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BIRTH PREPAREDNESS AMONG PREGNANT WOMEN ATTENDING
ANTENATAL CLINICS AT TAMALE TEACHING HOSPITAL

BY

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Allied Sciences, University of Cape Coast in Partial Fulfilment of the
Requirements for Award of Master of Nursing Degree.

JULY 2016

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's signature..... Date.....

Name:.....

Supervisors' Declaration

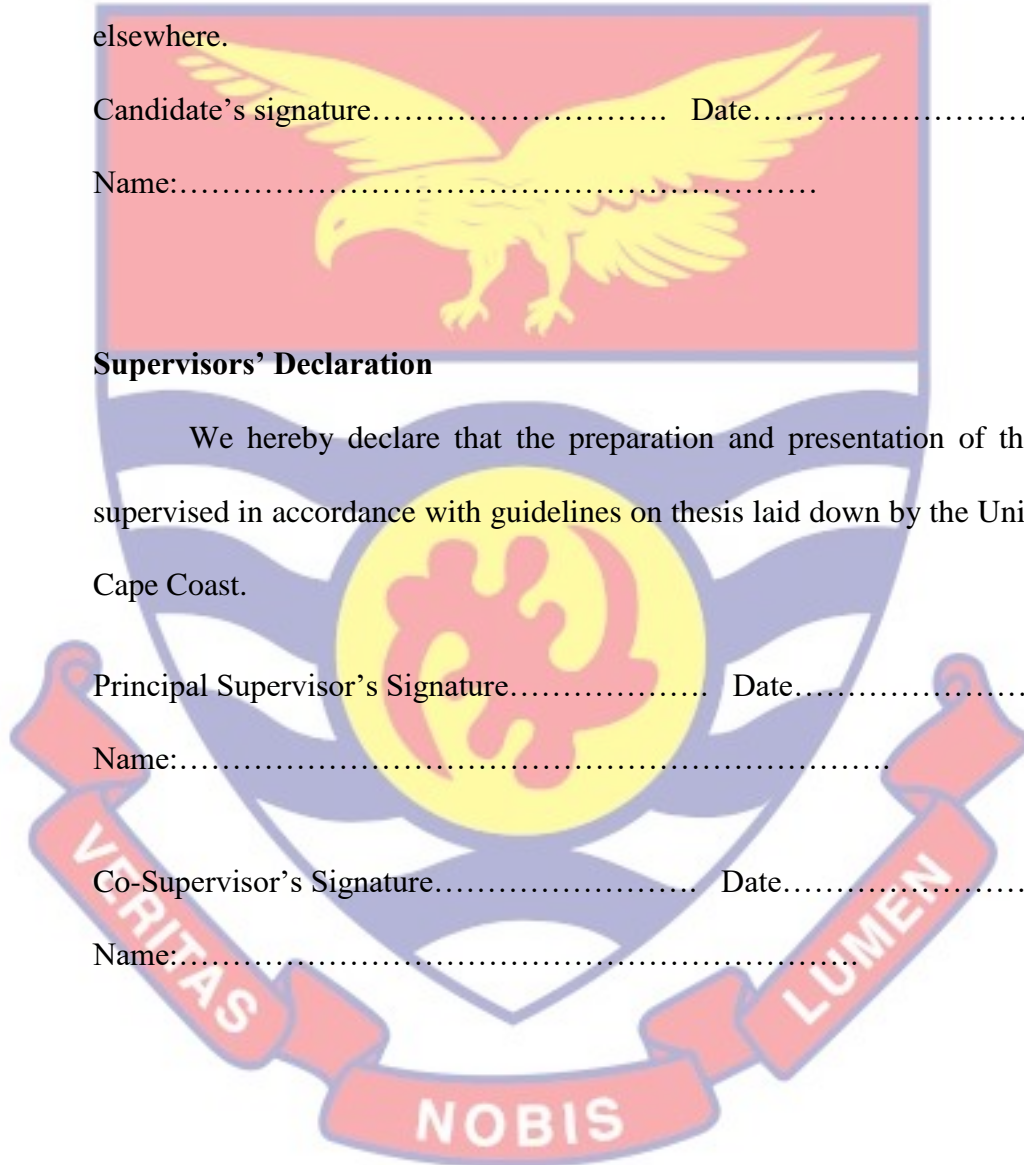
We hereby declare that the preparation and presentation of this thesis were supervised in accordance with guidelines on thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature..... Date.....

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Co-Supervisor's Signature..... Date.....

Name:.....



ABSTRACT

Evidence indicates that promoting birth preparedness and pregnancy complications readiness have important roles in combating maternal mortality. The purpose of the study was to assess birth preparedness and determinants influencing facility-based deliveries among expectant mothers in the Tamale Teaching Hospital, Ghana. The systematic random sampling technique was then used to select pregnant women for the study using structured questionnaires. Data quality was ensured via crosschecks and double entry of information into the Statistical Package for Social Sciences (SPSS) software version 20.01 for analysis. At the 95% confidence interval, a p-value less than 0.05 was deemed statistically significant. Out of the 345 respondents, 150 respondents were well prepared for birth representing 43.7%. The χ^2 analysis revealed that age ($p < 0.05$), religion ($p < 0.05$), educational status ($p < 0.01$), level of knowledge on obstetric risks ($p < 0.01$), number of antenatal visits ($p < 0.01$), marital status ($p < 0.05$), income level of participants ($p < 0.01$) and cost of services ($p < 0.01$) determined birth preparedness and the choice of facility delivery among the study women. Strong determinants of women's choice of facility for delivery included: higher education (AOR=1.9, 95% C.I. 1.16-3.04, $p = 0.01$), women with four plus (4+) ANC visits (AOR=5.4, 95% C.I. 2.54-11.29, $p < 0.01$), women who disagreed to 'home birthing tradition' (AOR=2.4, 95% C.I. 1.18-4.85, $p = 0.02$). Proportion of women who were well prepared for birth and ready for complications was still found to be low. Education of expectant mothers on issues of antenatal care on birth preparedness must be stepped up.

KEY WORDS

Birth preparedness

Complications readiness

Expectant mothers

Maternal mortality

Antenatal clinic



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DEDICATION

This research work is dedicated to my parents, Mr. and Mrs. Suglo and my uncle, Most Rev. Gregory E. Kpiebaya, Arch-bishop Emeritus of Tamale for shepherding my life and academic work.



