, Sholkamy, and Ploubidis (2014) increase in socio cultural resource to individuals in rural upper Egypt is associated with regular antenatal visit and delivery at the health facility. However, increase in socio cultural resources does

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not impact on the type of facility. In contrast, people from different socio-economic groups utilise different types of health care (García-Goñi, Nuño-Solinís, Orueta, & Paolucci, 2015).

Li et al. (2015), also maintained that there is a high percentage of antenatal service utilization among women in high socio-economic group in China. These women have the money to pay for the antenatal services (Bbaale, 2011). These findings are comparable to a study conducted by Obiyan and Kumar (2015) in Nigeria where utilization of ante natal care was a problem among women in low socio-economic group.

Antenatal care utilisation is a problem among poor people living in urban areas in India. Mothers from poor homes are not able to utilize ANC as compared to those from wealthy homes (Prakash & Kumar, 2013). In China, low socioeconomic status has caused poor utilization of maternal health care and consequently caused an increase in maternal mortality. This is because women from this group lack knowledge about maternal health service and its importance (Yuan et al., 2013).

Silal, Penn-Kekana, Harris, Birch, and McIntyre (2012), argued that women with higher levels of income view the cost of maternal health care services affordable as compared to women with poor income and are likely to utilize maternal health services. Thus an increase in socioeconomic level leads to a corresponding increase in the likelihood of maternal health service utilization (Obiyan & Kumar, 2015). Adequate utilisation is associated significantly with education and socio-economic status of the family ($p < 0.05$). Poor transport system and financial difficulties are the reasons for inadequate utilisation. Age is not significantly associated with adequate utilisation (Mumbare & Rege, 2011).

Chomat, Grundy, Oum, and Bermudez (2011), studied factors that influence utilization of intra partum obstetric care services in Cambodia using a cross sectional survey ($n=6069$)

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and the study revealed poor utilization of ante natal care services among women living in poor settings. Most of the women preferred home delivery and utilisation of unskilled birth attendants. Reasons for poor utilization included distance, lack of transportation, cost and unwillingness to deliver at the health facility.

In determining reproductive health needs in some West African countries, Ayanore, Pavlova, and Groot (2016) argued that a woman's wealth is a key determinant of access to health. The study also established that money a factor that influences the cost of travelling and ability to pay for services that were provided at the hospital. Socioeconomic status and educational level also affected utilization. Usually highly educated women have higher socioeconomic status. This category of women are mostly found in the urban regions with 20% of women in the mountain region having secondary education or higher. However, women in the urban regions had access to information than those in the mountains (Hodge, Byrne, Morgan, & Jimenez-Soto, 2015). These findings are similar to that of Bbaale (2011), where it was also observed that women with higher educational background tend to utilize maternal health services. These women are also noted to be in high socio economic group where they have the financial means to pay for services and access to health service is also not an issue. People from poor socio-economic group are usually faced with the issue of access (Hodge et al., 2015).

Li et al. (2015), contend that the proportion of antenatal visits is very high among women from the affluent groups in the society. The similarity in the findings can be attributed to the use of the same study design and methodology.

Transportation and distance has been one of the major factors affecting utilisation (Kamal et al., 2016). Hodge et al. (2015) studied barriers to health service use by comparing three regions (the mountains, Hills and terai) in Nepal. Distance to a health facility was a major

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barrier to the use of health services especially those living at the mountain region because these people had to travel far before accessing health care. In a similar argument by (Atuoye et al., 2015), poor vehicular transport in Ghana coupled with poor roads have a negative outcome on maternal and child health. As a result of this, most pregnant women use other unfavourable means of transport and this has led to poor maternal health care service utilisation. Due to inaccessible roads, the cost of transportation is so high that women from low income group cannot afford prompting them to use alternate services which are closer. Yar'Zever and Said (2013), posit that most women use maternal health service. However inadequate knowledge about facility, the feeling that health facilities are only there for the sick and poor means of transport are factors which affect utilisation.

According to King et al. (2015) improving access to health service by providing free ambulance to health centres and quality maternity care will influence the use of health services. However, a lot of barriers have been connected with the use of maternal health services. Long distance travel on foot, poor reception at the health facility and repeated frequent vaginal examination by health personnel are barriers to maternal health service utilisation.

Another related study in western China found that Health care facilities are situated far from villages and these facilities are only accessible through long journeys by walking or riding a donkey/ horse, tractor, motor cycle or sometimes with car (Gyaltzen et al., 2014). There is no accommodation for family members accompanying pregnant women who provide care and meals for them. Services in terms of medicines and treatment fee are costly. Language difference and cultural values are major barriers between various ethnic groups and health workers. Furthermore, most of them see pregnancy as a normal process which does not require going to the hospital and that hospitals are only structured in treating illness. Community members did not have confidence in the skills of limited

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number of doctors and nurses practicing foreign medicine because they were used to their traditional practice (Gyaltsen et al., 2014).

Distance has been one of the major delays in seeking health care and that can also lead to death. Long hours of travelling, poor transportation, bad roads, unavailable means of communication are also related to the problem of access and utilization (Ademiluyi & Aluko-Arowolo, 2009). It is evident that increasing access to maternal health services will increase the use of these services. Access can be improved by building community health centres where pregnant women can seek for maternal health care services (Gyaltsen et al., 2014).

Randive, San Sebastian, De Costa, and Lindholm (2014), stated that most people delay in deciding to seek for care because of various reasons which include financial difficulties (transportation cost, physician and facility fee, cost of medication), quality of care, distance and sociocultural factors. Distance exerts a double influence because long distance can be an impediment to seeking for care or a barrier in reaching the health facility. People who live close to the health facility are more likely to use the facility than those who live at a distance from the facility (Aluko-Arowolo & Ayobami, 2015).

Inaccessible roads, long distance travel and difficulty getting transport vehicles are other barriers mitigating maternal health care service utilisation (Atuoye et al., 2015). Tsegay et al, (2013) found that, women who live nearer to the health facility are three times more likely (AOR=3.3, 95% CI 1.15–9.52) to use skilled delivery than those who live distance away from the health facility.

The proportion of adequate utilisation decreases with increased number of pregnancies.

Multiparous women are less likely to attend ANC adequately (Rahman et al., 2017).

Secondly, primiparous women are more likely to make adequate utilisation (Singh et al.,

2012). Women with one child are more likely to make adequate utilisation than those with two to three and four or more children (Ononokpono et al., 2013). Multiparous women were two times more likely (OR = 2.58, 95%CI = 1.82–3.70, P<0.001) to utilize adequate ANC than nulliparous women in the low-risk group (Yeoh et al., 2016).

In Nepal, gravidity and employment status have an influence on utilisation. Women having their second or more pregnancies and women with manual work are more likely to attend ANC than women with first pregnancy and women with other occupation respectively (Sayami et al, 2014).

However, these studies did not explore the influence of attitudes, values on utilisation of health services.

2.2.3 Health behaviour of pregnant women

According to Auerbach, Lobel, and Cannella (2014) it is important to understand factors that predict behaviour in pregnancy because it impacts on the survival of both mother and child.

Antenatal care in Africa has improved over the past years. It is recommended that every pregnant woman has at least four ANC visits before delivery even though over two thirds of women receive at least one ANC visit. Poor ANC visits during pregnancy can lead to maternal death. ANC provides the avenue where women and their families are educated on healthy pregnancy, safe child birth and initiation of exclusive breastfeeding. It is recommended that ANC should be initiated within the first trimester of pregnancy (Lincetto, Mothebesoane-Anoh, Gomez, & Munjanja, 2006). A study in Pakistan revealed that most women do not attend ANC regularly. They feel that ANC is only important when one is experiencing an imminent danger during pregnancy. However they prefer the other alternative services like TBA because they are always available and their services

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are affordable (Qureshi et al., 2016). Another related study in rural Tanzania revealed that availability of alternative services such as TBA is the main reason why most women do not utilize ANC adequately. Secondly they have issues with the quality of care provided at the health facility (Mahiti et al., 2015).

A quantitative study was done in Romania to determine the characteristics of ANC service among pregnant women using a sample size of 914. The results show that, 70% of the women were between the ages of 25-49 and 79% are married. Most pregnant women (78%) underutilize ANC services while 22% receive at least an adequate level of care (Stativa et al., 2014). In Ghana, 97% of women who gave birth received ANC from skilled personnel at least once for their previous birth while 87% had adequate visits (Ghana Statistical Service, Ghana Health Service, & International, 2015).

Ntambue, Malonga, Dramaix-Wilmet, and Donnen (2012), conducted another related study in Democratic Republic of Congo and contend that 92% of women attended at least one ANC during Pregnancy while 47% attended ANC four times. Various reasons were given by those who did not attend ANC. Prominent among the reasons were lack of financial means, poor support from partner while others had no reasons for non-attendance. Most women do not start ANC early while 38.1% received Mebendazole, 35.6% iron, 32.7% receive at least one dose of Sulfadoxine Pyrimethamine, 29.2% receive folic acid. The study also found that most women start ANC only when they are sick. Another related study in Ethiopia found that 57% of women do not visit ANC while 42.9% visited ANC at least once and 19.1% of the women had adequate ANC visits during their last pregnancy. Only 26% of those who had ANC started in the first trimester. Majority (56.4%) started in their second trimester (Tarekegn et al., 2014). Another related study by Neupane and Doku (2012) also reveal that 45% of women in Nepal starts ANC late while 28% has no ANC care.

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Kifle, Azale, Gelaw, and Melsew (2017), conducted a study on maternal health seeking behaviour. Majority of the women were between the ages of 25-34, 96% were married, majority were muslim religious followers, 60% were unable to read and write and more than half had 1-4 household size. The study further revealed that 74.3% of women use ANC, 28.7% used institutional delivery and 22% used postnatal care services. Another related study in Nigeria by Akeju et al. (2016) revealed that women use other services when they are pregnant. Whiles some prefer to use government/private health facilities others also use prayer camps, spiritualist and traditional birth attendants. Women patronize the service of a TBA because of affordability and flexible terms of payment. Some also believe that pregnancy can have spiritual links and for that matter they have to seek the help of a fetish priest.

Dako-Gyeke, Aikins, Aryeetey, Mccough, and Adongo (2013), used a qualitative approach to study health seeking behaviour among pregnant women in Accra. The study revealed that pregnant women receive care from different sources depending on the threat they experience during pregnancy. Pregnant women utilize both orthodox and non-orthodox facilities. The orthodox facilities include formal private and public health facilities whiles the non-orthodox includes herbalists, traditional birth attendants and spiritualist/prayer camps. Although they believe that it is safe to deliver at the hospital, some prefer non-orthodox therapies because of attitude of health workers and the psychosocial support they get from non-orthodox sources. Non-orthodox therapies are sought for because the pregnant women believe that pregnancy has some spiritual links and as such the spiritual aspect has to be taken care of.

In the study of influence of an educational programme on pregnant women on delivery in Spain, Martinez-Galiano and Delgado-Rodriguez (2014) found that mothers who had education had a change in behaviour with regards to active participation during delivery.

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However no association was found between maternal education, type of delivery and use of pharmacological measures during delivery.

Gisore, Were, Kaseje, and Ayuku (2014), studied motivational interview intervention on health seeking behaviour of pregnant women in Kenya, a household surveys with 320 pregnant women were used. It was found that maternal health care behaviour is improved when pregnant women are given counselling/education despite economic barriers. This is because mothers are well informed about the benefits of maternal health service utilisation leading to increased patronage of skilled birth attendants as compared to traditional birth attendants.

Sayami, bhanduri, Tamrakar, & Banjura, (2014), performed a quantitative study and found that most pregnant women in Nepal have positive health behaviour. As a result of this, most of them attend the antenatal clinic and receive various forms of treatment including tetanus injections and folic acid. Maternal health behaviour is influenced by the woman's educational and ethnic background. Educated women are more likely to have more positive maternal health behaviour.

A related study by Baron et al. (2015), posits that educational level of the woman influences her health behaviour. Women with low educational background are more likely to exhibit negative health attitude such as smoking, low health control, poor ante natal clinic attendance and may not take supplementary drugs given at ante natal clinic. Poor health promoting attitudes were seen in women living in rural areas with most of them smoking tobacco while only a small group of those living in the urban areas smoked tobacco (Hodge et al., 2015).

Similar findings were also revealed by Gokyildiz, Alan, Elmas, Bostanci, and Kucuk (2014) when studying health promoting lifestyle among pregnant women in Turkey. A

good health promoting behaviour in pregnant women is usually practised by women with the higher educational background, good economic status, older aged women and those living with the nuclear family. Women from different age groups have different health promoting lifestyle (Gokyildiz et al., 2014).

In studying health concern and behaviour among primigravida by comparing older aged women with their younger counterparts in Hong Kong, Loke and Poon (2011) found that most mothers have good health promotion behaviour. Advanced age women are more likely to have a healthy health practice like eating good food and drinking what is good for the baby.

However, these studies failed to look at other factors that predict health behaviour. The studies only focused on age, socioeconomic and education as factors which influence behaviour in pregnancy. Other variables like attitudes, social interaction, values, culture and their influence on maternal health behaviour are yet to be explored. Secondly, all these studies were also conducted in urban areas.

2.3 Summary of literature review

The use of maternal health care services has been hampered by several factors. The organisational structure of the health service is one of the reasons for health service use. Most health services do not incorporate religious beliefs and practices in their practice. This has led to some women patronising other alternative services (Ganle, 2015). Lack of accommodation at the health facility for relatives who accompany pregnant women has also been found to affect maternal health service use (Gyaltzen et al., 2014). The unfriendly environment at the health facility such as dirty environment coupled with a shortage of materials and long waiting time are some of the reasons why women do not use maternal health care services (Mahiti et al., 2015b). However, improved

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accommodation with the good physical environment will enhance maternal health service use (Tetui et al., 2013).