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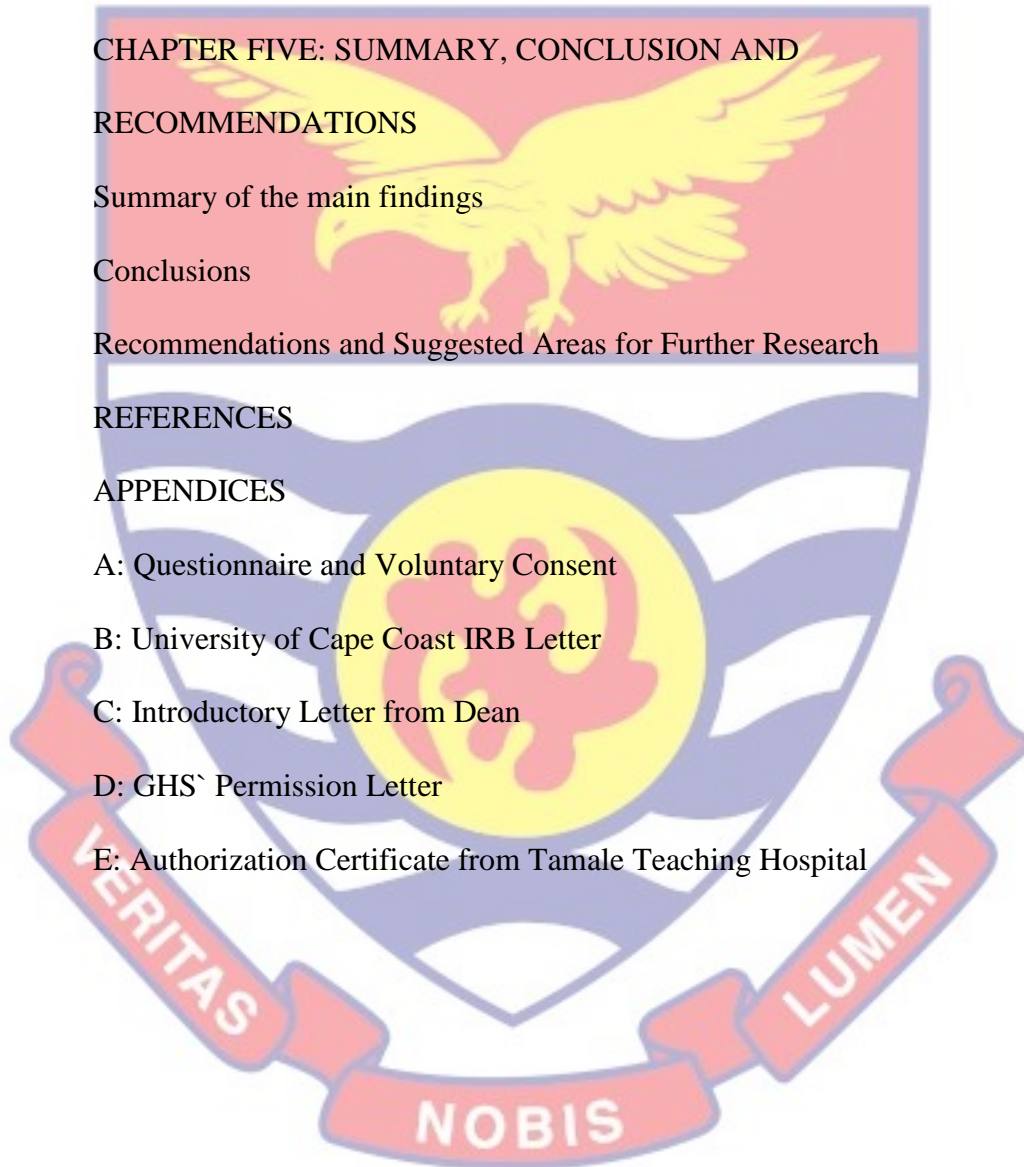
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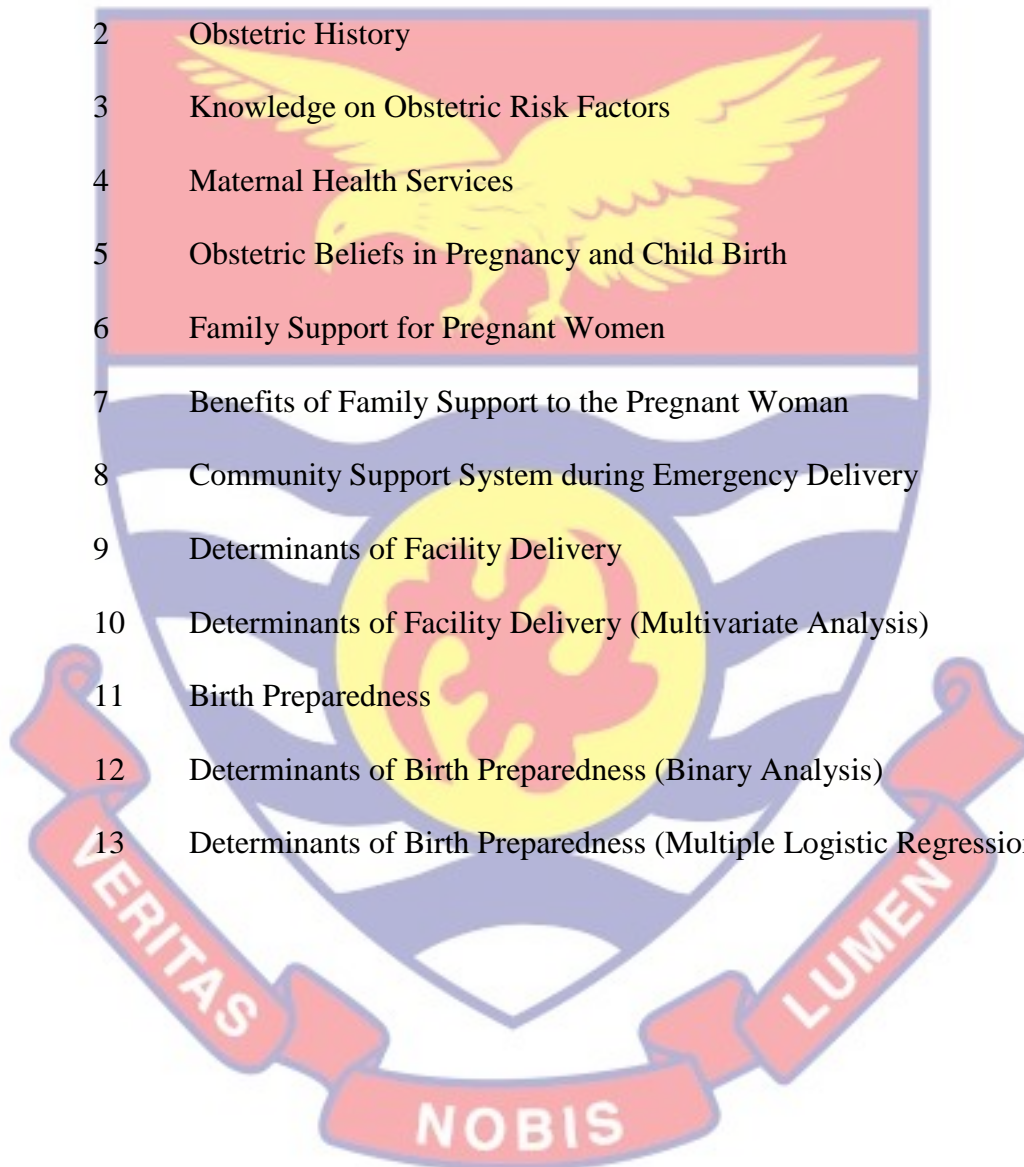
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LIST OF ABBREVIATIONS



ANC:	Antenatal Care
BP/CR:	Birth preparedness and complication readiness
CmSS:	Community Support System
CSG:	Community Support Group
DDNS:	Deputy Director of Nursing Services
EMOC:	Emergency Obstetrics Care
HBLSS:	Home Based Life Savings Skills
HCP:	Healthy Child Programme
HIV:	Head in Vagina
IMPAC:	Integrated Management of Pregnancy and Childbirth Care.
LIC:	Low Income Countries
MDGs:	Millennium Development Goals
MMR:	Maternal mortality ratio
MNT:	Maternal Neonatal Tetanus
NTDs:	Neural Tube Defect
SBA:	Skilled birth attendant
SDA:	Seventh Day Adventist
SSA:	Sub-Saharan Africa
STIs:	Sexually Transmitted Infections
TBA:	Traditional birth attendant
TTH:	Tamale Teaching Hospital

CHAPTER ONE

INTRODUCTION

Birth preparedness has been considered as a comprehensive strategy aimed at promoting the timely utilization of skilled maternal health care especially during childbirth. It is based on the theory that preparing for childbirth reduces delays in obtaining emergency obstetric care (Kaso & Addisse, 2014b). Birth preparedness and complication readiness (BP/CR) is the process of planning for normal birth and anticipating the actions needed in case of an emergency (Agbodohu, 2013; Solnes et al., 2013). However, BP/CR status and affecting factors have not been well studied. Thus, this study aimed to fill the gaps by conducting a study among pregnant women. This introductory chapter is organized to include: background to the study, thesis statement, and purpose of the study, objectives, and research questions. It also highlights the national significance of the study, and particularises the operational definition of terms and abbreviations specific to this study.

Background to the Study

Adequate health care provision and utilisation for women during pregnancy is essential to ensure the normal, healthy evolution of the pregnancy and to prevent, detect, or predict potential complications during pregnancy and/or delivery (Berrin., Okka., Yasemin., & Durduran, 2016). Good quality care must be provided by skilled health personnel who are well trained and equipped to detect potential complications and provide the necessary attention or referral (Karkee., Lee., & Binns, 2013). Unfortunately, many women in developing

countries of the world, including Ghana, face increased risk of morbidity and mortality from pregnancy and other pregnancy related issues (Moran et al., 2006). Worldwide, 800 women die every day due to pregnancy or child birth related complications. Almost all maternal deaths (99%) occur in developing countries and more than half of these deaths occur in Sub-Saharan Africa (Sunnyvale, City, Musa, & Amano, 2016). In developing countries, specifically Sub-Saharan countries, skilled care providers are not always readily available. This is considered as one of the major factors accountable for the current trends of maternal and child mortality (Byford-Richardson et al., 2013; Moran et al., 2006).

In Ghana, 52% of childbirths were assisted by skilled personnel in 2012 (Adu-Gyamfi, 2012). This means that a significant number of women give birth alone or are assisted by unskilled birth attendants such as Traditional Birth Attendance (TBAs) and mother-in-laws. Ghana is one of the countries with a very high maternal mortality rate, (319 per 100,000 live births) and is striving hard to reduce the numbers in maternal mortality (World Bank Report, 2015). For instance, The United Nations (UN) as well as the international community has resolved through the 5th Millennium Development Goal (MDG) to reduce the high maternal mortality ratio by three quarters by 2015; however, this goal was largely unachieved (WHO, 2015a). Cultural beliefs, lack of awareness of availability of maternal health care utilities, and crippling poverty inhibit preparation for safe delivery and the post-delivery health guarantees of the mother and baby in advance (Byford-Richardson et al., 2013). The majority of pregnant women and their families do not know how to recognize the danger signs of

complications. When complications occur, the unprepared family wastes a great deal of time in recognizing the problem, getting organized, getting money, finding transport, and reaching the appropriate referral facility (Ekabua et al., 2011). This often results in avoidable delays in obtaining life-saving emergency services that could prevent maternal deaths.

Birth preparedness is a comprehensive strategy to improve the use of skilled providers at birth and the key interventions to decrease maternal mortality (Tura, Afework, & Yalew, 2014). Birth preparedness and complication readiness (BP/CR) strategies encourage women to be informed of the danger signs of obstetric complications and emergencies, choose a preferred birth place and attendant at birth, make advance arrangement with the attendant at birth, arrange for transport to skilled care site in case of emergency, save or arrange alternative funds for costs of skilled and emergency care, find a companion to be with the woman at birth or to accompany her to emergency care, and identify blood donors in order to facilitate swift decision-making and reduce delays in reaching a care facility when a problem arises (Nawal & Goli, 2013). Responsibilities for BP/CR must be shared among all safe motherhood stakeholders, since coordinated effort is needed to reduce the delays that contribute to maternal and newborn deaths.

According to Kaso and Addisse, (2014b) the major causes of maternal deaths include postpartum haemorrhaging, hypertension, anaemia, unsafe abortions, infections and obstructed labour. Although these are the easily and most identifiable causes of maternal deaths, there are several other determinants associated with maternal deaths. For example, access to health care is often

impeded by delays: delays in deciding to seek care, delays in reaching care, and delays in receiving care (Solnes et al., 2013). These delays also have many causes, including: logistic and finances, unsupportive policies and gaps in services, as well as inadequate community and family awareness and knowledge about obstetric complication issues.



Statement of Problem

Avoidable maternal morbidity and mortality remains a formidable challenge in many developing countries like Ghana. Sub-Saharan Africa (SSA) has been the region with the highest maternal death ratio (Soubeiga et al., 2014). For example, in 2008, 358,000 maternal deaths occurred worldwide. Ninety-nine percent of these deaths were in countries of the developing world, of which 57% were in the SSA including Ghana (Otoo., Habib., & Ankomah, 2015). Current statistics on maternal mortality rates in Ghana reveal that, 319 deaths occurred per 100,000 live births (World Bank Report, 2015). The situation is even worse in the deprived regions of Ghana where women give birth at home due to unforeseen militating factors which compel pregnant women to depend on TBA, village midwives, members of the families or neighbours who provide unskilled support (Agarwal, Sethi, Srivastava, Jha, & Baqui, 2010). Ironically, performance review of Ghana Health Service annual reports for 2009, 2010 and 2011 indicated that Ghana's antenatal coverage often exceeded 90% (WHO, 2015a). Analysis on maternal health also indicated higher coverage in the Northern Region, where maternal mortality rate has been increasing consistently for the past three years (Galaa, 2010). Whereas antenatal coverage was as high as 97.1% in the Region, skilled deliveries were low (31.2%) during the same period (Adu-Gyamfi, 2012). It is therefore, apparent that there is a huge disparity between attendance for antenatal services by expectant mothers and patronage of skilled care during childbirth. It is difficult to tell why the recorded high coverage antenatal care does not commensurate with patronage of skilled professionals for childbirth. Evidence

from developing countries like Ethiopia, Bangladesh, and Burkina Faso showed that counselling given during BP/CR is helpful in improving institutional deliver utilizations (Tura et al., 2014). Similar studies conducted in Nepal, Burkina Faso and India also showed that the BP/CR plan improves preventive behaviours and knowledge of mothers about danger signs, and leads to improvement in care-seeking during obstetric emergency (Tura et al., 2014; Agarwal et al., 2010 and WHO, 2015b).

Despite the fact that BP/CR is essential for further improvement of maternal and child health little is known about the current magnitude of BP/CR strategies and associated factors in Ghana especially in Tamale. This study, therefore, aimed at filling this gap by assessing the current status and factors associated with birth preparedness and complication readiness among pregnant women attending antenatal clinic at the Tamale Teaching Hospital.

Purpose of the Study

The overall purpose of the study was to assess birth preparedness among expectant mothers and investigate the determinants influencing birth preparedness and facility-based deliveries in the Tamale Teaching Hospital.

Specific Objectives

This study specifically:

1. Assessed expectant mothers' knowledge on obstetric risk factors,
2. Assessed factors associated with delays in seeking early antenatal care,
3. Determined family support for the pregnant woman,

4. Determined the obstetric beliefs among the study population and
5. Established community support systems for pregnant women.

Research Questions

1. What do pregnant women know about danger signs of pregnancy and childbirth?
2. What factors influence access to early antenatal care?
3. What family support do pregnant women get during pregnancy and childbirth?
4. What obstetric beliefs exist among expectant mothers and families?
5. What support systems are in place in the community for pregnant women in case of emergency childbirth?

Significance of the Study

This study hopes to produce a document that will be used to educate expectant mothers at antenatal centres. The study seeks to promote skilled care for all births and encourage decision making before the onset of labour and thereby reduce delay in deciding to seek care. This study provides information that can be used to encourage households and communities to put in place emergency response systems regarding childbirth to avoid delays in seeking timely obstetric care. The findings of this study may be useful to Ghana Health Service and other stakeholders in the healthcare system for proactive policy making. The results also avails information and data for advocacy to promote facility based childbirth

in rural communities in and outside Ghana and therefore serves as reference document for further research.

Delimitations (inclusion criteria) of the Study

The study only considered pregnant women within the ages of 11 to 50 years attending the antenatal clinic at the Tamale Teaching Hospital. Women whose babies were older than six months and expectant/nursing mothers who were unwilling to participate in the study or were not residents in the study catchment area were also excluded.

Limitations

The limitations of this study were: information on birth preparedness (BP) was based on self-reports from study respondents; recall bias is thus likely to be introduced as women did not have written documents on BP and were likely to have forgotten older events related to BP practices. To minimize this, women who had infants more than 6 months of age at the time of survey were excluded. Secondly, the study was facility based and might thus not indicate the true rate of BP practice in the community. It was also difficult to establish a temporal relationship as the study design was cross-sectional.

Despite these limitations, the trained health personnel used in data collection as research assistants made it less difficult explaining the concepts to participants and findings from this study are most likely to be valid, reliable and contribute to the understanding of the factors associated with BP practice in the study area.

Operational Definition of Terms

The purpose of this section is to provide definitions for terms used in the study that are unusual or not widely understood. In addition, common terms that have special meaning in the study are defined in this section.

Birth Preparedness and Complication Readiness (BPCR): the process of planning for normal birth and anticipating the actions needed in case of an emergency. Women who have made funds available for transportation to hospital, have identified the mode of transportation when labour begins, have already arranged for a blood donor and have blood in the blood bank are said to be 'well prepared' (Markos & Bogale, 2014).

Maternal Mortality Ratio (MMR): the number of maternal death during a given time period per 100,000 live births during the same period (World Bank, 2015).

Maternal Death: the death of women while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any causes related to or aggravated by pregnancy or its management but not from accidental or incidental causes (Ingvil & Bailah, 2015).

Skilled care: quality care to the woman during pregnancy, childbirth and the postpartum period and her infant, provided by skilled personnel supported by an enabling environment (necessary equipment, supplies and medicines and infrastructure) and functional referral system (Zetterquist, 2012).

Skilled health worker/ Skilled birth attendant (SBA): an accredited health professional such as midwife, doctor or nurse who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated)

pregnancies, childbirth and the immediate postpartum period, and identify, manage or refer complications (Nawal & Goli, 2013).

Traditional birth attendant (TBA): traditional, independent (of the health system), non-formally trained and community based providers of care during pregnancy, childbirth and the postpartum period. TBAs either trained or not, are excluded from the category of skilled health workers.

Education: education in this study stands for both formal and informal acquisition of knowledge regarding birthing and safe motherhood practices.

Community/family support systems: mechanisms for establishing a community-led structure which tracks all pregnant women, and provides need-based support for making their pregnancy safer, including timely use of life- saving emergency obstetric care services (Ekabua et al., 2011).

Organization of the Study

This study is composed of five chapters. Chapter one (1) introduces the topic and provides the background to the study. It covers the statement of the problem, the study's objectives and research questions which guided the study. It ends with purpose, significance, delimitation, limitation, operational definition of terms, abbreviations and organization of the research study. Chapter two (2) reviews the literature on concept of birth preparedness and maternal health from the global to local context, maternal health services availability and accessibility, obstetric beliefs in pregnancy and childbirth, family support for pregnant women, community support system during emergency delivery, and the theoretical framework underpinning the study. Chapter three (3) looks at the research methodology

that was applied to achieve the study's objectives and analysis of the findings. The Systematic random sampling procedure was used to select 345 respondents for the study using a structured questionnaire as the data collection instrument. SPSS was used to analyze the results. Chapter four (4) is made up of data presentation, interpretation and analysis, and discussion of the main findings. Finally, chapter five (5) provides a summary, conclusion, recommendations, limitations, and areas for future research.



CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter discusses published information in birth preparedness and pregnancy related complications readiness among expectant mothers before, during and after childbirth. The review is guided by the principles of the three delay model developed by Thaddeus and Maine (Solnes et al., 2013). Comprehensive knowledge of these issues are essential to this research as it gives reliability to views shared globally on the concepts in focus and emphasises the significance or otherwise of the present study. Current literature reviewed for this study covered the period from 2000 to 2016 AD. The literature reviewed included: journal articles (surveys, research papers), books, conference proceedings and government or corporate reports. Information was sourced from theses and dissertations, specialized magazines, newspapers and the Internet. The subtopics discussed in this section consist of conceptual framework-three delays model, causes of maternal morbidity and mortality globally and locally, knowledge of expectant mothers on pregnancy related issues and health seeking behaviours, access to maternal health services, barriers to maternal health services, obstetric beliefs among expectant mothers, family support for pregnant women and community support systems availability.

Conceptual Framework-Three Delays Model

The Three Delays Model was developed by Thaddeus and Maine (1994) to conceptualize the factors that influence obstetric care utilization and birth

outcomes. They identified a number of factors related to the three delays that contribute to poor birth preparedness, resulting in maternal morbidity and mortality. The model focuses on factors applicable between the start of having obstetric complications until the time women receive necessary adequate and appropriate care resulting in better outcomes. They examined how these factors cause delays in decision making, identifying and reaching medical care and receiving adequate and appropriate treatment at a health facility. For the purpose of this thesis, the model has been adapted for use in exploring and understanding birthing and emergency obstetric care, especially among expectant mothers' preparedness for birth and barriers to the utilization of health facility during labour, delivery and the postpartum period in the Tamale Teaching Hospital.