Government policies have also been seen to affect maternal health service use. Most multilateral loans contracted by governments come with restrictions which include a ban on employment. This makes it difficult for governments to employ qualified medical staff. This is evident in a decline in skilled birth attendants in countries like Uganda (Coburn et al., 2015). In other countries like Kenya, free maternal health service improved utilisation (Lang'at & Mwanri, 2015).

Educational level has also been seen to affect the use of maternal health care services. Women with higher levels of education are gainfully employed. These categories of women are financially endowed and can afford maternal health care services (Wilunda et al., 2014). People from wealthy homes prefer using private hospitals than government hospitals because private hospitals seem to be well equipped than government hospitals (Kamal et al., 2016). These people have the financial means to pay for health service (Ayanore et al., 2016; Li et al., 2015). Poverty exerts a double effect. Women from poor homes cannot pay for transportation to health facilities as well as pay for maternal health care services (Chomat et al., 2011).

Long distance travel impinges on maternal health service utilisation because most women have to travel long distances before they can access maternal health services (Hodge et al., 2015). Health facilities are situated far from villages and people have to make long trips on foot, donkeys, tractors and motor bikes (Gyaltsen et al., 2014). However providing a free ambulance to health centres will improve maternal health service utilisation (King et al., 2015).

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It is vital to appreciate the factors that predict behaviour in pregnancy because it impacts on the survival of both mother and child (Auerbach et al., 2014). Most pregnant women in Accra receive care from different sources depending on the threat they experience during pregnancy. The source of care could be orthodox or non-orthodox. Most women prefer the use of non-orthodox because of the attitude of health care providers and the spiritual links associated with pregnancy (Dako-Gyeke et al., 2013). However, in other countries like Kenya, most women prefer the use of skilled birth attendants (Gisore et al., 2014).

Although studies have been carried out extensively on maternal health, most of these studies focused mainly on health care system factors and socio-demographic characteristics that influence maternal health. Secondly, studies done on environmental factors used mostly qualitative approach. However, there is a paucity of data on how other factors like social network and health needs influence utilisation in the Ghanaian context.

CHAPTER THREE

METHODOLOGY

This chapter discusses the study methods. The chapter focuses on the research design employed and the underlying reasons, a brief description of the area and the specific study population based on inclusion and exclusion criteria. The chapter also explains how the sample was selected from the population, the various tools used to collect data, how the data collected were managed and analysed and how ethical issues were addressed.

3.1 Research Design

There are many research approaches and each research approach depends on the aims and objectives of that investigation (Singh, 2006). The approach used by the researcher will determine the type of data to be collected and the analysis to be employed. Every research approach has its own strength and weaknesses (Creswell, 2013).

In this particular study, a cross sectional survey design was used. A cross sectional survey is the type of survey used to collect information from a group in the population at a single point in time (Macdonald & Headlam, 2008). A cross sectional survey was appropriate because of the limited time for the master of philosophy programme and the relatively low cost associated with data collection and generally higher response rate as compared with other designs. Secondly, research questions explored in the study examined the relationship between the dependent variable (use of antenatal care service) and independent variables (environment and population characteristics).

3.2 Study Setting

The study was conducted in Kwahu South District in the Eastern Region of Ghana and is predominately a semi-urban District. It is located close to the Accra – Kumasi highway with some portions of the district extending to the highway. The District capital is

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Mpraeso – Kwahu. The District formally comprised of the Kwahu East and the Kwahu West Districts with one district health administration at Mpraeso-Kwahu, until 2007 when these Districts were separated into three Districts.

The Kwahu South District has a total population of 69,757 with an estimated area of 600 square kilometres (GSS, 2014). The majority of the communities in the district are located on the kwahu ridge.

The main occupation of the inhabitants is farming, trading and fishing. The District has fairly good social amenities including electricity, fairly good road network and a potable water supply. It also has educational facilities such a Primary, Junior High Schools, a number of Senior High Schools and a Nursing and Midwifery Training School. The District serves as one of the major tourist attraction destinations in the country bringing together both indigenes from far and near as well as abroad to participate in the Easter festival with activities such as paragliding and other social entertainment shows by prominent artists.

Concerning health, the District has eleven Community-Based Health Planning Service (CHPS) compounds, five health centres, one clinic, one government hospital and a private hospital providing basic level medical attention to inhabitants of the area. The Total Fertility Rate for the district 3.8. The General Fertility Rate is 114.0 births per 1000 Women aged 15-49 years which is among the highest for the region (GSS, 2014).

3.3 Research Population/ Target population

The study population consists of all pregnant women in Kwahu-South District.

3.4 Sampling Techniques and Sample

It is very difficult to study the entire population because of the large number of potentially qualified participants and an individual may not have the resources. It is therefore important to select a sample that is representative of the population (Kothari, 2004).

Multistage sampling technique was used. At the initial stage, five ANC zones were randomly selected and this was done by giving numbers to the various clinics and these numbers were written on a piece of paper, folded and placed in a bowl. After mixing and shaking the bowl, a blind folded person was asked to pick the numbers from the bowl.

This was followed by assigning a quota to each zone; the quota was calculated as a percentage of the average number of pregnant women who visit the facility in a month.

This determined the precise number of respondents that were selected from each clinic.

Secondly, the randomly selected ANC clinics were visited and a simple random sampling procedure was used to select the respondents based on the quotas calculated. The register for each clinic was obtained and the pregnant women were listed and given numbers.

Based on this information, a computer based number generator was used to select the required number of pregnant women from each zone. The researcher then visited the clinic to interview the randomly selected pregnant women on the day that they attended the clinic. Where a randomly selected pregnant woman is not willing to participate in the study, the process is repeated to get a replacement.

The sample size for the study was calculated by using Yamane (1967) formula for sample size determination.

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

Where n= required sample size, N = population size

e= alpha level

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According to the KSD 2015 annual reports, the number of women in reproductive age is 17801. With an alpha level of 0.05, the sample size is calculated below

$$n=17801/ (1+17801(0.05)^2)$$

$$n=17801/45.5025 = 391.21 =391$$

The sample size was calculated to be 391 but 10% was added to take care for non-response. Therefore the actual sample size was 430. All the respondents recruited for the study completed and returned the questionnaire. This represents a response rate of 100% although there were some missing values.

3.4.1 Inclusion criteria

Healthy pregnant women who were willing to give answers after given informed consent. Pregnant women who were fluent in English or Twi and between the ages of 18 years to 45 years were recruited for the study.

3.4.2 Exclusion criteria

Seriously ill pregnant women were excluded from the study.

3.5 Tools for Data Collection.

The instrument used was closed and open ended questionnaire. The first part of the questionnaire was made up of socio-demographic variables. The other sections focused on the environmental factors, population characteristics, and health behaviour as outlined below.

3.5.1 Scale for measuring the Environment

The researcher constructed a self-designed questionnaire based on the constructs of the model used, literature review and objectives of the study to measure the environmental

factors. The scale consists of ten items rated on a Likert scale from 0 (strongly disagree) to 4 (strongly agree). A score of 21 and above indicates a good environment

3.5.2 Lubben's Social Network Scale

The population characteristics were measured by the Lubben's social network scale, socio-demographic variables (age, occupation, ethnicity, education etc.), and Euro QoL scale for health reported status. Lubben's social network scale was used to measure the social network. This scale is a standardised questionnaire designed to measure the individual's social network. The scale is made up of 18 items. The first 12 items measure an individual's social network in relation to family and friends. Each item is rated on a Likert scale from 0 to 5 and it has an internal reliability of 0.70. The second subscale is made up of six items and measures an individual's social network in relation to their neighbours. Each item is also rated on a Likert scale from 0 to 5. It also has a Cronbach's alpha of 0.83 (Lubben, 1988).

3.5.3 Euro QoL Scale

Euro QoL scale for health reported status was used to measure health needs variables. The EQ-5D 5 level version (EQ-5D-5L) was introduced in 1990. The EQ-5D-5L descriptive system is a standardised questionnaire comprising of the following 5 dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has 5 levels: no problems, slight problem, moderate problems, severe problem and extreme problems (The EuroQoL Group, 1990). It has a Cronbach's alpha of 0.90.

3.5.4 Kotel Chucks Index

The health behaviour was measured using the Kotel Chucks Index. Second element of Kotel Chucks Index was used to measure adequacy of ANC usage. The Kotel Chucks Index uses two crucial elements and that is when antenatal care was started and the number of

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expected visits until delivery based on the standards of uncomplicated pregnancies. The ratio of observed to expected visit is computed and grouped into four categories as;

Inadequate < 50%

Intermediate 50-79%

Adequate 80-109%

Adequate plus 110 or more

For the purpose of the study, ANC utilisation was grouped into two; thus adequate (those who made adequate and adequate plus visits) and inadequate (those who made inadequate and intermediate visits). Those who made the number of expected visit and above were considered to have had adequate utilisation while those who made less than the number of expected visits were considered to have had inadequate utilisation. The number of visits was calculated based on the records in the clients ANC attendance book. Late initiation of care was defined as first visit after twelve weeks of gestation.

These scales have been used by Feijen-de Jong et al. (2015) when measuring determinants of pre natal care utilisation by low risk women.. The technique used was personal interview questionnaire which was a face to face interaction with the respondents. The data collection was completed within 60 days.

3.6 Procedure/ Method of Data Collection

This study was carried out using data from primary and secondary source. The objectives of the study require that a great deal of primary data was obtained from recipients of maternal health care service. An introductory letter was obtained from the school of nursing. This was attached to copies of the research information sheets and was sent to the District Health Administration. The District Director added an introductory letter and

together with the questionnaire and information sheet it was sent to the various ANC clinics used for the study. Data was collected by researcher and trained research assistants. Five research assistants were trained on how to administer and interpret the questionnaire for the respondents especially to those who could not read nor write. After obtaining consent of respondents (those who could read and write signed the consent form while those who could not read and write thumb printed in the presence of a witness), face-face interview with a written questionnaire was the main method for data collection. On each data collection day, the questionnaires were read, interpreted and explained to respondents and the appropriate response ticked or written out. There were five data collection sites and because of this trained research assistants were tasked to complete questionnaires based on interviews with pregnant women. The activities of the research assistants were supervised. However, pregnant women who could read and write were allowed to fill the questionnaires themselves.

3.7 Data Management and Analysis

Data analysis is very important and therefore steps must be taken to ensure the integrity and validity of the findings and their interpretations (Marczyk, DeMatteo, & Festinger, 2005). Data collected were screened to check for completeness of the questionnaire. Each questionnaire was given a unique code so in case of missing data the questionnaire can be traced. This was followed by data entry where all the information was entered into statistical package for social sciences (SPSS) version 17. Frequencies for all values were run to find out missing values or whether data was not entered. Data gathered was analyzed using descriptive statistics and inferential statistics. Descriptive statistics was used to describe demographic variables, the environment, population characteristics and the health behaviour of pregnant women. Since the level of measurement of the dependent and independent variables were measured on a nominal scale, it was therefore required

that a non-parametric test was appropriate. Chi square test was used to describe relationship between environment/population characteristics and utilisation. While binary logistic regression analysis was used to identify variables that predict the use of maternal health care service. Choosing a p-value of less or equal to 0.05 ($p \leq 0.05$) as the significance level, the chi-square test in the cross tabulation analysis was computed to examine the significant difference between environmental factors, population characteristics and the use of maternal health services.

3.8 Validity and reliability

Validity of a research is important so as to provide valid conclusions. To truly explain the effects and interactions of variables across a wide variety of different setting, the concept of validity must be given attention so as to increase the exactness and worth of the findings (Marczyk et al., 2005). Validity deals with whether the instrument adopted measured what was supposed to measure (Polit & Beck, 2012). Some scales adopted for the study has been used by some authors notably (Feijen-de Jong et al., 2015) for similar studies. Some standardise measurement scales were used. In addition, the researcher conceptualised the constructs of the study to make sure that the content domain is captured. The questionnaire was made up of sections that captured all variables. The questionnaire was given to supervisor and experts to make sure that it reflects the objectives of the study. To also ensure external validity, the sample was representative of the population under study.

Reliability deals with consistency or stability of the response (Creswell, 2013). Pre-testing of the questionnaires was done with 20 pregnant women at Abetifi Presbyterian Health Centre to determine it's appropriateness to make an initial test of the hypothesis.

Corrections were made and some items were also modified for better understanding before the questionnaires were administered to gather data for the research work. Cronbach's

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Alpha was calculated and the overall Cronbach's Alpha was 0.67. The individual scales also had acceptable levels of Cronbach's Alpha. The self-designed environmental scale had a Cronbach's Alpha of 0.88, Lubben social network scale 0.81, Euro Qol scale 0.67 and Kotel Chuck index 0.5. The researcher made sure the participants understood the instructions and content of instrument of measurement so as to answer in an accurate fashion.

3.9 Ethical Considerations

The proposal was submitted to Noguchi Memorial Institute for Medical Research review board for ethical clearance (NMIMR-IRB CPN 017/16-17). Administrative approval was also obtained from the District Director of Health Services, Kwahu South District. Copies of these letters have been attached to the appendix.

Informed consent was obtained from pregnant women before they were interviewed. The research study was vividly explained to the respondents. Respondents were given the chance to ask questions concerning the research after which appropriate answers were provided. Respondents who met the inclusion criteria were given the information sheet and this was read and explained to participants who can neither read nor write.