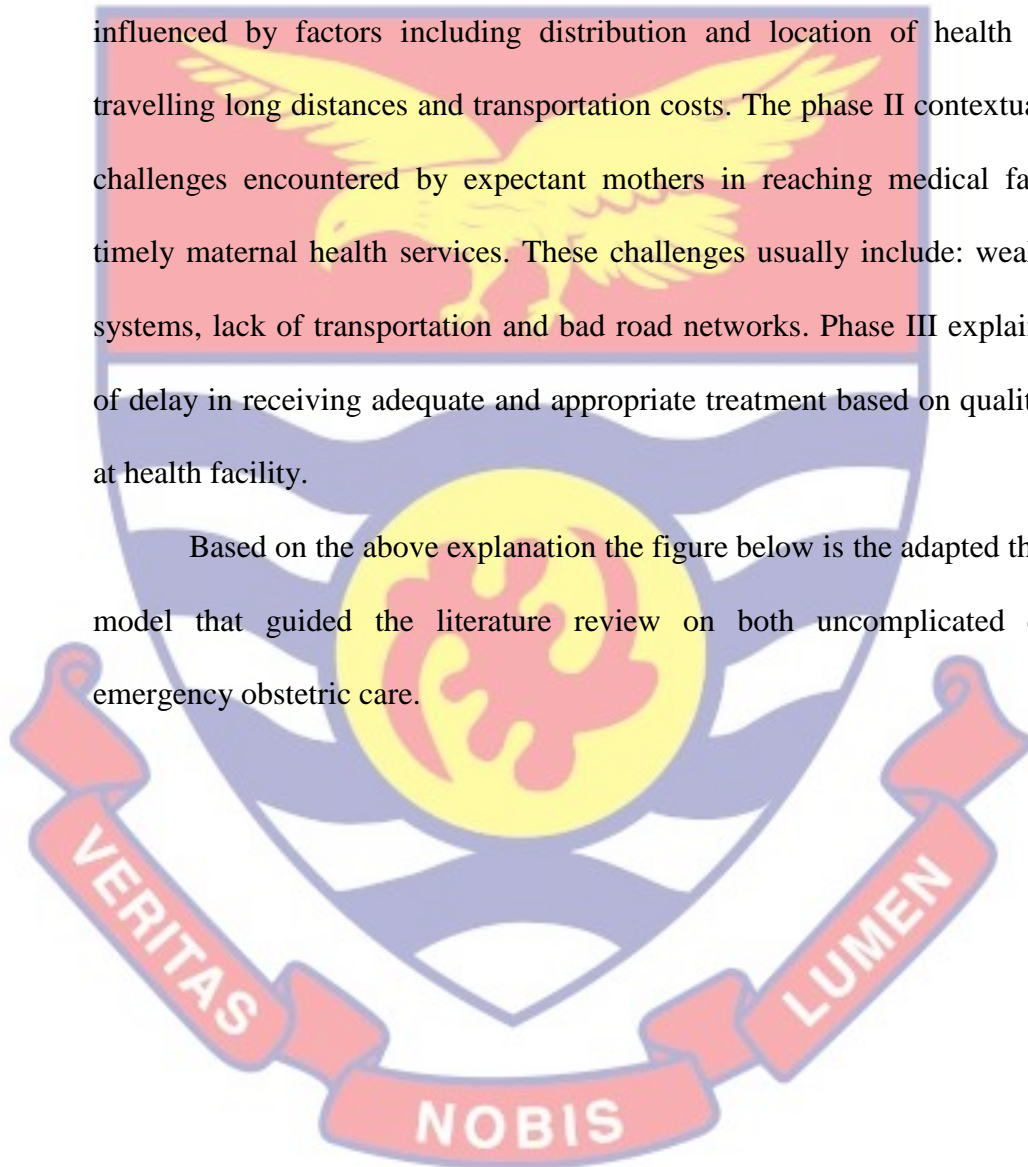
According to Solnes et al., (2013) the first phase of delay indicated the largest number of factors with numerous barriers that affect preparedness and the utilization of healthcare services. Utilization and outcomes are influenced by three main factors: socioeconomic, cultural factors, and perceived accessibility and perceived quality of care, with main and sub barriers in each factor. For example, socioeconomic/cultural factors have illness factors (recognition of complications, perceived severity, perceived aetiology); socio-legal issues (illegal abortion, sanctions on infidelity); women's socio-economic status (access to money, restricted mobility, value of women's health); and education status (positive/negative association).

The first factor consists of socioeconomic/cultural factors alongside perceived accessibility, affordability of care and perceived quality of care. In

addition, men and family elders often have to decide where women can go for antenatal care and delivery either to the health facility or traditional birth.

In the phase II of the model developed by Maine (1994), delay in identifying and reaching medical care focused on how actual accessibility is influenced by factors including distribution and location of health facilities, travelling long distances and transportation costs. The phase II contextualized the challenges encountered by expectant mothers in reaching medical facility for timely maternal health services. These challenges usually include: weak referral systems, lack of transportation and bad road networks. Phase III explains causes of delay in receiving adequate and appropriate treatment based on quality of care at health facility.

Based on the above explanation the figure below is the adapted three delay model that guided the literature review on both uncomplicated care and emergency obstetric care.



The Three Delay Model

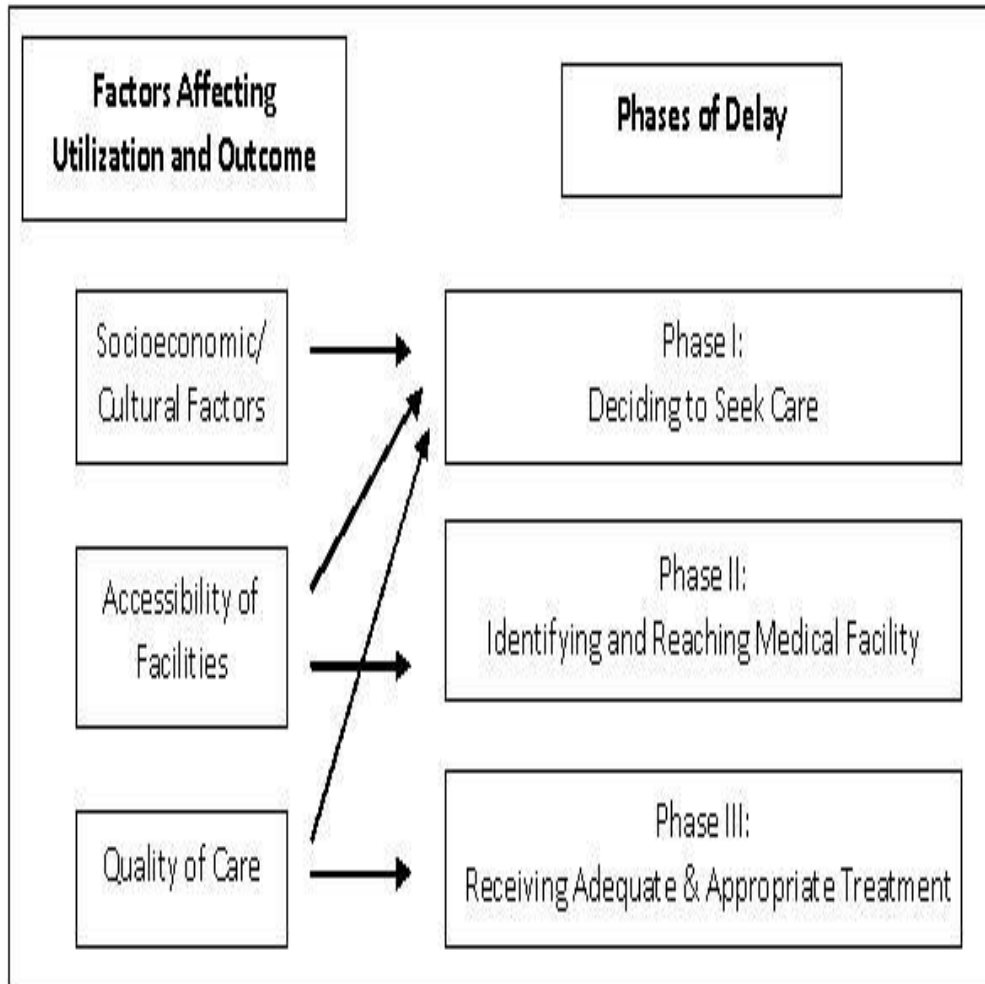


Figure 1: A conceptual framework showing the three delay model (adapted from Thaddeus & Maine, 1994)

Causes of Maternal Deaths/ Key Factors Affecting Maternal Mortality

MMR (modelled estimate; per 100, 000 live births) in Ghana was last measured at 319 in 2015, according to the World Bank (Otoo et al., 2015). MMR is the number of women who die during pregnancy and childbirth, per 100,000 live births (World Bank Report, 2015). A mother's death has profoundly negative

consequences for her family, particularly for children left without a primary caregiver. In poorer nations, if the mother dies, the risk of death for her children under age 5 can increase by as much as 50% (Asante, 2011). Furthermore, for every maternal death, many more women suffer from injuries, infections and disabilities related to pregnancy and childbirth. According to the WHO, in the developing world, over 30 million women suffer each year from serious obstetric complications as a result of inadequate or inappropriate care during pregnancy, delivery and the first few critical hours after birth (Mbalinda et al., 2014). Maternal deaths have both direct and indirect causes. Around 80% of maternal deaths worldwide is brought about by direct obstetric complications such as haemorrhage, infection, obstructed and prolonged labour, unsafe abortion and hypertensive disorders of pregnancy. Indirect causes such as malaria, diabetes, hepatitis, anaemia and other cardiovascular disorders which are aggravated by pregnancy can also lead to maternal death (Nawal & Goli, 2013).

Furthermore, maternal tetanus also kills mothers and new born babies worldwide. If the mother is not immunized with the correct number of doses of tetanus toxoid vaccine, neither she nor her new-born infant is well protected against tetanus at delivery. Tetanus is caused by a toxin produced during the anaerobic growth of *Clostridium tetani* (Asante, 2011; Galaa, 2010). Infection is acquired through environmental exposure, of any broken skin or dead tissue such as a wound or when the umbilical cord is cut, to the spores of the bacteria. These spores are universally present in the soil (Dellinger et al., 2008). Poverty, poor hygiene and limited access to health services increase the risk of maternal

neonatal tetanus (MNT). Since 1989, when the World Health Assembly called for the elimination of neonatal tetanus (NT), 110 out of 161 developing countries were thought to have achieved elimination. UNICEF, WHO and UNFPA agreed in 1999 to set the year 2005 as the target date for worldwide elimination (WHO & UNICEF, 2009). Hence, the vaccine was given to women of childbearing age and pregnant women to protect them from tetanus and their new-born infants against NT. Although these are the easily and most identifiable causes of maternal deaths by the WHO, there are several other reasons associated with maternal deaths (Nawal & Goli, 2013). For the purpose of this work, these other factors are grouped into three: health care delivery explanations, biological (medical) explanations, and socio-economic explanations.

Health Care Delivery Explanations

Antenatal care

The WHO, (2015) recommended at least four ANC visits for effective antenatal care. In Ghana, ANC visits are supposed to be six (6). To affirm this, a number of studies have indicated the existence of an association between the use of antenatal care and positive maternal outcome (Adu-Gyamfi, 2012). Antenatal care does not only help women identify complication and potential risks during pregnancy, but it also gives direction to plan for safe delivery, and hence is a significant component of maternal health. The significance of ANC visits goes beyond the pregnancy period because women who seek ANC generally also tend to seek assistance from a health professional during childbirth. A recent study on antenatal care estimated that worldwide only 70% of women ever receive any

ANC, whereas in industrialized countries more than 95% of pregnant women receive ANC (Karkee et al., 2013). Epidemiological studies have also demonstrated the benefits of ANC in reducing maternal and perinatal complications, although the exact components and timing of such ANC has been difficult to demonstrate (Otoo et al., 2015). This uncertainty leads to the adoption of antenatal practices that are not comparable and are largely inconsistent between and within countries. Moreover, there is evidence to show that certain components of care appear to be more critical than others, whilst some long-held traditional components have little scientific basis (Berrin & Yasemin, 2016). Also, there is growing agreement that ANC should be limited to a small number of specific tests carried out at certain critical times during the pregnancy.