Respondents were given ten minutes to consider the information of the study after which they were allowed to sign the consent form if they wanted to participate. Only respondents who consented and met the inclusion criterion were allowed to answer the questionnaires.

Anonymity is protecting the identity of the respondents that answered the questionnaire. The anonymity of the respondents was maintained and this was done by the coding of questionnaires with numbers.

The information gathered was kept confidential and the identity of the respondents remained anonymous. All eligible respondents were informed they had the right to pull out

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from the study at any point in time if they so wish. They were also informed that participation in the study was voluntary.

The principle of justice is associated with fairness in distribution (Marczyk et al., 2005). This was achieved by ensuring that respondents recruited for the study were not discriminated based on their religious, ethnic background or age. Once the respondent met the inclusion criteria she was recruited for the study.

Privacy and confidentiality of the respondents were ensured by not exposing their identity. Respondents were told not to write their names on the questionnaire. Respondents who could read and write were given the opportunity of filling the questionnaires themselves after detailed explanation has been given to them. Those who could not read and write were guided in completing the questionnaires. This was done in an enclosed place where other people were not privy to information being given. All information given by respondents was protected. Hard copies were secured in a cupboard at the School of Nursing and soft copies were secured with a password. However, respondents were informed that the information may be published after analysis. Consent forms were detached from the questionnaire.

CHAPTER FOUR

RESULTS

This chapter presents the results of the study. The results are organised according to the objectives of the study. The first part describes the socio-demographic characteristics of the respondents, followed by environmental factors that influence utilisation, population characteristics that influence utilisation, utilisation of maternal health services, the relationship between environment, population characteristics and utilisation and predictors of utilisation.

4.1 Socio-demographic characteristics

A total of 430 respondents were involved in the study with a response rate of 100%. Table 4.1 below shows the details of the results.

The mean age of the respondents was 27.61(SD= 5.950). The youngest respondent was 18 years and the oldest was 42 years. The majority of the respondents were Akans 77.9% (n=335) whiles Ga 2.3% (n=10) were the ethnic minority. Most of them were married 69.1% (n=297) and 12% (n=53) are cohabiting. Monogamous marriage constituted the majority (94.6%, n=280) of the marriage type. The mean family size is 3.88 (SD=1.981). This implies that the average number of people living with the respondent is approximately 4.

Most of the respondents were into trading (34%, n=146) and a few of them into farming (5.6%, n=24). With respect to their partners occupation, 29.5% (n=175) were into occupations like banking, barbering, 20% (n=80) businessmen whiles 1.2% (n=5) were unemployed. In terms of the educational level of the respondents, the majority of them (42.6%, n=183) had Junior High School education whiles 4.4% (n=19) had no level of

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education. The overwhelming majority of the respondents were Christians (90.5%, n=389), 79.1% (n=340) wants to deliver at the hospital.

Table 4.1: Socio-demographic characteristics of respondents

Variable	Frequency	Percent (%)	
Age (years) mean =27.61			
SD= 5.950			
Family size Mean= 3.88			
SD= 1.981			
Ethnicity	Akan	335	77.9
	Ewe	33	7.7
	Northerner	35	8.2
	Krobo	12	2.8
	Ga	10	2.3
	Other	4	0.9
	Missing data	1	0.2
	Total	430	100
Marital Status	single	76	17.7
	Married	297	69.1
	Cohabiting	53	12.3
	Missing data	4	0.9
	Total	430	100
Type of marriage	monogamous	280	94.6
	Polygamous	15	5.1
	Others	1	0.3
Occupation	trader	146	34
	Farmer	24	5.6
	Civil servant	83	19.3
	Unemployed	55	12.8
	Seamstress	44	10.2
	Others	71	16.5
	Missing data	7	1.6
Partners Occupation	business	86	20
	Farmer	42	9.8
	Civil servant	83	19.3
	Driver	81	18.8
	Unemployed	5	1.2
	Others	127	29.5
	Missing data	6	1.4
	Total	430	100

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Education	None	19	4.4
	Primary	56	13.0
	JHS	183	42.6
	SHS	82	19.1
	Tertiary	71	16.5
	Graduate	15	3.5
	Missing data	4	0.9
	Total	430	100
Religion	Christianity	389	90.5
	Islam	25	5.8
	Traditional	6	1.4
	Others	3	0.7
	Missing data	7	1.6
	Total	430	100
Intended place of delivery	Birth centre with midwife	81	18.8
	Hospital	340	79.1
	Traditional birth attendant	3	0.7
	Missing data	6	1.4
	Total	430	100

Source: Field data 2017

4.2 Environmental factors and utilisation of maternal health care services

One of the objectives of the study was to describe environmental factors (health care system) that influence the use of maternal health care services. The environmental scale consisted of a ten item scale measured on a score of 0 (strongly disagree) to 4 (strongly agree). A score of 21 and above indicate a good environment. The results show that the total mean score for the environment was 30.88(SD=3.44) which is high and is an indication that environmental factors are good determinants of maternal health care services. A good health care environment is one with adequate resources and organisation in terms of coordination among staff.

A descriptive summary of the individual items on the environmental scale shows that 96.7% (n=416), 95.4% (n=410), 95.1% (n=409) of the respondents respectively agreed that the presence of health personnel, having a comfortable place to sit and always being attended to by a midwife are strong factors in the environment. Furthermore, 91.4%

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(n=393), 93.2% (n=401), 87.4% (n=376) respectively agreed that coordination and control between medical personnel and education of clients, clean facility and given prompt attention are also factors in the environment that influence utilisation. However, only 49.8% (n=214) agreed that referral to the doctor, 89.7% (n=386) having no difficulty in assessing other services are factors in the environment. Details of the results are shown in Table 4.2 below.

Table 4.2: Environmental factors and utilisation of maternal care service

Variable	frequency	Percentage
There is always health personnel at the hospital		
Disagree	1	0.2
Neutral	6	1.4
Agree	416	96.7
Missing data	7	1.6
Total	430	100
There is always enough materials and equipment available to help us		
Disagree	8	1.9
Neutral	25	5.8
Agree	388	90.2
Missing data	9	2.1
Total	430	100
I am always attended to by a midwife anytime I attend ANC		
Disagree	2	0.5
Neutral	6	1.4
Agree	409	95.1
Missing data	13	3.0
Total	430	100
There is always coordination and control between medical personnel when providing care		
Disagree	7	1.6
Neutral	19	4.4
Agree	393	91.4
Missing data	11	2.6
Total	430	100
The health facility is suitable and we are always educated		
Disagree	13	3
Neutral	15	3.5
Agree	393	91.4
Missing data	9	2.1
Total	430	100
The health facility is always clean		
Disagree	4	0.9
Neutral	11	2.6
Agree	401	93.2
Missing data	14	3.3
Total	430	100
I am always given prompt attention anytime I go for ANC		
Disagree	17	4
Neutral	23	5.3
Agree	376	87.4
Missing data	14	3.3
Total	430	100

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Variable	frequency	Percentage
I am always referred to the doctor or obstetrician anytime the midwife detects something unusual		
Disagree	15	3.5
Neutral	188	43.7
Agree	214	49.8
Missing data	13	3
Total	430	100
I am always comfortable and have a place to sit anytime I go for ANC		
Disagree	2	0.5
Neutral	10	2.3
Agree	410	95.4
Missing data	8	1.8
Total	430	100
I usually don't have any difficulty assessing other services at the health facility when I attend ANC		
Disagree	5	1.1
Neutral	27	6.3
Agree	386	89.7
Missing data	12	2.8
Total	430	100
Environment total score	minimum	maximum
	20	40
	Mean	SD
	30.88	3.44

Source: Field data 2017

4.3 Population characteristics and utilisation

According to Andersen and Newman's model, population characteristics consist of predisposing factors (socio-demographic characteristics), enabling resources and health needs. However, results of the predisposing factors have already been presented in section 4.1. Therefore this section only describes the enabling resources and health needs.

4.3.1 Enabling Resources (social network) and utilisation

Lubben social network scale was used to measure the social network as enabling resource for utilisation. The scale is made up of 18 items rated 0-5 (total score is from 0 to 90) with a higher score indicating more social engagement. The mean score for social network was 46.9 (SD=14.173). This is average and indicates that the respondents have a moderate social engagement. Table 4.3 shows the results.

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A descriptive summary of the individual items on the social network scale shows that 32.3% (n=139) do see or hear from nine relatives at least once a month, 40.5% (n=174) feel at ease to talk to their relatives about private matters, 35.8% (n=154) feel close to two relatives such that they can call on them for help, 61.2% (n=263) often see or hear from their relatives from which they have most contact with daily, 53.5% (n=230) said they are always consulted when a relative has an important decision to make.

Furthermore, 57.4(n=247) always have a relative available to talk to when they have an important decision to make. Only 26% (n=112) do see or hear from nine neighbours at least once a month, 45.1% (n=192) do not feel at ease to talk to their neighbours about private matters, 37% (n=159) cannot call on their neighbours for health. However, 55.6% (n=293) see or hear from a neighbour with whom they have most contact with daily, 30.7% (n=132) are never consulted by their neighbours when they have an important decision to make, 30% (n=129) do not have any neighbour available to talk to when they have an important decision to make

Additionally, 24% (n=103) do not see or hear from any friend at least once a month, 42.6% (n=183) feel at ease to talk to one friend about private matters but only 32.3% (n=139) can call on one friend for help. Moreover, 42.8% (n=184) often see or hear from the friend with whom they have the most contact with, 37.2% (n=160) are always talked to when their friends have an important decision to make whiles 38.8% (n=167) also talk to their friends when they have an important decision to make.

Table 4.3: Enabling resource (social network) and utilisation

Variable	Frequency (n)	Percentage (%)	
How many relatives do you see or hear from at least once a month	zero	3	0.7
	one	20	4.7
	two	60	14.0
	Three-four	120	27.9
	Five-eight	86	20.0
	nine	139	32.3
	missing data	2	0.5
	Total	430	100
How many relatives do you feel at ease with that you can talk about private matters	zero	18	4.2
	one	174	40.5
	two	120	27.9
	three-four	68	15.8
	five-eight	32	7.4
	nine	16	3.7
	missing data	2	0.5
	Total	430	100
How many relatives do you feel close to such that you can call on them for help	zero	13	3
	one	111	25.8
	two	154	35.8
	three-four	88	20.5
	five-eight	32	7.4
	nine	27	6.3
	missing data	5	1.1
	Total	430	100
how often do you see or hear from relatives with whom you have the most contact with	less than monthly	9	2.1
	monthly	28	6.5
	few times a month	15	3.5
	weekly	68	15.8
	few times a week	43	10
	daily	263	61.2
	missing data	4	1
	total	430	100
When one of your relatives have important decisions to make how often do they talk to you about it	never	27	6.3
	seldom	11	2.6
	sometimes	79	18.4
	often	38	8.8
	very often	44	10.2
	always	230	53.5
	missing data	1	0.2
	total	430	100

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How often is one of your relatives available to talk to when you have an important decision to make	never	13	3
	seldom	8	1.9
	sometimes	60	14
	often	39	9.1
	very often	46	10.7
	Always	247	57.4
	Missing data	17	4
	Total	430	100
How many neighbours do you see or hear from at least once a month	zero	56	13
	one	25	5.8
	two	58	13.5
	three-four	100	23.3
	five-eight	76	17.7
	nine	112	26
	missing data	3	0.7
	Total	430	100
How many neighbours do you feel at ease with that you can talk about private matters	zero	192	45.1
	one	117	27.2
	two	73	17
	three-four	30	7
	five-eight	6	1.4
	nine	8	1.9
	missing data	4	0.9
	total	100	100
How many neighbours do u feel close to such that you could call on them for help	zero	159	37
	one	96	22.3
	two	88	20.5
	three-four	58	13.5
	five-eight	16	3.7
	nine	9	2.1
	missing data	4	0.9
	total	430	100
How often do you see or hear from a neighbour with whom you have most contact with	less than monthly	61	14.2
	monthly	16	3.7
	A few times a month	15	3.5
	Weekly	43	10
	A few times a week	26	6
	Daily	239	55.6
	Missing data	30	7
	Total	430	100
when one of your neighbours has an important decision to make, how often do they talk to you about it	never	132	30.7
	seldom	18	4.2
	sometimes	83	19.3
	often	36	8.4
	very often	25	5.8
	Always	118	27.4
	Missing data	18	4.2
	Total	430	100

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How often is one of your neighbours available to talk to when you have an important decision to make	never	129	30
	seldom	14	3.3
	sometimes	74	17.2
	often	30	7
	very often	30	7
	Always	113	26.3
	Missing data	40	9.3
	Total	430	100
How many of your friends do you see or hear from at least once a month	zero	103	24
	one	80	18.6
	two	88	20.5
	three-four	76	17.7
	five-eight	32	7.4
	nine	41	9.5
	missing data	10	2.3
	total	430	100
How many friends do you feel at ease with that you talk to about private matters	zero	126	29.3
	one	183	42.6
	two	73	17
	three-four	20	4.7
	five-eight	10	2.3
	nine	6	1.4
	missing data	12	2.8
	total	430	100
How many friends do you feel close to such that you could call on them for help	zero	117	27.2
	one	139	32.3
	two	85	19.8
	three-four	47	10.9
	five-eight	21	4.9
	nine	8	1.9
	missing data	13	3
	total	430	100
How often do you see or hear from the Friends with whom you have the most contact with	less than monthly	95	22.1
	monthly	20	4.7
	few times a month	23	5.3
	weekly	55	12.8
	few times a week	27	6.3
	daily	184	42.8
	missing data	26	6
	total	430	100
When one of your friends has an important decision to make how often do they talk to you about it	never	100	23.3
	seldom	5	1.2
	sometimes	63	14.7
	often	44	10.2
	very often	36	8.2
	Always	160	37.2
	Missing data	22	5.1
	Total	430	100

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How often is one of your friends available for you to talk to when you have an important decision to make?	never	100	23.3
	Seldom	4	0.9
	sometimes	61	14.2
	often	39	9.1
	very often	34	7.9
	Always	167	38.8
	Missing data	25	5.8
Total	430	100	

Source: Field data 2017

4.3.2 Enabling resource and utilisation

Table 4.4 below shows results related to enabling resource and utilisation.

The majority of the respondents have health insurance 97.9% (n=421) with national health insurance was the most widely used 89.1% (n=383). The majority of the respondents 85.8% (n=368) do not experience any difficulty when accessing care. Most people travel to the health facility by the use of public transport 65.3% (n=281).

With respect to their income levels, the minimum income was 20 Ghana cedis and the maximum income is 2000 Ghana cedis. The mean income is 490 Ghana cedis (SD=420.05). The mean household income is low. The mean travelling time to the health facility is 34.58 minutes (SD=28.63). The mean travelling time shows the respondents do not travel for long before accessing health care which implies that short distance travel is a factor in utilisation.

Table 4.4: Enabling resource and utilisation

Variable	Frequency	Percentage		
Health insurance				
Insured	421	97.9		
Non-insured	8	1.9		
Missing data	1	0.2		
Total	430	100		
Type of insurance				
Private	28	6.5		
Mutual	6	1.4		
Government	383	89.1		
Missing data	13	3.0		
Total	430	100		
Difficulty getting through outside midwifery hours				
Yes	27	6.3		
No	220	51.2		
Missing data	183	42.6		
Total	430	100		
Difficulty getting access to midwifery practice				
Yes	30	7.0		
No	369	85.8		
Missing data	31	7.2		
Total	430	100		
Transport means				
On foot	100	23.3		
Own vehicle	37	8.9		
Public transport	281	65.3		
Missing data	12	2.8		
Total	430	100		
	Minimum	Maximum	Mean	SD
Net Income	20	2000	490	420.05
Travel time	3	240	34.58	28.63

Source: field survey 2017

4.3.3 Perceived health needs and utilisation

Health needs are grouped into perceived health needs and evaluated health needs. The Euro quality of life scale was used to measure perceived health needs. The scale has five dimensions with five levels. Details of the results are shown in Table 4.5 below. The majority of the respondents 72.6% (n=312) did not have any problem with walking about.

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On the aspect of self-care, almost all of them (91.9%, n=395) did not have any problem with self-care. Most of the respondents (79.1%, n=340) could perform their usual activity without any problem. Most of the respondents (52.3%, n=225) do not experience any pain or discomfort, however, 41.6% (n=179) experience either slight or moderate pain while 4.7% (n=20) experienced severe pain. A greater number of the respondents (77.7%, n=334) do not experience any form of anxiety or depression, while 18.6% (n=80) experienced slight or moderate anxiety/depression. This shows that most people who attend ANC do not do so because they have issues with their perceived health needs.

Table 4.5: Perceived health needs and utilisation

Variable		Frequency(n)	Percent(%)
Mobility	no problem in walking	312	72.6
	slight problem in walking	96	22.3
	moderate problem in walking	12	2.8
	severe problem in walking	7	1.6
	Missing data	3	.7
	Total	430	100.0
Self-care	no problem washing or dressing myself	395	91.9
	slight problems washing or dressing myself	25	5.8
	moderate problem washing or dressing myself	3	.7
	severe problem washing or dressing myself	4	.9
	Missing data	3	.7
	Total	430	100.0
Usual activity	no problem doing my usual activity	340	79.1
	slight problems doing my usual activity	66	15.3
	moderate problem doing my usual activity	10	2.3
	severe problem doing my usual activity	4	.9
	unable to do my usual activity	5	1.2
	Missing data	5	1.2
	Total	430	100.0
	pain/discomfort	no pain or discomfort	225
slight pain or discomfort		154	35.8
moderate pain or discomfort		25	5.8
severe pain or discomfort		20	4.7
Missing data		6	1.4
Total		430	100.0
Anxiety/depression	not anxious or depressed	334	77.7
	slightly anxious or depressed	74	17.2
	moderately anxious or depressed	6	1.4
	severely anxious or depressed	8	1.9

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	extremely anxious or depressed	1	.2
	Total	423	98.4
Missing	System	7	1.6
Total		430	100.0

Source: field survey 2017

4.3.4 Evaluated health needs on utilisation

The number of times pregnant and the number of times that the respondents have given birth was also assessed taking into accounts their previous ANC visits. Most of the respondents (68.8%, n=296) have been pregnant twice or more whiles only a few (29.8%, n=128) were having their first pregnancy. Respondents with two or more children forms the majority (42.6%, n=183), one child (24.0%, n=103) and respondents with no child 31.9% (n=137). Almost all (286) of the respondents who have had previous pregnancies attended ANC whiles only a few (14) did not attend ANC for their previous pregnancy. Reasons for non-attendance include financial difficulty, abortion and ignorance of the presence of ANC. The results are shown in Table 4.6 below

Table 4.6: Evaluated health needs and utilisation

Variable	Frequency (n)	Percentage (%)
Parity		
nullipara	137	31.9
Primipara	108	24.0
Multiparous	183	42.6
Missing data	7	1.6
Total	430	100
Gravidity		
primigravida	128	29.8
Multigravida	296	68.8
Missing data	6	1.4
Total	430	100
ANC visit for previous pregnancy		
Yes	286	66
No	14	3.3
Missing data	3	0.7
Not applicable	129	30.0
Total	430	100

Source: field data 2017

4.4 Utilisation of maternal health care services (behaviour)

The results show that although all the respondents utilize ANC, 68.8% (n=296) utilize ANC adequately (they make the required number of visits per WHO recommendations based on the duration of pregnancy) while 28.1% (n=121) utilize ANC inadequately (The number of visits made is less than the required number based on the duration of the pregnancy). However, 61.4% (n=264) commenced ANC early (Starts ANC within the first trimester of pregnancy) as compared to 35.6% (n=153) who commenced ANC late. This means that 35.6% (n=153) started ANC attendance after the first trimester. Apart from ANC attendance, 38.1% (n=164) do go to church for prayers, 36% (n=155) do not utilize any alternate service while 11.9% (n=51) utilize the services of a herbalist, 90.5% (n=389) do not take alcohol and 98.4% (n=423) do not smoke. Additionally, 72.8% (n=313) had a normal body weight and 80% do take their routine medications. Detailed results are shown in Table 4.8 below

Table 4.7: Utilisation of maternal health service

Variable		Frequency (n)	Percentage (%)
Utilisation	Adequate	296	68.8
	Inadequate	121	28.1
	Missing data	13	3
	Total	430	100
ANC commencement	Early	264	61.4
	Late	153	35.6
	Missing Data	13	3
	Total	430	100
Alternate service	Herbalist	51	11.9
	Church	164	38.1
	Private hospital	33	7.7
	None	155	36
	Others	11	2.6
	Missing data	16	3.7
	Total	430	100
Alcohol	Yes	33	7.7
	No	389	90.5
	Missing data	7	1.6
	Total	430	100
Smoke	Yes	1	0.2
	No	423	98.4
	Missing data	5	1.2
	Total	430	100
Passive smoking	yes	4	0.9
	No	421	97.9
	Missing data	5	1.2
	Total	430	100
BMI	Underweight	5	1.2
	Normal weight	313	72.8
	Over weight	56	13
	Obesity	6	1.4
	Missing data	50	11.6
	Total	430	100
	Medication	Always	344
Sometimes		30	7
Never		7	1.6
Not applicable		49	11.4
Total		430	100

Source: Field data 2017

4.5 Factors influencing utilisation of maternal health care services

The mean score for the environment is 30.88(SD=3.44) which is high and indicate that the environment is a strong determinant of utilisation. The social network has a mean score of

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46.99(SD=14.17) which is average and this shows that social network moderately influences utilisation. Similarly, the average income level is 490(SD=420.05). However, the mean travel time is 34.58(SD=28.63). This shows that a minimum travelling time is a factor that influences utilisation. Interestingly an average income of 490 Ghana cedis or more influences utilisation. Details are shown in the table below 4.8

Table 4.8: Factors influencing utilisation of maternal health care services

Factors Influencing utilisation of maternal health care services	Min	Max	Mean	SD
Environmental factors	20	40	30.88	3.44
Social network	0	81	46.99	14.17
Income	20	2000	490	420.05
Travel time	3	240	34.58	1.99

Source: Field data 2017

4.6 Relationship between population characteristics (predisposing factors, enabling resources and needs) and utilisation of maternal health care service

One of the objectives of the study was to determine the relationship between environmental factors, population characteristics and utilisation. Chi square test was used to examine the relationship between population characteristics (predisposing factors, enabling resource and needs) and utilisation of maternal health care services. The results suggest that there is a significant relationship between age and utilisation of maternal health care services ($X^2_{(2)}=15.892$, $p<0.001$). Additionally, 50.5% (n=149) of middle aged women are more likely to utilise maternal health care services adequately as compared to younger women 30.8% (n=91) and older women 18.6 (n=55). There is a significant relationship between marital status and utilisation of maternal health care services ($X^2_{(2)}=17.447$, $p<0.001$). Furthermore, 75.5% (n=222) of the respondents who are married are more likely to utilise maternal health care services adequately as compared to single women 14.3% (n=42) and respondents who are cohabiting 10.2% (n=30). Similarly, there is a significant relationship between occupation and utilisation of maternal health care

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services ($X^2_{(5)}=38.54, p<0.001$). Respondents who are traders 35.4% (n=103) are more likely to utilize maternal health service adequately as compared to 3.1% (n=9) of farmers, 22.7% (n=66) of civil servants, 12% (n=35) of seamstress. There is a significant relationship between partners occupation and utilisation of maternal health care services ($X^2_{(5)}=29.370, p<0.001$). Furthermore, 23.7% (n=69) of respondents whose partners are civil servants are more likely to utilise maternal health care service adequately as compared to respondents whose partners are businessmen 19.2% (n=56), farmers 6.2% (n=22), drivers 18.9% (n=55). The level of education was also observed to have a significant relationship with the utilisation of maternal health care services ($X^2_{(5)}=22.400, p<0.001$). Moreover, 41.8% (n=123) of the respondents who had education up to the Junior High School level are more likely to utilize maternal health service adequately as compared to those with no educational background 2.7% (n=8), SHS 19.7% (n=58), tertiary 19.7 (n=58) and graduates 4.4% (n=13)

The relationship between enabling resource, health needs and utilisation of maternal health care services was established using chi square test. The results showed that there is a significant relationship between means of transport and utilisation of maternal health care services ($X^2_{(2)}=21.852, p<0.001$). Furthermore, 72.5% (n=206) of respondents who travel using public transport are more likely to utilise maternal health services adequately as compared to 18% (n=51) who travel on foot and 9.5% (n=27) of those who travel using their own vehicle. Similarly, there is a significant relationship between income level and utilisation of maternal health care services ($X^2_{(2)}=21.185, p<0.001$). In addition, 63% (n=131) of respondents who earn less than seven hundred Ghana cedis (<GH¢700) are more likely to make adequate utilisation as compared to 29.3% (n=61) of those who earn between seven hundred and one thousand two hundred and ninety nine Ghana cedis

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(GH¢700-1299) and 7.7% (n=16) of those who earn above thousand three hundred Ghana cedis (GH¢1300) a month.

There is also a significant relationship between parity and utilisation of maternal health care services ($X^2_{(2)} = 7.592$, $p < 0.05$). Furthermore, 42.4% (n=123) of multiparous women are more likely to utilise maternal health care services adequately as compared to 29.7% (n=86) of nulliparous and 27.9% (n=81) of primiparous women. Details of the result are shown in Table 4.9 below.