The optimum number of ANC visits for countries with limited resources is still the subject of considerable debate, the problem being linked not only with effectiveness but also with costs and other barriers to ANC access (Markos & Bogale, 2014). Nevertheless, a recent systematic review showed that essential interventions required by healthy women with no underlying medical problems can be provided over four visits at specified intervals. The results of the review also revealed that women in developed countries receiving ANC through this four-visit model were less satisfied and felt their expectations were not met, although they did not perceive that the care they received was of lower quality (Karkee et al., 2013).

Evidence suggests that, given the need for early identification of underlying problems to ensure efficacious treatment, the first ANC visit should be

as early as possible in pregnancy, preferably in the first trimester (Kabakyenga, Östergren, Turyakira, & Pettersson, 2012). At this visit, there should be a general assessment of the woman's health, with appropriate remedial action or treatment of underlying medical conditions, if required, to try to ensure that the woman is as healthy as possible during pregnancy and for birth. It is also suggested that, given the lack of sensitivity in predicting problems, especially those that occur during or around birth, all pregnant women should be encouraged to make a birth and emergency preparedness plan. An antenatal assessment at around 37 weeks or near the expected date of confinement/birth is also advisable, to ensure that appropriate action is taken to prevent problems. Such appropriate action should include advice on avoiding post maturity and the identification of mal-presentations, especially breech presentation, in which case an attempt should be made at external cephalic version. Thus, there is general consensus that all women with an uncomplicated pregnancy should have a minimum of four visits, as outlined by Hiluf & Fantahun (2008).

Evidence also indicates that good record-keeping is essential in facilitating appropriate decision-making and interventions (Debelew, Afework, & Yalew, 2014). These records should be readily available and accessible at all times. The best mechanism to ensure that essential information is always available is for the record to stay with the woman. Ensuring the woman can hold her own records is also a way to encourage women to feel involved in their care. A number of studies have shown the benefits of hand-held or home-based antenatal care records. Women who hold their own records are more likely to keep follow-up

appointments, to ask questions about their health, and to feel in control of their pregnancy. Therefore, home-based or hand-held records are recommended. Countries may design their own antenatal care records, but should ensure that all the essential information is readily available to the caregiver (Urassa, Pembe, & Mganga, 2012). Family and community membership have been shown to be a major determinant in access to antenatal care services. Lone or unsupported pregnant women, especially adolescents, therefore need services that are specifically targeted to their needs; service providers should do all they can to seek out such women and take the services to them, if they are unable or unwilling to attend a clinic (Hiluf & Fantahun, 2008). In other words, in this computerised age, record keeping can be digitalized and made much more easily accessible online both to the healthcare provider and patient to expand the theories of record keeping.

In *malarious* areas, all pregnant women must sleep under an insecticide-treated bed-net (ITN). In addition, in areas of stable transmission of *falciparum malaria*, all pregnant women must be given intermittent preventive treatment (IPT) (Omaka-amari, Nwimo, & Alo, 2015). Pregnant women suspected of having malaria should be assessed and treated in accordance with national protocols. In the postnatal period, both the mother and the baby should sleep under an insecticide-treated bed-net (Hiluf & Fantahun, 2008). The deleterious effects of malaria infection during pregnancy on maternal, foetal and infant health are caused chiefly by *Plasmodium falciparum* (Hewitt, 2014). In Africa, at least 25 million pregnancies are threatened by malaria each year, resulting in an

estimated 2–15% of maternal anaemia (Omaka-amari et al., 2015). Maternal malaria infection accounts for almost 30% of all the causes of low birth weight that can be prevented during pregnancy. Maternal malaria infection is estimated to account for 3–8% of all infant deaths (Mbalinda et al., 2014). In areas of high and moderate (stable) malaria transmission, adult women acquire immunity, and most malaria infections in pregnant women are asymptomatic (Omaka-amari et al., 2015). Nevertheless, these asymptomatic infections contribute to the development of severe anaemia in the mother, resulting in an increased risk of maternal mortality and morbidity (Hewitt, 2014). The health of the foetus and infant is affected by maternal infection during the second half of pregnancy (Soubeiga et al., 2014). Malarial infection of the placenta and maternal anaemia due to malaria contribute to low birth weight and preterm birth, which lead to higher infant mortality and morbidity and impaired development of the child (WHO, 2013). Stable transmission predominates in Africa south of the Sahara, and consequently this region bears the greatest burden of malaria infections during pregnancy.

In these areas of high or moderate (stable) malaria transmission, the ill-health effects are particularly apparent in the first and second pregnancies exposed to malaria. In areas of epidemic and low (unstable) malaria transmission, adult women have no significant level of immunity and will develop clinical illness if they have parasitaemia. Pregnant women with no immunity are at more risk of dying from severe malarial disease and/or experiencing spontaneous abortion, premature delivery, low birth weight or stillbirth. All pregnant women are at similar risk from malarial infection, irrespective of parity. Involuntary

abortion is common in the first trimester, and prematurity is common in the third trimester. Other consequences during pregnancy commonly associated with *P. falciparum* infection include hypoglycaemia, hyperpyrexia, severe haemolytic anaemia and pulmonary oedema.

HIV infection diminishes a pregnant woman's ability to control *P. falciparum* infections. The prevalence and intensity of malaria infection during pregnancy is higher in women who are HIV-infected (Iwelunmor, Ezeanolue, Airhihenbuwa, Obiefune, & Ezeanolue, 2014). Women with HIV infection are more likely to have symptomatic disease and to be at increased risk of malaria-associated adverse birth outcomes. Multigravidae with HIV infection are similar to primigravidae without HIV infection in terms of their susceptibility to and negative consequences of malaria infection. The effects of the other three parasites that cause malaria in humans (*P. vivax*, *P. malaria* and *P. ovale*) are less clear. There is a need for studies to better define the impact of *P. vivax* infection on the health of pregnant women and neonates (Omaka-amari et al., 2015).

Iron-deficiency anaemia is the most common micronutrient deficiency in the world, affecting more than two billion people globally (Riazi et al., 2012). It contributes to low birth weight, lowered resistance to infection, poor cognitive development and reduced work capacity. Pregnant and postpartum women and children aged 6–24 months are usually the most affected groups. It is highly prevalent in less developed countries, where, in addition to poor nutrition, parasitic and bacterial infections can contribute to depletion of iron reserves. Anaemia in pregnancy is defined as haemoglobin <11g/dl or haematocrit <33%

(Dellinger et al., 2008). It aggravates the effects of maternal blood loss and infections at childbirth, and is associated with increased maternal and perinatal mortality and morbidity. Where anaemia is prevalent, iron deficiency is usually the most common cause (Karkee et al., 2013).

Place of Delivery

Thaddeus & Maine (1994) stated that the place of delivery has consistently been found to be associated with reduction in maternal mortality. Complications during childbirth account for a large proportion of maternal mortality and the risk of complications and infections causing death of both the mother and the child can be reduced by appropriate attention and hygienic conditions during delivery. Hence, deliveries in a safe environment with assistance of health professionals are one of the key factors to reducing MMR. Access to health centres, therefore, is a key issue in the reduction of maternal mortality (Okka, & Durduran, 2016).

Lack of access to a health facility confronts many women especially those found in rural areas. Studies about place of delivery of women in Nepal found only 13.5% of childbirths took place in health facilities in rural areas as against 47.8% in urban areas (Nawal & Goli, 2013). Similarly, in these findings only 6.3% childbirths took place in health facilities in mountain regions, in comparison to 17% and 20.9% in the plains and hill regions, respectively. Likewise, the less developed far western regions had the lowest proportion of mothers having access to health facilities during childbirth (8.5%), while women in the central urbanized regions were also found to have more access to health facilities as 24.4% of them

delivered their children in health facilities (Tura et al., 2014). This is because in many remote areas of hilly and mountain regions, travel time has to be measured in hours or even days rather than minutes because of the topography where most people travel on foot. There is therefore the need to put efficient transportation systems in these places to get women to health facilities quickly in order for the service to be effective. Economic status of these women also appeared to be most influential in the choice of birth place by women. Women in the higher wealth quintile delivered their children in health facilities where mothers in the lowest wealth quintile were 13 times less likely to go to health facilities to deliver (Khan et al., 2012).

Assistance during Delivery

Poor assistance during delivery resulting in the maternal deaths or the death of the child has become the blame game for most maternal deaths by families who have lost daughters through delivery. To Maine (1994), for the conditions for facilities at birth to be effective, first, delivery should be assisted by trained health workers who are able to identify the signs of complications and act appropriately when a problem occurs. However in developing countries, many women are still assisted in delivery either by traditional births attendants, relatives or delivered by themselves. Skilled birth attendants should be available to deal with obstetric emergencies once they have been identified, and on arrival at the referral facility patients should be observed promptly and appropriate decisions made to avoid further complications or even death. Kaso and Addisse (2014) declared the majority of maternal deaths occur due to unexpected complications,

which would require the availability of emergency obstetric care; thus the presence of skilled birth attendants for all births is the only way to ensure all those with pregnancy complications are to be referred for emergency obstetric care. The presence or availability of skilled birth attendants during labour, delivery and the early post-partum period could reduce an estimated 16 to 33 percent of deaths due to obstructed labour and haemorrhage, (Moran et al., 2006).

In Ghana a well-respected village elder who is well informed on the traditional medical lore associated with childbearing and rearing, traditional modes of family planning and treatment of infertility and lactation deficiencies is considered an authority on child delivery and sometimes even called a traditional midwife. Although some 6,000 traditional midwives, already highly regarded by members of the community in Ghana have been given medical and paramedical training, and have proven to be valuable adjuncts to the national health care system, the large majority of them, however, are untrained in modern maternal health delivery systems (Otoo et al., 2015). The lowest levels of skilled birth attendants at delivery in developing countries are said to be in South Asia (29%) and Sub-Saharan Africa (37%) whilst the highest levels of use of skilled birth attendance are in Latin America and the Caribbean (83%), and the Central and Eastern Europe/Commonwealth of Independent States Regions (94%) (Solnes et al., 2013).

Infrastructure

For women to be able to have a quality place of delivery, access family planning, antenatal care and postnatal care just to mention a few, a functioning

health system is required. This consists not only of critical human resources, such as midwives, doctors, obstetricians, and paediatricians, but also personnel to effectively manage, remunerate, train, deploy and regulate them. Furthermore, this also requires an effective infrastructure, medical supply systems and effective information dissemination: health facility buildings, power supply, clean water, transportation, medical supplies, and communication. No clear data exist on availability of electricity and clean drinking water facilities in the health institutions; however, they are not available in all health institutions (Mekuaninte, Worku, & Tesfaye, 2016).

The presence and quality of care rendered by the health service providers, availability of equipment and medical supplies in the health service facility determines the decision of the needy women to visit the facility. However, this is still one of the major problems of facilities in the rural areas of developing countries such as Ghana. Studies done in the Sub-Sahara revealed that 74% of the respondents were able to receive the services at the facility they visited. However, out of this only 35.6% reported full satisfaction from the services they received (Engla, 2010). Respondents who expressed dissatisfaction with the level of services pointed out the lack of diagnosis of diseases as the prime reason. This was followed by those reporting lack of free medicines, lack of quality services, and lack of capable and trained personnel as other reasons for being dissatisfied. Hence, an overwhelming majority (82%) of women either did not have access or they do not utilize delivery services in health facilities (Mohamed, 2012).

Biological (Medical) Explanations

In rich countries, the most important cause of maternal death is "other direct causes" (21%), which largely includes complications during interventions such as those related to caesarean section procedures and anaesthesia, followed by hypertensive disorders and embolism ((WHO, 2015b). Some of the direct medical causes of maternal mortality include haemorrhage or bleeding, infection, unsafe abortion, hypertensive disorders, and obstructed labour. Other causes include ectopic pregnancy, embolism, renal failure, cardiac disorders and anaesthesia-related risks. Conditions such as anaemia, diabetes, malaria, sexually transmitted infections (STIs), and others can also increase a woman's risk for complications during pregnancy and childbirth, and, thus, are indirect causes of maternal mortality and morbidity (Soubeiga et al., 2014).

Socio-Economic Explanations

Level of Education

Formal education and knowledge about maternal healthcare facilities and utilisation determine the behaviour of pregnant women in seeking for care. Women's education has been found to be strongly associated with maternal health care services utilisation. Educated mothers are considered to have a greater awareness of the existence of maternal health care services and benefited in using such services and are likely to have better knowledge and information on modern medical treatment and have greater capacity to recognize specific illnesses (Debelew et al., 2014). As formal education empowers women, they have greater confidence and capability to make decision to use modern health care services for

themselves and for their children. Educated women are better motivated for seeking health care in comparison to women who are not educated. However, across all ages and ethnic groups, families sought for help from traditional faith healers first before ultimately the sick were taken for treatment to health care providers such as doctors and nurses when the cases became serious a pattern which exist no matter the background (Iwelunmor et al., 2014).

Aside the formal education exposing women to the ability and knowledge to access health care services, existing research on health outcomes in poorer countries showed women's exposure to media provided them information on health related issues. Women's exposure to information through the radio, television and newspaper in India has been identified as significantly increasing the utilization rates for all services (Asp et al., 2014).

Financial Background or Employment Status

Poverty is a major factor which can inhibit one's access to health care, and feminization of poverty is seen to be one of the most hindering factors of women the world over especially in developing countries (Kabakyenga et al., 2012). It inhibits women in their decision making processes and other vital areas of their lives, of which maternal health cannot be isolated. To be able to have quality health service there is the need for a sound financial backing. Even how to be able to take the decision on which service to access depends on one's status; an important part of any health system is the mechanism by which health costs are financed and pooled.

Women's economic dependence on men for survival has been a principal barrier to women's control over their reproductive behaviour in developing countries (Tura et al., 2014). Empowering women with more economic participation and control in their households and communities might be the key to their achieving control over their own reproductive health. Employment can increase women's economic autonomy and reproductive health status because it raises awareness and provides new ideas, behaviour patterns and opportunities through interaction with other people outside the home and community. A study in Kenya reported that the antenatal care visits tend to start earlier for women in paid employment as they are likely to have greater knowledge about pregnancy and childbirth due to freedom of movement outside household (Debelew et al., 2014).

A husband's occupation can also represent family income as well as social status, and it is well established that increased income has a positive effect on the utilization of modern health care services. Differential utilization of health services by different occupational groups also depicts occupation as one of the predisposing factors (Kabakyenga, Östergren, Turyakira, & Pettersson, 2011). An empirical research in rural Bangladesh showed that fathers employed in non-farm occupations chose trained personnel for delivery more frequently than fathers who were farmers or members of other occupations (Tura et al., 2014). Another study in Bangladesh reported that women whose husbands work in business or services are most likely to be the users of professional healthcare services to treat their complications (Mbalinda et al., 2014).

The Concept of Birth Preparedness and Complication Readiness

Birth-preparedness and pregnancy complication readiness is a comprehensive strategy aimed at promoting the timely utilization of skilled maternal and neonatal health care (Markos & Bogale, 2014). The key elements of birth preparedness include: knowledge of danger signs, plans for place of birth, use of birth attendant, transportation and saving money (Solnes Miltenburg et al., 2013). In addition, a potential blood donor and a decision maker need to be identified. This is because every pregnant woman faces the risk of sudden, unpredictable complications that could end in death or injury to herself or to her infant. For this reason, pregnancy and childbirth is described in developing countries as a perilous journey.

Most maternal deaths due to complications during and following pregnancy and childbirth are preventable, and great strides have been made in improving maternal health and reducing the number of deaths (WHO, 2015b). Between 1990 and 2013, maternal mortality dropped globally by 45% according to the WHO (Nawal & Goli, 2013), nevertheless, every day approximately 800 women still die from causes related to pregnancy and childbirth. In 2013, the number of maternal deaths worldwide was 289,000 women which had a negative impact on families, communities and societies with far-reaching effects (Mbalinda et al., 2014). Out of this, Sub-Saharan Africa nations accounted for 62% of the deaths and remain the most risky regions in the world for dying of complications in pregnancy and childbirth. The WHO further mentioned that, 1 out of every 16 women dies of pregnancy related causes compared with only 1 in 2,800 women in

richer regions (WHO, 2015b). The risk of maternal mortality is highest for girls under 15, many of whom have no access to maternal healthcare services. Without the necessary intervention, the WHO predicted that one out of every five women in Africa will die from pregnancy related complications (WHO, 2015). Hence, it is necessary to employ strategies such as birth preparedness and complication readiness to overcome this danger to pregnant women.

According to Karkee et al., (2013), all pregnant women should have both oral and written plan for birth and dealing with unexpected adverse events, such as complications or emergencies, that may occur during pregnancy, childbirth or the immediate postnatal period. Women should discuss and review this plan with a skilled attendant at each antenatal assessment and at least one month prior to the expected date of birth. This is to assist women, their partners, and families to be adequately prepared for childbirth by making plans on how to respond if complications or unexpected adverse events occur to the woman and/or the baby at any time during pregnancy, childbirth or the early postnatal period.

Studies in developed countries have shown a positive impact on pregnancy and birth outcomes when the woman feels in control of the process of pregnancy and birth (Hiluf & Fantahun, 2008). Making a birth plan has been shown to facilitate this feeling of self-control and autonomy. Two types of interventions for developing birth plans are available, each emphasizing a different aspect of care. Interventions conducted in higher-resource countries focused mainly on the woman's psychological and physical comfort (birth plan), while those in lower-resource countries tended to focus on measures to ensure a safe birth with the

appropriate attendant and to prepare for emergencies (birth and emergency preparedness) (Tura et al., 2014). Birth and emergency preparedness is considered by The WHO and other agencies to be a useful and practical intervention with several advantages. This group of interventions contributes to increased use of services by assisting women and their families to plan for child birth (Urassa et al., 2012).

A birth/emergency preparedness plan includes identification of the following elements: the desired place of birth; the preferred birth attendant; the location of the closest appropriate care facility; funds for birth-related and emergency expenses; a birth companion; support in looking after the home and children while the woman is away; transport to a health facility for the birth; transport in the case of an obstetric emergency and identification of compatible blood donors in case of emergency (Nawal & Goli, 2013). The error in this argument is based on the assumption that every community/nation has the same economic ability to meet these recommendations as determined by healthcare providers in richer nations or looking to imitate richer nations with the resources to provide these services. There must be alternative services in regard to poorer nations that are community-driven and initiated than follow dictated external designs.

Apart from birth and emergency plans, the most critical intervention promoted by the Safe Motherhood Initiative is to ensure skilled attendance at delivery for all women. Since 1997, interventions and the list of the process indicators in support of Safe Motherhood have expanded to include the concept of

birth preparedness (Asp et al., 2014). This concept encompasses knowledge, intentions, and actions that affect the timely and appropriate use of life-saving obstetric care in the developing world. Birth preparedness is viewed as one of several needed responses to the three-delay model: delays in deciding to seek medical care, delays in reaching medical care, and delays in receiving treatment for major obstetric complications (Solnes Miltenburg et al., 2013). Whereas Safe Motherhood tended to reflect the availability and quality of facility-based care and care-seeking by the pregnant woman, birth preparedness on the other hand broadens the scope of the processes conceptualized to be in the pathway to maternal death or survival. Consequently, the number and type of population groups targeted for behaviour change interventions related to birth preparedness have expanded to include pregnant women, family members and community leaders (Ekabua et al., 2011).