Table 4.9: Relationship between population characteristics and utilisation

Variable	Utilisation				Chi square	p-value
	Adequate		Inadequate			
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)		
Age range						
18-25	91	30.8	62	51.7	15.892	0.000*
26-33	149	50.5	42	35		
34-42	55	18.6	16	13.3		
Total	295	100	120	100		
Ethnicity						
Akan	232	78.6	92	76	7.502	0.186
Ewe	21	7.1	12	9.9		
Northerner	26	8.8	8	6.6		
Krobo	5	1.7	6	5		
Ga	9	3.1	1	3.1		
Others	2	0.7	2	1.7		
Total	295	100	121	100		
Marital status						
Single	42	14.3	32	26.9	17.447	0.000*
Married	222	75.5	65	54.6		
Cohabiting	30	10.2	22	18.5		
Total	294	100	119	100		
Type of marriage						
monogamous	208	94.1	62	95.4	0.366	0.833
Polygamous	12	5.4	3	4.6		
Others	1	0.4	0	0		
Total	221	100	65	100		
Occupation						
Trader	103	35.4	37	31.1	38.546	0.000*
Farmer	9	3.1	14	11.8		
Civil servant	66	22.7	12	10.1		
Unemployed	25	8.6	30	25.2		
Seamstress	35	12	9	7.6		
Others	53	18.2	17	14.3		
Total	291	100	119	100		
Partners occupation						
Business	56	19.2	27	22.5	29.370	0.000*
Farmer	18	6.2	22	18.3		
Civil servant	69	23.7	8	6.7		
Unemployed	2	0.7	3	2.5		
Driver	55	18.9	26	21.7		
Others	91	31.3	34	28.3		
Total	291	100	120	100		
Level of education						
None	8	2.7	10	8.4		
Primary	34	11.6	21	17.6		
JHS	123	41.8	57	47.9		

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SHS	58	19.7	22	18.5	22.400	0.000*
Tertiary	58	19.7	9	7.6		
Graduate	13	4.4	0	0		
Total	294	100	119	100		
Religion						
Christianity	270	92.2	107	90.7		
Islam	17	5.8	8	6.8		
Traditional	4	1.4	2	1.7	0.246	0.970
Others	2	0.7	1	0.8		
Total	293	100	118	100		
Means of transport						
On foot	51	18	48	39.7		
own vehicle	27	9.5	7	5.8	21.852	0.000*
public transport	206	72.5	66	54.5		
Total	284	100	121	100		
Income level						
<700	131	63	82	89.1		
700-1299	61	20.3	8	8.7	21.185	0.000*
>1300	16	7.7	2	2.2		
Total	208	100	92	100		
Health Insurance						
Insured	292	99	116	95.9	2.918	0.088
Non-insured	3	1	5	4.1		
Total	295	100	121	100		
Type of Insurance	Private	23	8	5	4.3	
	mutual	6	2	0	0	4.225
	Government	260	90	110	95.7	0.121
	Total	289	100	115	100	
Parity						
Nullipara	86	29.7	47	39.2		
Primipara	81	27.9	19	15.8	7.592	0.022*
Multiparous	123	42.4	54	45		
Total	290	100	120	100		

Source: field data 2017

4.7 Predictors of maternal health care services utilisation

A logistic regression analysis was conducted to predict adequate utilisation of maternal health care services among the 430 pregnant women. This was done in three different models. In model 1 only socio demographic variables that have an independent statistically significant relationship were added to the model. The results show that marital status ($p=0.000$), occupation ($p=0.000$) and education ($p=0.000$) had a statistically

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significant relationship with adequate utilisation. However, age, ethnicity, type of marriage, family size, partners' occupation and religion were not significant.

Multiple logistic regression analysis of the socio-demographic characteristics that had a significant relationship was included in model 1. The result showed that marital status, education and occupation jointly account for 19% of the variance in utilisation ($R^2=0.190$, $X^2_{(12)}=57.225$, $p=0.000$). Furthermore, the significant predictors were occupation ($p=0.006$) and marital status ($p=0.004$). In terms of marital status, respondents who were married are two times more likely to have adequate utilisation than respondents who were single and respondents who were cohabiting with their partners and (OR=2.046, CI: 1.024-4.086, $p=0.043$). Also, farmers (OR=0.186, CI: 0.361-0.563, $p=0.003$) and respondents who are unemployed (OR=0.364, CI: 0.165-0.824, $p=0.015$) were less likely to have adequate utilisation.

In model 2, the total mean score for environmental factors was added to determine whether socio-demographic variables and environmental factors (independent variables) significantly predict adequate utilisation (Dependent variable). Results show that marital status, occupation, education and environment jointly account for 20.4% of the variance in adequate utilisation ($R^2=0.204$, $X^2_{(13)}=57.663$, $p=0.000$). However, environment is not a significant contributor to the model (OR=1.005, CI: 0.933-1083, $p=0.892$).

In model 3, the total mean score for social network was added to socio-demographic variables and environment to ascertain whether they predict adequate utilisation. Results show that social network, environment and socio-demographic variables (Marital status, educational level and occupation) together account for 21.3% of the variance in adequate utilisation ($R^2=0.213$, $X^2_{(14)}=47.870$, $p=0.000$). However, social network, environmental factors and education are not significant predictors of the model. Rather, occupation

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($p=0.011$) and marital status ($p=0.022$) were significant predictors of the model. Married women were two times more likely to attend maternal health service adequately than single and cohabiting women (OR=2.423, CI: 1.122-5.235, $P=0.024$) In terms of occupation, farmers (OR=0.167, CI: 0.046-0.600, $p=0.006$) and unemployed women (OR=0.374, CI: 0.145-0.965, $p=0.042$) were less likely to make adequate utilisation. The results is shown in table below

Table 4.10: Predictors of adequate utilisation of maternal health care services

Predictor	B	S.E.	Sig.	OR	95% C.I.for EXP(B)	
					Lower	Upper
model 1 Marital status			.004			
Single	-.253	.391	.517	.776	.361	1.669
Married	.716	.353	.043	2.046	1.024	4.086
Occupation(others)			.006			
Traders	-.235	.368	.524	.791	.384	1.628
Farmers	-1.682	.565	.003	.186	.061	.563
Civil servants	-.695	.565	.218	.499	.165	1.510
unemployed	-1.010	.417	.015	.364	.161	.824
Seamstress	.041	.495	.934	1.042	.395	2.750
Education			.264			
None	-21.094	11041.104	.998	.000	.000	.
Primary	-20.555	11041.104	.999	.000	.000	.
JHS	-20.457	11041.104	.999	.000	.000	.
SHS	-20.384	11041.104	.999	.000	.000	.
Tertiary	-19.284	11041.104	.999	.000	.000	.
Constant	21.247	11041.104	.998	1.689E9		

Model Summary ($R^2=0.190$, $X^2_{(12)}=57.225$, $p=0.000$).

Model 2 Marital status			.004			
Single	-.189	.404	.639	.828	.375	1.826
Married	.802	.365	.028	2.229	1.089	4.563
Occupation			.008			
Trader	-.086	.380	.820	.917	.436	1.930
Farmer	-1.613	.569	.005	.199	.065	.608
Civil servant	-.715	.606	.238	.489	.149	1.606
unemployed	-.827	.423	.051	.438	.191	1.003
Seamstress	.222	.512	.666	1.248	.457	3.407
Education			.224			
None	-21.113	11516.916	.999	.000	.000	.
Primary	-20.739	11516.916	.999	.000	.000	.
JHS	-20.589	11516.916	.999	.000	.000	.

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SHS	-20.387	11516.916	.999	.000	.000	.
Tertiary	-19.144	11516.916	.999	.000	.000	.
Environment	.005	.038	.892	1.005	.933	1.083
Constant	21.065	11516.916	.999	1.408E9		

Model summary ($R^2=0.204$, $X^2_{(13)}=57.663$, $p=0.000$)

Model 3	Occupation			.011			
	Trader	-.185	.440	.675	.831	.351	1.970
	Farmer	-1.791	.653	.006	.167	.046	.600
	Civil servant	-1.116	.672	.097	.328	.088	1.222
	unemployed	-.983	.483	.042	.374	.145	.965
	Seamstress	.214	.618	.729	1.239	.369	4.159
	Education			.275			
	None	-21.564	12024.779	.999	.000	.000	.
	Primary	-20.942	12024.779	.999	.000	.000	.
	JHS	-20.859	12024.779	.999	.000	.000	.
	SHS	-20.605	12024.779	.999	.000	.000	.
	Tertiary	-19.382	12024.779	.999	.000	.000	.
	Marital status			.022			
	Single	.030	.448	.947	1.030	.428	2.478
	Married	.885	.393	.024	2.423	1.122	5.235
	environment	-.024	.043	.578	.976	.897	1.063
	Social network	.005	.010	.633	1.005	.985	1.024
	Constant	22.073	12024.780	.999	3.857E9		

Model summary ($R^2=0.213$, $X^2_{(14)}=47.870$, $p=0.000$)

Dependent variable: utilisation Criterion level 0.05

4.8 Summary of findings

Most of the findings of this study are consistent with the constructs of Andersen and Newman's health care utilisation model. The sample had an average age of approximately 28 years with a modal age of 26 years. Akans constituted an ethnic majority. Most of the respondents were married with monogamous marriage being the most common marriage

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type. Trading was the main occupation while the majority had Junior High School Education.

The study found that environmental factors are good determinants of utilisation of maternal health care services. The presence of health personnel/midwives were strong factors in the environment. Social network was a moderate determinant of utilisation of maternal health care service. Minimum travelling time, possession of health insurance and average monthly income of 490 cedis are enabling resources which are determinants of ANC service. Most of the respondents make adequate utilisation while most also start ANC early (within the first trimester of pregnancy).

Furthermore, the study found a significant relationship between age, occupation, and partner's occupation as socio-demographic variables that had a statistical relationship with utilisation. Some enabling resources were also observed to have a relationship with utilisation.

There is also a significant relationship between parity and utilisation of maternal health care. These findings are consistent with the construct of Andersen and Newman's health care utilisation model and also support the hypothesis that there is a relationship between population characteristics and utilisation.

Finally, marital status, occupation and level of education accounts for 19% of the variation in utilisation. These findings are consistent with Andersen and Newman's health care utilisation model and also supports the hypothesis that population characteristics can predict utilisation of maternal health care services. Secondly, environmental factors are not predictors of the model. This finding is not consistent with the model and also do not support the hypothesis which states that environmental factors can predict utilisation of maternal health care services.

CHAPTER FIVE

DISCUSSION OF FINDINGS

This chapter discusses the findings presented in chapter four. The findings are discussed in relation to the literature reviewed. The first part discusses the socio-demographic factors (predisposing factors) followed by the rest of the findings which is divided into segments according to the objectives of the study.

5.1 Socio Demographic factors (predisposing factors)

The respondents have an average age of approximately 28 (SD=5.95) years. This is a little lower than the average age of women in reproductive age in Ghana which is approximately 30 years. However, it is within the age range of women in reproductive age. The decline could be that most women do marry early.

The ethnic majority of Akans as found in the study is consistent with Ghana's Demographic and Health Survey (Ghana Statistical Service et al., 2015) and Kwahu South District analytical report where the majority of the people living in Ghana and Kwahu respectively are Akans. Kwahu is predominately an Akan settlement (GSS, 2014) and this could also be the reason why the majority of the respondents are Akans.

The study found that the majority (69.1%) of the respondents are married. This is also in line with the findings of GDHS where the majority of women are married and also a similar study conducted in Holland by Feijen-de Jong et al. (2015) where the majority of the women were married. Most religious teachings in Ghana frown on pregnancy before marriage and this could have accounted for the reason why the majority of the respondents are married. Monogamous marriage is the most common in Ghana although there are a few polygamous marriages (Ghana Statistical Service et al., 2015). This is not different from what was found in this study. The mean family size was approximately 4 and this is

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because most households in semi-urban areas are not densely populated as compared to the villages where the extended family system is widely in existence. This is almost similar to what was captured in GDHS (Ghana Statistical Service et al., 2015) and is also in line with a study conducted in Ethiopia (Kifle et al., 2017).

The main occupation of the respondents was trading (34%) while only a few (5.6%) are into Farming. This is in sharp contrast to what is reported in the District Analytical report by the Ghana Statistical service where the majority of the respondents in the Kwahu South District are into skilled agriculture, forestry and fishing (GSS, 2014). However, the majority of the respondents who are traders is consistent with the GDHS report where the leading occupation among women was trading and service (Ghana Statistical Service et al., 2015). In terms of their partner's occupation, the majority (20%) of the partners of the respondents were into business compared to 35% of men in Ghana engaged in agriculture.

Furthermore, the study found that nearly half of the respondents (42.6%) had their education up to the Junior High School level. This could be attributed to the relatively younger study population. Most young people have some level of education because of the free compulsory basic education. However, the findings in this study attest to the findings in the Ghana's Demographic and health survey where 46% of the women between the ages of 15-49 had completed Junior High School (Ghana Statistical Service et al., 2015). The findings are also consistent with a study conducted in rural areas in the Bekwai municipality where majority of the respondents also had basic level of education (Osei Asibey & Agyemang, 2017)

According to Ghana Statistical Service et al. (2015), Christianity is the religion mostly practised in Ghana. The findings in this study confirm this claim as 90% of the respondents were Christians.

5.2 Environmental factors and maternal health care services utilisation

Environmental factors (health care system factors) can affect the use of maternal health services. A well-planned health care system will positively influence respondents to seek for health care (Ganle, 2015) and this will improve both maternal and child health (Theron, 2016).

The study found that environmental factors are good determinants of maternal health care service utilisation. The presence of a health personnel, having a comfortable place to sit and being attended to by a midwife are strong factors in the environment. Other factors in the environment which influence utilisation of maternal health care services are the education of clients, cleanliness of the environment, giving of prompt attention to clients anytime they visit the facility, referral systems in place, having a place to sit and having no difficulty in accessing other services at the health facility. This means that the presence of these factors in the environment will cause respondents to use maternal health care services. This possibly explains why most people prefer the use of Private hospitals than Government hospitals because the private hospitals are well equipped (Bbaale, 2011).

The Kwahu South District is endowed with health facilities and these facilities are situated in separate zones. In order to improve maternal health, there should be the provision of skilled personnel to provide quality health care (Lincetto et al., 2006). The KSD has a midwifery and nursing training school for which the District Hospital serves as a training centre so most of the time students are around for their practical experience and this increase the human resource. There is also a separate outlet both at the pharmacy and laboratory for ANC clients and this reduces the waiting time. Furthermore, there are educational programmes both at the facility level and in the communities on maternal health and these could account for the above findings.

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Provision of adequate skilled personnel, equipment and other medical supplies are factors which affect utilisation (Lang'at & Mwanri, 2015). This is because unavailability of health personnel put a strain on the health care system to deliver quality health care. However, training of highly qualified midwives improves the quality of care rendered to clients and this increases the volume of ANC attendance (Mansoor et al., 2013).