The literature regarding the effectiveness of birth preparedness interventions to increase use of skilled professionals at delivery is very limited. For example, Solnes et al., (2013) in their review of more than 150 studies of the effectiveness of a broad range of behaviour change interventions to change specific community and household-level behaviours within Safe Motherhood programs identified only seven studies from projects that aimed to increase use of health services. The interventions evaluated in the seven studies varied, but all relied on various health education, communication, participatory, or social support strategies. In six of the studies that emphasized increasing knowledge of the danger signs of pregnancy, all reported an increase in participants' knowledge,

although statistical testing was not reported in all cases. Three of the seven studies documented increases in use of skilled delivery care. None of the studies, however, could attribute these increases to behaviour change interventions due to limitations in study design, sample size, and the absence of reported data regarding exposure to the package of interventions. Birth preparedness lacks evidence regarding the effectiveness of its implementation; nonetheless the concept has been used widely in Safe Motherhood programs. Kaso and Addisse, (2014) mentioned that BP/CR is a safe motherhood strategy whose objective is to promote the timely use of skilled maternal and neonatal care during childbirth or obstetric emergencies by reducing delays at the first, second, and third stages of labour and delivery process. BP/CR is a broad and integrative strategy; evidence related to its comprehensive implementation is scarce. However, its components are included in the WHO model for antenatal care as part of focus antenatal care education in clinic setting.

Based on critical primary research in India, WHO and UNICEF (2009) also recommend antenatal and postnatal home visits to counsel mothers, provide new-born care and facilitate referral. Emphasized by Ekabua, Ekabua, and Njoku (2011), in settings where there is prevailing illiteracy, lack of infrastructure and poor transport systems, the principles and practices of BP/CR have the potential of reducing the existing high maternal and neonatal morbidity and mortality rates. In Ethiopia, where BP/CR is barely applied, only 6% of the deliveries are attended to by health professionals. This situation well explains the maternal

mortality ratio of 673 per 100,000 live births, which is one of the highest in the world (Ekabua et al., 2011).

Historical evidence shows that no country has managed to bring its maternal mortality ratio below 100 per 100000 live births without ensuring that all pregnant women and new mothers are attended to by an appropriately skilled health professional during labour, birth and the period immediately afterwards (Jacobs., et al, 2011). Delay in responding to the onset of labour and such complications has been shown to be one of the major barriers to reducing mortality and morbidity surrounding childbirth. Information on how to stay healthy during pregnancy, the need to obtain the services of a skilled birth attendant, recognizing signs of the onset of labour, and recognizing danger signs for pregnancy-related complications and what to do if they arise would significantly increase the capacities of women, their partners and their families to take appropriate steps to ensure a safe birth and to seek timely skilled care in emergencies (Ajediran., et al, 2013). Interventions to reduce the other barriers to seeking care such as transport costs, perceptions of poor quality of care and cultural differences, must also be addressed.

Although little empirical evidence exists as yet to show a direct correlation between birth preparedness and reducing maternal and/or perinatal mortality and morbidity, limited and small-scale studies suggest that there is considerable benefit to be gained from this intervention. Given the difficulties in predicting pregnancy-related complications, providing information, education and advice to the woman, her family and the community on seeking necessary care is seen as an

important part of antenatal care (Sunnyvale et al., 2016). Studies show that, while no clear relationship has been found between improved knowledge and increased health-seeking behaviour, the adoption of new practices associated with planning at family and community levels is encouraging (Kabakyenga et al., 2011). The presence of a person of the woman's own choice to provide social support during childbirth has also been shown to have a positive effect. Thus, an important part of preparing for birth is seeking contact with and obtaining the services of a skilled birth attendant.

Many programs that aim to improve maternal health have included efforts to improve preparation for birth and readiness for complications (JHPIEGO, 2004). The IMPAC manual-*Pregnancy, Childbirth, Postpartum and Newborn Care: A Guide for Essential Practice* lists some key points to be addressed in ANC, which include identifying where the woman would go in an emergency and issues of transport and costs, as well as considering moving closer to care if 'living far' from a facility (WHO & UNICEF, 2009). However, greater guidance is required in terms of identifying which women should be strongly encouraged to move closer to care prior to labour and identifying the most appropriate facility to attend in the event of an emergency, recognizing that it may not be the closest health centre.

Knowledge of Expectant Mothers and Health Seeking Behaviour

Education is very important in analysing the decision of whether to seek care at health facility or not. Lack of knowledge of the recognition of danger signs and complications and less perceived severity of pregnancy related problems are

among the factors that can extend the time to make decision in seeking health care. In developing countries, more than 60% of women have been given the knowledge on danger signs during ANC visits (Bintabara et al., 2015). In southern Tanzania, the more women have knowledge of at least four or more danger signs, the more they utilize health facilities; those who have no knowledge of any danger signs and are more likely to use TBAs or relatives. A study done by Hailu et al., (2011) indicated that women patronize health facilities for delivery only when they have obstetric complications and those with normal pregnancy may opt to deliver at home. During the ANC visit, women are often instructed to deliver at a health facility; nevertheless, they were not given enough information especially about the importance of expected date of delivery and birth preparedness. As a result, the women delay in seeking care when premature labour started.

In addition, women and their families believe in the experience of previous pregnancy as a tool to determine the decision to seek care (Hailu et al., 2011). After they realize there is a complication, they then decide to seek care where the delay varies from two hours to five days. The delay in seeking care is mainly associated with lack of knowledge of identifying the danger signs. Mbalinda et al., (2014) demonstrated that rural Vietnamese women, with little knowledge on complications associated with childbirth, are the ones who deliver at home. The danger signs are not the actual obstetric complications, but symptoms that are easily identified by non-clinical personnel. Danger signs of pregnancy are mainly classified into three categories: the most common key

danger signs during pregnancy include severe vaginal bleeding, swollen hands/face and blurred vision. Major danger signs during labour and childbirth include severe vaginal bleeding, prolonged labour (>12 hours), convulsions and retained placenta. Major danger signs during the postpartum period include severe vaginal bleeding, foul-smelling vaginal discharge, and fever (Markos & Bogale, 2014).

Maternal morbidity and mortality could be prevented significantly if women and their families recognize obstetric danger signs and promptly seek health care service during labour, delivery and the early postpartum period under the supervision of skilled birth attendant (SBA). Evidence suggests that raising awareness of women about obstetric danger signs would improve early detection of problems and reduces the delay in deciding to seek obstetric care (Hailu et al., 2011). It is the essential first step in the appropriate and timely referral to essential obstetric care. Similarly, because most babies are born at home or are discharged from the hospital in the first 24 hours, increasing community awareness of the danger signs of new-born complications is of critical importance for improving new-born survival. Thus, this has been identified as one of the key strategies for improving maternal and child health. However, like in many developing countries, awareness of women about obstetric danger signs remains low (Hailu et al., 2011). The Ghana Ministry of Health (MOH), Reproductive Health Department and health bureaus of respective regions have made concerted effort to promote awareness of mothers about obstetric danger signs aimed to achieving the MDG 5. They have been applying multiple approaches at local and national

levels to improve access to health care information throughout the country, including activities such as training of health care providers and health extension workers, organizing civil societies, supporting women to women's associations, increasing access to health facilities and allocating health resources more equitably among rural and urban areas (Agbodohu, 2013).

Empirical studies of preventive and curative services have often found that use of health services is related to the availability, quality and cost of services as well as to the social structure, health beliefs and personal characteristics of the users. Urassa, Pembe, and Mganga (2012) have shown that women with primary education and above were two times more likely to be prepared for birth and complications compared to those who lacked formal education. They also reported that those who knew three or more obstetric danger signs were three times more prepared for birth and complications.

Similarly studies conducted in other countries have separately showed a clear relationship between high education and awareness of danger signs in Tanzania and in Kenya (Hiluf & Fantahun, 2008). However, their study results are inconclusive with respect to the influence of other predisposing and enabling factors, such as women's age, number of previous pregnancies and access to health care services/facilities, to mention a few. They further argued that better educated women are more aware of health problems, know more about the availability of health care services and use this information more effectively to maintaining or achieving good health status. Mother's education may also act as a proxy variable of a number of background variables representing women's higher

socio-economic status, thus enabling her to seek proper medical care whenever she perceives it necessary. Lack of physical access to health care facilities presented a fundamental hurdle to receiving care, even in urban settings (Debelew et al., 2014). Poor quality of care continues to be a major concern in most health systems, as high patient volume and limited resources combine to constrain service provision. Even when facilities are accessible and quality services are available, many women only recognize pregnancy relatively late in gestation (Urassa et al., 2012).

A mother's age may sometimes serve as an alternative for the women's accumulated knowledge of health care services that may have a positive influence on the use of health services. On the other hand, because of development of modern medicine and improvement in educational opportunities for women in recent years, younger women might have an enhanced knowledge of modern health care services and place more value upon modern medicine. Also, because of perceived risk associated with first pregnancy, a woman is more likely to seek maternal health care services for first order than high-order births (Kabakyenga et al., 2012). Having more children may also cause resource constraints, which have a negative effect on health care utilization. One of the important predisposing factors for utilization of health care is family size. Women from large families underutilize various health care services because of too many demands not only on their time but also on their resources if any (Asp et al., 2014).

The costs associated with illness among the poor in Pakistan resulted in reduced food consumption, withdrawal of children from school, sale of major

assets, putting children to paid work and even bonded labour, and only 12% were able to recover from the associated economic shock (Hailu et al., 2011). Within this context, a resolution to provide universal coverage, defined as access for all to appropriate promotion, preventive, curative and rehabilitative services at an affordable cost was endorsed by WHO member states in 2005. Recommended actions to alleviate barriers to access to health care related mainly to financial interventions. However, as multiple factors play a role, addressing access costs alone will not ensure access to health services (Engla, 2010).

Maternal Health Services

The WHO (2015) defined maternal health as the health of women during pregnancy, childbirth and the postpartum period. Comprehensive awareness on the occurrence of maternal mortality had been given slight recognition until the last two decades. Responsiveness on maternal mortality commenced more seriously in the 1980's but more specifically 1985 when Mbalinda et al., (2014) and Alon (2009) published a thought-provoking article titled '*Maternal Mortality, a neglected tragedy where is the M in MCH?*'. The article warned the world of the fact that many countries were neglecting this important problem and that existing programs were unlikely to reduce the soaring maternal mortality rates. Instantaneously, various authors went out to find out more. Accordingly, to meet this critical level of development, nations universally have instituted programs and policies within their available resources to combat maternal death. However, regardless of continued high-level political and organizational commitments, maternal mortality still remains one of the greatest challenges facing the

developing world, described as a tragedy that has often been neglected or compromised (Moran et al., 2006).