The findings of this study are consistent with the work of Mahiti et al, (2015) who concluded that dirty environment coupled with a shortage of materials and long waiting time at the facility are some of the reasons why women in Tanzania do not utilise maternal health services. Bertschy et al. (2015), also concluded that difficulty identifying the health personnel with the requisite expertise, lack of available facilities, the supply of equipment and other logistics are factors which influence utilisation.

5.3 Population characteristics and utilisation of maternal health care service

An individual's use of health care is a function of his predisposing characteristics enabling resources and health needs (Andersen & Newman, 2005). The predisposing characteristics are the person's socio-demographic factors and this has already been discussed in section 5.1

The study found that moderate social network, possession of health insurance, difficulty accessing health care, income levels, means of transport and minimum travelling time are enabling resources which influence utilisation of maternal health care services.

People with good social network interact with their relatives and others and this tends to influence the woman's decision making. Women are easily influenced by the people they relate to and this can cause them to use maternal health service (Woldemicael, 2010). In the past, the social network was very strong because of the extended family system and communal living but currently due to urbanisation and influx of western culture the

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nuclear family system is gradually replacing the extended family system. This trend is quiet worrisome because it is likely to affect the quality of social network. This finding implies that women with the average social network are more likely to utilise maternal health service. This finding is in support of the study done in India by Gawde et al., (2016) where the respondents had good social network.

The overwhelming majority of the respondents who utilise maternal health care service had health insurance with government insurance (NHIS) being the most widely used. The cost of health care has been one of the reasons why people fail to utilise health services (Lang'at & Mwanri, 2015). The national health insurance scheme was instituted to unburden the general populace from the cost of health care. The health insurance replaced the cash and carry system where people had to pay before accessing health care. With health insurance, one can seek health care at any place and at any time without any payment with a valid national insurance card. Secondly, the enrollment for NHIS is free for pregnant women and once a woman gets pregnant she is automatically enrolled on the NHIS. This explains why most of the respondents had health insurance because pregnancy and child birth is associated with a lot of complications and uncertainties and is therefore important for mothers to be prepared. This finding supports the findings by Chomi et al., (2014), Sohn & Jung, (2016) and Steel et al., (2015). However, it is contrary to what was revealed by Osei Asibey & Agyemang, (2017) in Bekwai, Ghana where the majority (53.5%) of the respondents were non- insured. Access to mass media plays a major role in influencing our decision making. People in the rural area may lack access to mass media (Bbaale, 2011) and therefore will have limited information on the importance of the national health insurance scheme. This may be the reason why rural communities in Bekwai have the majority of the people not enrolled on the national health insurance scheme as compared to the current study which was carried out in a semi-urban area.

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In addition, the study found that income; means of transport and travelling time (Distance to the health facility) are factors which influence utilisation. An individual's ability to pay for maternal health service influences utilisation. Lack of income has been associated with poor maternal health service utilisation as poverty, the cost of transportation, the cost of drugs and other supplies serve as a means to access health (Bbaale, 2011). Women with higher levels of income view the cost of maternal health service affordable as compared to women with poor income (Ayanore et al., 2016; Yuan et al., 2013). Although the average income was four hundred and ninety Ghana cedis (GH¢ 490), respondents still utilise maternal health care services because they had health insurance. This average income is higher than what was reported by Osei Asibey and Agyemang (2017), where 80.5% had their income below four hundred Ghana cedis (GH¢400). This difference could stem from the study area. The current study was carried out in a semi-urban area where the majority of the people are employed.

The influence of means of transport and duration of transport on utilisation cannot be overemphasised. The study discovered that the use of public transport and minimum travelling time (short distance travel) are determinants of utilisation. Poor transport system and long hours of travelling will serve as a disincentive for pregnant women who are already in distress to use maternal health service. Inaccessible health facilities and long distance travel on foot have been seen as some of the reasons why women do not use maternity care (King et al., 2015). However, in a community where the road network is fairly good and accessible people will be encouraged to use the health facility because of available transport and short distance travel. The majority of the people in Kwahu are employed (GSS, 2014) and employment goes with a corresponding increase in income. Women who are financially endowed can pay for the cost of transportation (Sikal, Penn-Kekana, Harris, Birch, & McIntyre, 2012). These could be the reasons why the

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respondents travel by public transport before accessing maternal health care service. This finding is in line with the work of Ademiluyi & Aluko-Arowolo, (2009), Atuoye et al., (2015), Chomat et al., (2011) and Wilunda et al., (2017) who concluded that most women who utilise maternal health service adequately have an adequate transportation system.

The study found that most women go for ANC not because they have issues with their health needs but because they view ANC as important. Over the past years, a lot of effort has been put into maternal health since it impacts on both the mother and the baby (Auerbach et al., 2014). A lot of interventions were initiated to improve maternal health. One of such interventions was the “PICCAM STRATEGY”. The district embarked on an educational campaign where people were educated about maternal health care (GHS, 2015). Women were educated on the need for routine ANC visits and this could have been the main reason why most pregnant women in this study came to the health facility not because they had issues with their health care but because they are well informed about the need for routine ANC visit and the fact that ANC is free could encourage pregnant women to use the services. This finding is in line with the conclusion made by (Osei Asibey & Agyemang, 2017). However, this is in contrast to the finding by Munguambe et al., (2016) and Ntambue et al., (2012) where women start ANC only when they are sick.

Furthermore, this present study found that 68.8% of the respondents have been pregnant more than once and almost all of them attended ANC for their previous pregnancies. Only a few did not attend ANC for the previous pregnancies. Reasons given for non-attendance included financial difficulty, ignorance of the presence of ANC and in some cases, the pregnancy was aborted. Most of the time women who use maternal health care services are educated on the need for frequent visits and why they should anytime they are pregnant. Most of them appreciate the benefit of ANC attendance and this could account for the reason why the majority of them attended ANC for their previous pregnancies. This

finding is in contrast to the conclusion made by Tarekegn et al.,(2014) in Ethiopia where only a few people attended ANC for their previous pregnancy.

5.4 Utilisation of maternal health care services (behaviour)

The WHO recommends that every pregnant woman has at least four visits before delivery and that ANC should be started within the first trimester of pregnancy (Lincetto et al., 2006).

The study found that 68.8% utilise ANC adequately while 28.1% utilises ANC inadequately. Additionally, 61.4% commenced ANC early (Starts ANC within the first trimester of pregnancy) and 35.6% commenced ANC late (Start ANC after the first trimester of pregnancy). The then MDG five was targeted at reducing the number of maternal death and one strategy to achieve this was to improve access to maternal health (Hogan et al., 2010). In the Ghanaian context, strategies like national health insurance, safe motherhood programme, free health care for pregnant women and the concept of primary health care were introduced to improve access to maternal health (Mahamadu, 2012). The Kwahu South District also initiated programmes to increase access to maternal health care services and improve maternal health. Key among this was public education on maternal health and club 36. Club 36 provided a forum where pregnant women within their last trimester meet with their health care provider aside their normal ANC visits. At such meetings, they are educated on pregnancy and safe delivery. Audio visual aids are also used for the education so that pregnant women get a better understanding of what is expected of them. Mothers behaviour will improve and they will use maternal health service if they are given education (Gisore et al., 2014). Free snack is also served which serves as an incentive to encourage pregnant women to come. According to (King et al., 2015) utilisation will increase if mothers are provided with free access to maternal health service. This could possibly be the reason why the majority of the women utilise maternal

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health services adequately. Although this finding is consistent with GDHS it is slightly lower than the national value of 87% (Ghana Statistical Service et al., 2015; Kifle et al., 2017). However the findings contradict that of the findings by Ntambue et al., (2012) Stativa et al., (2014) and Tarekegn et al., (2014) in Congo, Romania and Ethiopia respectively where the majority of pregnant women underutilise ANC. The contrast in the findings could be the different geographical location since people from different geographical locations have different attitude and behaviour.

Furthermore, the study found that pregnant women utilise other services apart from the ANC and these include visiting prayer centres and herbalists for alternative care. Pregnant women use these services because it is believed that pregnancy has some spiritual links and that aspect should be taken care of as well (Dako-Gyeke et al., 2013). This is also consistent with the study by Akeju et al., (2016).

Results of the current study further show that most of the women have a normal body weight, do not smoke, take their routine medication and do not take alcohol and this attests to the findings in Nepal where most pregnant women have a positive health behaviour (Sayami, bhanduri, et al., 2014). However, the findings contradict that of Baron et al., (2015) and Hodge et al., (2015) who observed that women living in rural areas in Netherlands and women with a low educational background in Nepal respectively have negative health behaviour.

5.5 Relationship between population characteristics (predisposing factors, enabling resources and needs) and utilisation of maternal health care services

Chi square test was used to determine the relationship between population characteristics and utilisation of maternal health care services. Results suggested that there is a statistical significant relationship between age ($X^2_{(2)}=15.892$, $p<0.001$), marital status ($X^2_{(2)}=$

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17.447, $p < 0.001$), occupation ($X^2_{(5)} = 38.54$, $p < 0.001$), partners occupation ($X^2_{(5)} = 29.370$, $p < 0.001$), level of education ($X^2_{(5)} = 22.400$, $p < 0.001$) and utilisation of maternal health care services.

Middle aged women (26-33 years) are more likely to utilise ANC services adequately as compared to older (34-42 years) and younger (18-25 years) women. Women in this year group are mostly educated and educated women have access to information on maternal health. Adequate knowledge about a health facility is a pre-requisite for utilisation (Yar'Zever & Said, 2013) as highly educated women with access to information are likely to utilise maternal health services (Rashid & Antai, 2014; Rutaremwa et al., 2015). Middle aged women have some form of education thereby making them informed about maternal health care services. This may have accounted for the reason why the study found that middle aged women were more likely to make adequate utilisation. Secondly, younger age women are likely to be experiencing pregnancy for the first time and may be shy to attend ANC and older age women may not attend ANC adequately because they are likely to have experienced pregnancy more than twice and may feel they know enough and may not take ANC seriously. In the Ghanaian context, older women have lower levels of education Ghana Statistical Service et al., (2015) and may have lower levels of income which could affect utilisation. Furthermore, women within the age group 25-34 are more likely ($P < 0.001$) to use ANC (Sayami, Bhandari, et al., 2014; Singh & Singh, 2014). This underscores the findings in this study. However, these findings contradict the conclusion made by Mumbare & Rege, (2011) where age was not significantly associated with adequate utilisation although the same study design was used. The contrast in the findings could be attributed to the geographical location where there is variation in cultural practices and culture could affect people in different age groups. Secondly, the study by Mumbare & Rege, (2011) was conducted in rural areas in India where poverty is very

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high. Poverty has also been seen to affect utilisation (Obiyan & Kumar, 2015; Prakash & Kumar, 2013) and also place of location has an influence on utilisation. People in Urban areas use maternal health care services as compared to people in the rural areas (Bbaale, 2011)

Married women are more likely to utilise maternal health care services adequately as compared to single women and women who are cohabiting. Logistic regression analysis showed that married women were two times more likely to have adequate utilisation than single and cohabiting women (OR=2.046, CI: 1.024-4.086, P=0.043). Married women have a strong social support from their husbands and significant others. The husbands' level of education and occupation tend to have an influence on adequate maternal health care service utilisation (Woldemicael, 2010) and better social support and strong social network tend to influence women's decision making (Gawde et al., 2016). This can influence the married woman to utilise maternal health care services. Secondly, most Ghanaian societies do not approve of pregnancy out of legally constituted marriage and this could force single women and cohabiting women not to go for ANC because of the stigma that may be attached. These findings are in conformity with Rashid and Antai (2014) when they concluded that single women were less likely to utilise maternal health service but Tarekegn et al., (2014) also argued that single women are more likely to use ANC than married and divorced women.

The current study found a statistical significant association between occupation and utilisation of ANC services (P<0.001) as women who are traders and women whose partners are civil servants (P<0.001) are more likely to utilise maternal health services. Logistic regression analysis showed that farmers (OR=0.186, CI:0.361-0.563, P=0.003) and unemployed women (OR=0.364, CI: 0.165-0.824, P=0.015) were less likely to utilise ANC services adequately. Women who are into trading mostly have higher levels of

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income and belong to the high social class and people with higher levels of income view the cost of health care as affordable. Thus, an increase in socioeconomic level leads to a corresponding increase in the likelihood of maternal health service utilisation (Obiyan & Kumar, 2015). Unemployed women are mostly not financially sound and may not have the money to pay for the cost of health care because it is evident that income has a multifactorial role in influencing maternal health care utilisation. Among this multifactorial role include paying for the cost of transportation, payment for drugs and services and payment of health insurance premium (Wilunda et al., 2014). Even though ANC services are free the unemployed woman may not have money to pay for other things including transportation. Unemployment is also associated with poverty and people from poor homes are less likely to utilise maternal health care services (Yuan et al., 2013). Furthermore, women without adequate income have been seen to contribute little to the upkeep of the family and this has made them less autonomous. Studies have shown that women with less autonomy are less likely to utilise maternal health care adequately (Woldemicael, 2010). This may account for why unemployed women are less likely to make adequate utilisation. The findings in this study are consistent with the study by Rashid and Antai (2014).

Additionally, the study found that women whose partners are civil servants are more likely to have adequate utilisation. People who are civil servants are highly educated and they are well informed about the benefits of maternal health service utilisation. They may, therefore, encourage their partners to access maternal health care service. Secondly, they have the resources to pay for the cost of health care. Tarekegn et al. (2014), also came out with similar findings in Ethiopia where women and partners who are into agriculture or household domestic skilled workers are less likely to utilise pre natal care as compared to those with white collar jobs.

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The current study also found a statistical significant relationship between the level of education and utilisation of maternal health care services ($P < 0.001$). Women with education up to the junior high school level were more likely to utilise maternal health services adequately compared to women with no education. This reflects the current trend in Ghana where most Ghanaians have the basic education as their highest level of education (Ghana Statistical Service et al., 2015). Education has been linked to women's autonomy and their ability to take decisions. Women who are autonomous make decisions about their health and can use maternal health services (Woldemicael, 2010). Women with formal education have access to information and this can make them aware of the need for utilisation of maternal health care. These women are mostly found to be in the high socioeconomic group. People in the high socioeconomic group are financially endowed and they have the ability to pay for services. Women's ability to pay for ANC services also have an influence on the use of the service (Bbaale, 2011). Women with no education are less likely to have adequate utilisation. People from this group lack access to information and this may explain the relatively low ANC utilisation among such women in this study. Authors such as Rashid & Antai, (2014), Singh et al., (2012) and Tarekegn et al., (2014) have observed that women who are not educated are most likely to have inadequate utilisation of ANC services. However, Asante-Sarpong et al. (2016) also assert that there is no relationship between education and utilisation of prenatal care.

The current study found a statistically significant relationship between enabling resources such as means of transport ($P < 0.001$), income level ($P < 0.001$) and utilisation of maternal health care services. Women who travel using public transport are more likely to utilise maternal health care services adequately as compared to those who walk and those who use private transport. Secondly, women who earn less than seven hundred cedis a month are more likely to use maternal health care service adequately as compared to those who

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earn above seven hundred cedis. Lack of comfortable means of transport coupled with long distance travel and inaccessible roads is a major factor which affects utilisation of maternal health care services (Wilunda et al., 2017; Yuan et al., 2013). Poor vehicular transport in Ghana coupled with poor roads has a negative impact on maternal and child health. As a result of this, most pregnant women use other unfavourable means of transport and this has led to poor maternal health care service utilisation. Due to inaccessible roads, the cost of transportation is so high that women from low-income group cannot afford to and this prompt them to use alternate services which are closer (Yar'Zever & Said, 2013). However, in the Ghanaian context, it is cheaper to travel using public transport than own vehicle and this may have accounted for why people who travel with public transport are more likely to attend ANC adequately. Secondly because of the relatively poor roads vehicles do break down easily and it is quite expensive maintaining vehicles especially private ones that do not bring extra income. The cost of fueling the car can also be a reason why people with private cars do not make adequate utilisation. Long distance travel deter some women from utilising maternal health care services because most women feel uncomfortable and the bad roads also make them feel tired before getting to the health facility. As a result, most of them will prefer to use other alternate services that are closer (Chomat et al., 2011).

Another factor that was observed to have a statistical significant relationship with the utilisation of maternal health care services was parity. The study found that multiparous women were more likely to have adequate utilisation as compared to nulliparous and primiparous women ($P < 0.001$). Multiparous women have more than one child and have gone through the experience of pregnancy. Most of them are not ignorant and may have understood and experienced the benefit of ANC. During ANC sessions women are given various forms of education during pregnancy, labour and puerperium. These women might

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have experienced the benefits of these educations and this could encourage them to use ANC for their subsequent pregnancy. Similarly, the notion that health facilities are unfriendly coupled with other challenges may have been dispelled once they go and experience otherwise. This could be the reason why multiparous women are more likely to have adequate utilisation than primiparous and nulliparous women. This finding is supported by the work of Tarekegn et al. (2014), Yeoh et al. (2016) and Doku et al. (2012). However other researchers disagree with this assertion as they concluded that primiparous women are more likely to utilise maternal health service adequately (Rahman et al., 2017; Singh et al., 2012; Singh & Singh, 2014). A possible explanation to this could be from the fact that multiparous women may have the experience and feel there is no need for regular maternal health care (Gawde et al., 2016). Additionally, they may have had some bad experience with health care providers and this may have discouraged them from seeking regular maternal health care (Yeoh et al., 2016).

In summary, ANC services utilisation is multifaceted and context specific. The use of Andersen and Newman's health care utilisation model has been very helpful in identifying factors that influence utilisation of ANC services. Environmental factors are strong determinants of ANC service utilisation. These environmental factors can be grouped into resources, organisation and coordination and control. These environmental factors are the factors in the health care system that influences utilisation. Individual factors such as age, ethnicity, level of education, religion, marital status, occupation and partners' occupation also influence utilisation although marital status and occupation are significant predictors of utilisation. Other factors like the individuals' enabling resources which include social network, income, insurance status and health needs are important factors that influence utilisation. Based on the findings of the study, the objectives of the study as espoused in the construct of the model have been met.

CHAPTER SIX

SUMMARY, IMPLICATIONS, INSIGHT GAINED, LIMITATIONS, CONCLUSION AND RECOMMENDATIONS

This chapter is divided into six sections. The first part presents the entire summary of the study and this will be followed by implications of the research, insight gained, limitations of the study, conclusions and recommendations made based on the findings.

6.1 Summary

Maternal mortality is a very delicate issue which has been looked at by various international organisations. Although numerous strategies have been devised by the international community to curtail the problem of maternal mortality, it still remains a major problem (Asamoah et al., 2011). The study investigated the determinants of utilisation of maternal health care service using Andersen and Newman's health care utilisation model. The study used a cross sectional study design to collect data from 430 pregnant women in five sub districts in Kwahu South District. A structured questionnaire containing 62 items were used. The questionnaire was divided into five sections namely socio-demographic, environment, enabling resource, health needs and health behaviour. Data were analysed using statistical package for social science version 17.0. Pearson Chi square test (X^2) was used to describe the relationship between environment/population characteristics and utilisation. Whiles binary logistic regression analysis was used to identify variables that predict utilisation of maternal health care service.

The findings of the study show that the mean environmental score was 30.88 (SD=3.44) which is high and is an indication that environmental factors are good determinants of maternal health care service. The presence of health personnel, being attended to by a midwife, having a comfortable place to sit, education of clients, clean facility and giving

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prompt attention are strong factors in the environment. Enabling resources such as moderate social network, low travelling time and income was found to have an influence on utilisation. The majority of the women (97.9%, n=421) had health insurance while 65.3% (n=281) travel using public transport. The findings of the study also reveal that most pregnant women who go for ANC do not do so because they have issues with their perceived health needs.

Most pregnant women utilise maternal health care service adequately with the majority of them starting ANC within the first trimester of pregnancy.

The results suggest that there is a significant association between age and utilisation of maternal health care services ($X^2_{(2)}=15.892$, $P<0.001$). Additionally, middle aged women are more likely to utilise maternal health care services adequately as compared to younger women and older women. There is a significant relationship between marital status and utilisation of maternal health care services ($X^2_{(2)}=17.447$, $P<0.001$). Furthermore, respondents who are married are more likely to utilise maternal health care services adequately as compared to single women and respondents who are cohabiting. Similarly, there is a significant relationship between occupation and utilisation of maternal health care services ($X^2_{(5)}=38.54$, $P<0.001$). Respondents who are traders are more likely to utilise maternal health service adequately as compared to farmers, civil servants, and seamstress. There is a significant relationship between partners occupation and utilisation of maternal health care services ($X^2_{(5)}=29.370$, $P<0.001$). Furthermore, respondents whose partners are civil servants are more likely to utilise maternal health care service adequately as compared to respondents whose partners are businessmen, farmers and drivers. The level of education was also observed to have a significant relationship with the utilisation of maternal health care services ($X^2_{(5)}=22.400$, $P<0.001$). Moreover, 41.8% (n=123) of the respondents who had education up to the Junior High School level are more

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likely to utilise maternal health service adequately as compared to those with no educational background, SHS, tertiary and graduates.

There is a significant relationship between means of transport and utilisation of maternal health care services ($X^2_{(2)} = 21.852, P < 0.001$). Furthermore, respondents who travel using public transport are more likely to utilise maternal health services adequately as compared to those who travel on foot and those who travel using their own vehicle. Similarly, there is a significant relationship between income level and utilisation of maternal health care services ($X^2_{(2)} = 21.185, P < 0.001$). In addition, respondents who earn less than seven hundred Ghana cedis (< GHC 700) are more likely to utilize maternal health care services adequately as compared to those who earn between seven hundred and one thousand two hundred and ninety nine Ghana cedis (GHC 700-1299) and those who earn above thousand three hundred Ghana cedis (GHC 1300) a month.

There is also a significant relationship between parity and utilisation of maternal health care services ($X^2_{(2)} = 7.592, P < 0.05$). Furthermore, multiparous women are more likely to utilise maternal health care services adequately as compared to nulliparous and primiparous women.

Social network, environment and socio-demographic variables (Marital status, educational level and occupation) together account for 21.3% of the variance in adequate utilisation ($R^2 = 0.213, X^2_{(14)} = 47.870, P = 0.000$). However, social network, environmental factors and education are not significant predictors of the model. Furthermore, occupation ($P = 0.011$) and marital status ($P = 0.022$) were significant predictors of the model. Married women were two times more likely to attend maternal health service adequately than single and cohabiting women (OR=2.423, CI: 1.122-5.235, $P = 0.024$). In terms of occupation, farmers (OR=0.167, CI: 0.046-0.600, $P = 0.006$) and unemployed women (OR=0.374, CI: 0.145-0.965, $P = 0.042$) were less likely to make adequate utilisation.

Most of the findings in this study are consistent with the constructs of Andersen and Newman's health care utilisation model which describes the environment and population characteristics as a function of utilisation. Even though the study did not explore the moderating effect of population characteristics on utilisation as stated in theory, the study found that both environmental factors and population characteristics influence utilisation. Some population characteristics like marital status and occupation predict utilisation but environmental factors do not predict utilisation. It is clear that utilisation of health care services is dependent on many factors as espoused in Andersen and Newman's health care utilisation model.

6.2 Implications of the study

The findings of this study have implications for the nursing profession and health care. This is grouped under nursing education, practice and management

6.2.1 For nursing practice and management

The study found that environmental factors such as being always attended to by a midwife, giving of prompt attention, cleanliness of the environment, education of clients, coordination and control between staffs are strong factors in the health care system which influence people to use the health facilities. Furthermore, most pregnant women who report to the health facility do so not because they have issues with their health needs but because they see it to be necessary for themselves and the baby. This implies that nurses and midwives should focus on their core mandate of providing the best-individualized quality of care to patients irrespective of their background. There should be facilitative supervision from nurse manager and provision of adequate logistics to ensure maintenance of the standard of care. Once patients are well informed about the importance of preventive health care they will be encouraged to take the necessary steps.

6.2.2 For health promotion and education

The study found that short distance travel is a factor influencing utilisation of maternal health care services. This implies that the concept of primary health care should be strengthened. Access to health care is an important aspect which influences the utilisation of antenatal care services. The concept of primary health care deals with improved accessibility thereby reducing travelling time and distance. Once primary health care is strengthened, accessibility will increase and this will make it much easier when accessing antenatal care services.

6.3 Insight gained

The issue of improving maternal health has been a difficult task despite various interventions implemented. The study has shown that improving maternal health is an issue that should be approached systematically and it involves all facets of life. To improve maternal health, all hands should be on board and strategies put in place should be context specific. This is because factors which influence maternal health care services vary across geographical regions.

6.4 Limitations of the study

Every research has some limitations (Coughlan, Cronin, & Ryan, 2007) and the current study is not an exception. The following are some of the limitations encountered during the study.

Data was only collected from pregnant women at the health facilities (institutional based). Opinions of pregnant women who do not visit the health facilities for maternal health care could not be known. Reasons for attendance and non-attendance between the two groups could have been explored.

Being a cross sectional study, the predictor and outcome variables were studied at the same time and therefore could not establish cause and effect relationship.

6.5 Conclusions

Maternal health is an important aspect and is seen as having a double effect since it impacts on both the mother and the baby. The study espoused the factors that influence maternal health care service utilisation based on Andersen and Newman's health care utilisation model. The study found that utilisation of maternal health care service is dependent on individual characteristics as well as their enabling resources. The study also found that health care system factors influence the use of maternal health service while majority of women utilise maternal health service adequately. It is therefore important to improve the quality of care and maintain a high standard of care for pregnant women in order to encourage women to use maternal health service.

6.6 Recommendations

Based on the findings of the study the following recommendations are made to the Ministry of Health and Ghana Health Service

6.6.1 The Ministry of Health

The Ministry of Health should:

- Liaise with the government to provide accessible roads and good transport system to ensure easy movement.
- Empower health training institutions and provide them with the necessary resources so as to increase the enrollment in midwifery schools. This will bridge the gap between patient and midwife ratio and will improve the quality of care.
- Design policy interventions targeted at meeting the needs of women in their reproductive age especially young and old women because they were less likely to

make adequate utilisation. The interventions should include educational programmes.

- Design educational programmes to educate the public about the existence of maternal health care services and the need for utilisation. Education should be geared towards encouraging pregnant women to start ANC within the first trimester of pregnancy and also to utilise ANC adequately.

6.6.2 The Ghana Health Service

The Ghana Health Service should:

- Equitably distribute of human resource especially midwives. Special incentives should be given to midwives that accept posting to remote villages. The Ghana Health Service should develop a policy framework to guide the distribution of both human and material resources. This is because resources are important determinants of utilisation.
- Strengthen the concept of primary health care so as to make health care accessible especially to pregnant women. There should also be facilitative supervision to ensure that maternal health care activities are always prioritised.

6.6.3 To Nurse Researchers

- Explore further the impact of the PICCAM strategy in Kwahu South District and see how best it can be applied to other parts of the country.
- It might be appropriate to explore further determinants of utilisation using two cohort groups (one group utilising maternal health care services and the other group being non-attendants) of pregnant women to compare reasons for attendance and non-attendance.

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APPENDICES

Appendix 1: Information sheet and Consent form

Principal Investigator: EDMUND ABUSU MANTE ASARE

Address: SCHOOL OF NURSING

DEPARTMENT OF MATERNAL HEALTH

UNIVERSITY OF GHANA-LEGON

General Information about Research

You are invited to take part in a study that looks at the factors that influence pregnant women use of antenatal care services. You are invited to take part in the study because you are a woman in reproductive age and can speak English or Twi. You are required to sign or thumb prints a form if you agree to take part in the study. This research seeks to identify individual characteristics and environmental factors that will influence the use of maternal health care service. You will be required to answer some questions. You have the right not to answer questions which makes you uncomfortable and the right not to take part in the study without any change in your care. It is expected that you will use about twenty minutes to answer the questions.

Possible Risks and Discomforts

There is no known risk associated with the study. However it is likely you might get tired after sitting for about twenty minutes due to your pregnancy.

Possible Benefits

There are no direct benefits to your participation in the study. However, the information gathered will be used to educate other pregnant women in future and also influence policy development

Confidentiality

Any information that you will provide will be kept strictly confidential locked in a cupboard for five years at the school of nursing and will not be used by anybody apart from the researchers in this study. Your consent form will be separated from the information you will give and the data will not be available to anyone other than the researchers. The information that you will give will be analysed and used in presentations and/or research papers; your name will not be included in any of the analysis. Ethics Committee of Noguchi memorial institute of medical research may inspect study records as part of its auditing programme, but these reviews will only focus on the research and not on your responses or involvement. The Noguchi memorial institute of medical research is a group of people who see to it that research studies are safe for human participation.

Compensation

You will be served with snack (pie and yoghurt) after successful completion of the study. This is just to show appreciation for your time and not as a reward for your participation.

Voluntary Participation and Right to Leave the Research

You have every right to withdraw from participating in this study even after you have agreed to take part. There are no penalties or consequences of any kind if you decide that you do not want to participate in the study. The researcher will be delighted if reasons for withdrawal are clearly made known.

Contacts for Additional Information

We will be glad to answer any question concerning this study. If you need further understanding that cannot be provided by the field officers or any injury that may occur as a result of you participating in this research, you can contact the principal

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investigator, Edmund Abusu Mante on 0243317127 or 0508202013. You can also contact my supervisor Dr Florence Naab, lecturer department of maternal health-school of nursing, university of Ghana. Telephone number: 0204522332

Your rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of Noguchi Memorial Institute for Medical Research (NMIMR-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am 5pm through the landline 0302916438 or email addresses: nirb@noguchi.ug.edu.gh

Consent Form

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title (determinants of utilisation of maternal health service among pregnant women in kwahu South District) has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Date

Name and signature or mark of volunteer

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

Date

Name and signature of witness

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I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Date

Name Signature of Person Who Obtained Consent

Appendix 2: Data collection instrument

Data Collection Instruments

MATERNAL HEALTH SERVICE UTILISATION QUESTIONNAIRE

Introduction

This study seeks to determine the factors that influence utilization of Maternal Health Services in Kwahu South District. As a member of the District, your responses will inform the findings of the project. Your frank and complete responses are therefore anticipated and will be kept confidential. I have your permission to proceed with the Interview?

Yes [] (Continue with Interview) No [] (End the Interview)


POPULATION CHARACTERISTICS

Predisposing variables

Socio-demographic

1. Age:
2. Ethnicity: Akan [] Ewe [] Northerner [] Krobo [] Ga [] Others [] please specify..
3. Marital status: Single [] Married [] Cohabiting []
4. Type of marriage: Monogamous [] polygamous [] others [] specify.....
5. Family size.....
6. Occupation: Trader [] Farmer [] Civil servant [] unemployed [] Seamstress []
Others [] please specify.....
7. Partners occupation: Business [] farmer [] civil servant [] unemployed [] Driver []
Others [] please specify.....
8. What is your level of education?

1



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- Informal Secondary
- None Tertiary
- Primary Graduate
- JHS

Religion: Christianity Islam Traditional others [] please specify.....

Beliefs:

1. Intended place of delivery:

Birth centre with midwife hospital Traditional birth attendant

ENVIRONMENTAL CHARACTERISTICS

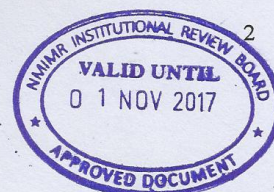
Please indicate how you feel about each statement concerning the health care system, resources and organisation.

“0” if you strongly Disagree (SD); “1” if you Disagree (D); “2” if you are Neutral (N);

“3” if you Agree (A); “4” if you strongly Agree (SA)

	SD 0	D 1	N 2	A 3	SA 4
There are always health personnel at the hospital					
There is always enough materials and equipments available to help us					
I am always attended to by a midwife anytime I attend ANC					
There is always coordination and control between medical personnel when providing care					
The health facility is suitable and we are always educated					
The health facility is always clean					
I am always given prompt attention anytime I go for ANC					
I am always referred to the doctor or obstetrician anytime the midwife detects something unusual					
I am always comfortable and have a place to sit anytime I go for ANC					
I usually don't have any difficulty assessing other services at the health facility when I attend ANC					

Lubben's Social network Scale

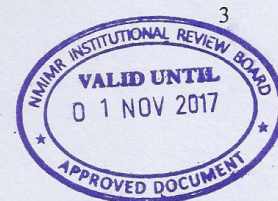


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Kindly tick the most applicable answer.

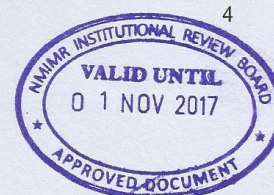
FAMILY: Considering the people to whom you are related by birth, marriage, adoption, etc...

	QUESTION	0	1	2	3-4	5-8	9
1	How many relatives do you see or hear from at least once a month?						
2	How many relatives do you feel at ease with that you can talk about private matters?						
3	How many relatives do you feel close to such that you could call on them for help?						
		Less than monthly	monthly	Few times a month	weekly	Few times a week	daily
4	How often do you see or hear from relative with whom you have the most contact						
		never	seldom	Some times	often	Very often	always
5	When one of your relatives has an important decision to make, how often do they talk to you about it?						
6	How often is one of your relatives available for you to talk to when you have an important decision to make?						
	QUESTION	0	1	2	3-4	5-8	9
7	How many neighbours do you see or hear from at least once a month?						
8	How many neighbours do you feel at ease with that you can talk about private matters?						
9	How many neighbours do you feel close to such that you could call on them for help?						
		Less than	monthly	Few times a	weekly	Few times a	daily



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		monthly		month		week	
10	How often do you see or hear from neighbours with whom you have the most contact						
		never	seldom	Some times	often	Very often	always
11	When one of your neighbours has an important decision to make, how often do they talk to you about it?						
12	How often is one of your neighbours available for you to talk to when you have an important decision to make?						
	QUESTION	0	1	2	3	4	5
13	How many of your friends do you see or hear from at least once a month?						
14	How many friends do you feel at ease with that you can talk about private matters?						
15	How many friends do you feel close to such that you could call on them for help?						
		Less than monthly	monthly	Few times a month	weekly	Few times a week	daily
16	How often do you see or hear from the friend with whom you have the most contact						
		never	seldom	Some times	often	Very often	always
17	When one of your friends has an important decision to make, how often do they talk to you about it?						
18	How often is one of your friends available for you to talk to when you have an important decision to make?						



Enabling variables

Financing:

1. Health insurance: Insured [] Non Insured []
2. Type of insurance: Private [] Mutual [] Government []
3. Net household income per month.....

Accessibility of care:

1. Difficulties getting through when calling outside ANC hours
Yes [] No []
2. Difficulties getting to and from the midwifery practice. Yes [] no []
3. How many minutes do you take to get to the health facility.....
4. By what means do you travel to the hospital.
On foot [] own vehicle [] public transport [] others [] please specify.....

Need variables

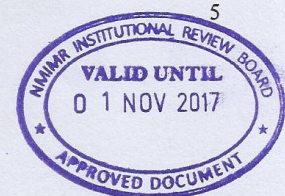
Under each heading, please tick the ONE box that best describes your health TODAY

MOBILITY

- I have no problems in walking about
- I have slight problems in walking about
- I have moderate problems in walking about
- I have severe problems in walking about
- I am unable to walk about

SELF-CARE

- I have no problems washing or dressing myself
- I have slight problems washing or dressing myself
- I have moderate problems washing or dressing myself



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I have severe problems washing or dressing myself

I am unable to wash or dress myself

USUAL ACTIVITIES (e.g. work, study, housework, family or leisure activities)

I have no problems doing my usual activities

I have slight problems doing my usual activities

I have moderate problems doing my usual activities

I have severe problems doing my usual activities

I am unable to do my usual activities

PAIN / DISCOMFORT

I have no pain or discomfort

I have slight pain or discomfort

I have moderate pain or discomfort

I have severe pain or discomfort

I have extreme pain or discomfort

ANXIETY / DEPRESSION

I am not anxious or depressed

I am slightly anxious or depressed

I am moderately anxious or depressed

I am severely anxious or depressed

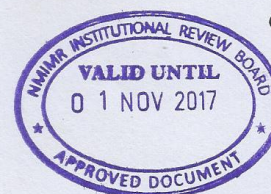
I am extremely anxious or depressed

Evaluated Health

1. Number of times pregnant.....
2. Number of times given birth.....
3. Did you attend ANC for your previous pregnancy

Yes [] No []

If No why.....



HEALTH BEHAVIOUR

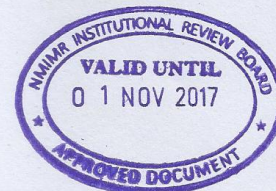
Kotel chuck's index

ANC VISITS

1. Current duration of pregnancy.....
2. Duration of pregnancy at the time of first ANC visit.....
3. Number of ANC visit.....
1. How often do you take your folic acid and other routine medications?
Always [] Sometimes [] never []
2. Body Mass Index: underweight [] normal weight [] overweight [] obesity []
3. Smoking: Yes [] No []
4. Passive smoking: yes [] No []
5. Alcohol use: yes [] No []

Which alternative service provider do you utilize?


- Herbalist []
Church []
Private hospital []
None []
Others [] please specify.....



Appendix 3: Introductory letter



Appendix 5: Approval letter from District

<p><i>In case of the reply the number and the date of this letter should be quoted</i></p>	 <p>GHANA HEALTH SERVICE Your Health - Our Concern</p> <p>Core Values</p> <table border="0"> <tr> <td>1. People-centred</td> <td>4. Innovation</td> </tr> <tr> <td>2. Professionalism</td> <td>5. Discipline</td> </tr> <tr> <td>3. Team work</td> <td>6. Integrity</td> </tr> </table>	1. People-centred	4. Innovation	2. Professionalism	5. Discipline	3. Team work	6. Integrity	<p>Kwahu South Dist. Health Admin. Ghana Health Service P O Box MP 243 Atibie</p>
1. People-centred		4. Innovation						
2. Professionalism	5. Discipline							
3. Team work	6. Integrity							
<p>My Ref. No GHS/KSDHA/45</p> <p>Your Ref. No.</p> <p>Tel. No. 0501281722</p> <p>Email: kwahusouthdha@yahoo.com</p>	<p>14th December, 2016</p>							


LETTER OF INTRODUCTION
MR. EDMUND ABUSU MANTE ASARE
M.PHIL. PROGRAMME

This is to introduce to you the above-named second year student from School of Nursing, College of Health Sciences, University of Ghana, Legon, who is being introduced to you to conduct a research on *“Determinants of Utilisation of Maternal Health Services among Pregnant Women in Kwahu South District”*.

Your outfit has been chosen as data collection outlet.

We would be grateful if you could offer him the necessary assistance needed to enable him collect data for his thesis.

Thank you.



DISTRICT DIRECTOR OF HEALTH SERVICES
DIST. HEALTH MANAGEMENT TEAM
KWAHU SOUTH, ATIBIE

(DR. BRAINARD AYISI ASARE)
DIST. DIR. OF HEALTH SERVICES
KWAHU SOUTH

DISTRIBUTION

THE MEDICAL SUPERINTENDENT, KWAHU GOV'T HOSPITAL, ATIBIE
THE IN-CHARGE, OBO HEALTH CENTRE
THE IN-CHARGE, BEPONG HEALTH CENTRE
THE IN-CHARGE, KWAHU PRASO HEALTH CENTRE
THE IN-CHARGE, ASAKRAKA HEALTH CENTRE

CC: MR. EDMUND ABUSU MANTE ASARE

Appendix 6: Gantt chart

No		1	2	3	4	6	7	9	10	11	12	13	14
Activities	Week number	Proposal writing	Submission of proposal to IRB Noguchi	Ethical clearance	Training of Research assistants	Develop questionnaire	Pilot questionnaire	Data collection	Data analysis	Writing research report	Discuss research with supervisors	Draft report for submission	Writing and Submission of final thesis
Aug. 2016	1	█											
	2	█											
	3	█											
	4	█											
Sep. 2016	1	█											
	2	█											
	3	█											
	4	█											
Oct. 2016	1	█					█						
	2	█					█						
	3		█										
	4			█									
Nov. 2016	1			█									
	2			█									
	3			█									
	4			█									
Dec. 2016	1				█								
	2				█								
	3						█						
	4						█						

Determinants of maternal health care service utilisation

Gant chart continuation.