The progress on the maternal mortality reduction target has been far too slow, a sad reality that many view as one of the most embarrassing manifestation of health and social systems failure (Mbalinda et al., 2014). Similarly, MDG Progress Report and Human Development Report are accused of using various sources of data having different sample sizes and methodologies to compare MMR data over a period of time (WHO, 2015a). These are related to the inefficiencies within the civil registration systems, lack of knowledge of the pregnancy status of the deceased in addition to inaccurate medical certification of the cause of death. This staggering maternal mortality figures globally are burdened with a number of problems due to the fact that all deaths of women of reproductive age (11-49 years) are not known. Few countries count birth and death and even fewer register the cause of death and cannot determined whether or not the woman was pregnant at the time of death (Solnes et al., 2013).

About 26.4% of Ghanaian women who are married or are in consensual unions lack access to effective family planning, despite their desire to delay pregnancy and child birth. The unmet need for family planning is greatest among adolescents (61.6%) who are around 46% more likely to die of the consequence of pregnancy and childbirths than older women (Crissman et al., 2015). Lack of access to family planning has a direct connection to unsafe abortions which is a significant contributor to maternal mortality in Ghana (WHO, 2015a). Providing women with access to family planning and enabling them to decide how many

children they want to have and when, prevents maternal mortality by reducing the number of women dying due to pregnancies they never intended to have (Hailu et al., 2011). Meeting only 50% of the unmet demand for family planning in Ghana would reduce the number of unintended pregnancies and significantly reduce the number of abortions that are particularly high among women with unintended pregnancies.

Global development assistance to maternal and neonatal health in 2003 was estimated at more than US \$663 million. An estimated extra US \$1 billion was assigned three years later in 2006, while an increasing US \$6.1 billion estimated in 2015, is needed to increase coverage to desired levels of curbing pregnancy related complications and deaths (Allisyn et al., 2006). However, low financial commitment has also been blamed for the difficulty in halting maternal related problems and deaths. Despite the commitment expressed with the Millennium initiative, maternal, new-born, and child health have not been given financial priority internationally (Ekabua et al., 2011). They mention competition for funds so fierce that advocates for well-funded disease initiatives even feel the need to compete for the meagre resources of maternal health. Safe motherhood programs implemented to deal with maternal related complications tend to compete for funding with other priorities such as tuberculosis (2.4 million yearly deaths), malaria (1 million yearly deaths), and HIV/AIDS (3million yearly deaths) (Skinner & Rathavy, 2009).

Consequently, the WHO has provided a summary of three critical factors underlying maternal deaths. The first of these vital causes of maternal death in the

world is lack of access and utilization of essential obstetric services (Jacobs et al., 2011). There is a negative association between maternal mortality rates and maternal health care utilization. Estimates suggest that 88 to 98% of all pregnancy-related deaths are avoidable if all women would have access to effective reproductive health care services (Hiluf & Fantahun, 2008). Secondly, the low social status of women in developing countries is critical. The report indicated low status of women can limit their access to economic resources and basic education; the impact is that they have limited ability to make decisions, including a decision related to their health and nutrition. The third and final point is too much physical work together with poor diet. This is believed to also contribute to poor maternal health outcomes (Byford-Richardson et al., 2013).

In Ghana's health system, basic obstetric and antenatal care is provided by health centres, health posts, mission clinics and private midwifery homes. Each health centre or post serves a population of approximately 20,000 (Asante, 2011). In the rural areas, TBAs continue to carry out deliveries, though they are trained to refer more cases. Comprehensive emergency obstetric care is available from district hospitals and regional hospitals, as well as national referral hospitals. Most are run by the Ghana Health Services, though the mission sector plays a significant role, especially in more remote regions. All care is paid for, unless the service is exempt or the person has private or public health insurance, though user fees are subsidized by public inputs into the services (Mutiso, Qureshi, & Kinuthia, 2008). Financial barriers are believed to be one of the most important constraints to seeking skilled care during delivery in Ghana. Problems such as

delays in reimbursing facilities the services provided to clients for conditions under health insurance have also been found. This meant that exemptions are available in theory but not always in practice (Agbodohu, 2013).

In Ghana, as in many developing countries, deaths during pregnancy and childbirth are often linked to the three delays: delays in the home, delays in accessing the health facility and delays at the health facility (Adu-Gyamfi, 2012). The first delay is deciding whether to seek care or not. Lack of information and inadequate knowledge of pregnant women are responsible for the delay in responding to initial warning signs of complications of pregnancy and danger signals during labour. Certain traditions and cultures in the country maintain that women must wait for approvals from male relatives before seeking help (Iliyas et al., 2010b). The second delay is linked to the constraints that women face in accessing health facilities. Weak referral linkages as pointed out exist between community, health centres and district hospitals making it difficult for women in emergency situations to get the care they need. The situation is made worse by poor road and communication networks, distant health facility, and a lack of transportation and inadequate community support (Moran et al., 2006) The third delay occurs between the time the woman arrives at the health facility and the facilities response in providing appropriate care. The findings stated health centre preparedness to respond to obstetric emergencies is generally inadequate in terms of skilled attendants, equipment, supplies and drugs and motivated staff.

Barriers to Accessing Early Antenatal Care

Although it is acknowledged that there is no universally accepted definition of access to health services, Byford-Richardson et al., (2013) defined access as the timely use of service according to need. Utilization of health care is used as an operational proxy for access to health care. Access has four dimensions: availability, geographic accessibility, affordability and acceptability. Barriers to accessing health services can stem from the demand side and/or the supply side (Ensor & Cooper, 2004). Demand-side determinants are factors influencing the ability to use health services at individual, household or community level, while supply-side determinants are aspects inherent to the health system that hinder service uptake by individuals, households or the community.

The need to differentiate demand-side from supply-side barriers is related to the formulation of appropriate interventions to address both sides concurrently, because access barriers may not always be mutually exclusive, and may interact and influence each other. Byford-Richardson et al., (2013) provided a framework for assessing barriers along the four dimensions of access (each of them having supply-side and demand-side aspects) whilst Ensor & Cooper (2004) presented a framework of supply-side and/or demand-side barriers. Waiting time and direct payment for services are considered mixed supply-side and demand-side barriers by Ensor & Cooper, (2004). This is because long waiting times indicate a distribution of staff and equipment not in accordance with need, and the pricing of services is determined by the health facilities (supply side), meaning that both

factors are outside the control of the public as users of health services (demand side).

It is well documented that the unwelcoming staff attitude or poor interpersonal communication skills as well as complex billing systems at hospitals impede access to maternal health care. This attitude of health workers creates lack of assertiveness and low self-esteem among the poor, which increased the difficulty of accessing services. Restrictions on the tasks that can be performed by various health staff resulted to limited provision of maternal care services. For instance, general nurses on certain grounds are restricted from performing certain life-saving activities for the mere fact that they are not midwives. As a result, a client in dying need may have to wait until a midwife or a doctor arrives. This problem is critical in facilities where there are no clear protocols regarding service delivery (Solnes et al., 2013). The late referral or non-referral to specialist care of patients who may report with a condition at lower-level health facilities also served as a barrier to maternal health care.

Teenagers who are pregnant but are not married face dehumanising stigma (Kaso & Addisse, 2014b). This makes them stay away from essential maternal health service risking themselves with pregnancy related complications. A lack of trust by users in health care providers or the intermediates that link the population with these providers makes people reluctant to use the respective services (Byford-Richardson et al., 2013). Another barrier to maternal health services is failure to deliver integrated health services together with complementary programmes provided to a target group, such as overlooking the opportunity to

check and update vaccination status or to administer Vitamin A when a child is brought to the health facility for other services.

The effect of non-financial barriers, such as lack of health awareness, apparent unmet need or lack of opportunity (defined as exclusion from social and health providers) also play a major role in accessing maternal care. Other non-financial barriers, such as means of transport, private–public dual practice through which patients are siphoned off from public health facilities to health workers’ private practices, where they may be subjected to more expensive often irrational treatments is evident (Jacobs et al., 2011). Staff absenteeism, limited opening hours that do not allow for dealing with emergencies or working times are not also convenient for patients, especially working people.

Primary Health Care (PHC) was endorsed in 1978 by WHO member countries as a paradigm shift designed to reduce inequities in health, partly through enabling universal access to health services (Byford-Richardson et al., 2013). While universal coverage is the aim, imperfect health systems suffer from what is called the “inverse equity hypothesis,” which states that new health interventions initially reach the socio-economically better-off, while the majority of the poor benefit only later in time. Because of this time lag, especially in developing countries that are to a considerable extent dependent on donor funding for the health sector, targeting is often a preferred strategy (Karkee et al., 2013).

In the absence of universal coverage, there are two main targeting options for enabling greater access to health services for poor and vulnerable patients, namely to build the capacity of health care providers to target service provision on

selected groups (a supply-side strategy), or to reduce the barriers to access and participation (a demand-side strategy) (Ensor & Cooper, 2004). Interventions aimed at facilitating access to health services need to be implemented at district level, as this is known to constitute the most appropriate geographical situation for PHC. However, consideration should be given to the potentially limited capacity of district health managers in low income countries. Moreover, because most barriers to care cannot be overcome by the health sector acting alone, inter-sectoral collaboration is called for.

Although considered the most neglected aspect of PHC, community participation should be built into interventions addressing access barriers as it reduces the power gaps between the population and health systems (Skinner & Rathavy, 2009). Whatever interventions are developed, monitoring their service uptake should be an integral part of the strategy. It is assumed that higher levels in the health sector, such as provincial and national health authorities, set out the broad policy framework, enforce legislation, ensure provision of a relatively steady supply of funds, goods and equipment, and conduct monitoring and supervision of the lower echelons in the health system. Many proposed interventions take a monetary-incentive approach to addressing access barriers to health services. Often, these financial incentives are channelled through the demand-side, seemingly due to donor reaction to governments' failure to deliver sufficient health services (Soubeiga et al., 2014).

Given the high levels of illiteracy, knowledge levels about the many health risks associated with pregnancy and childbirth are low and not informed by

modern medical practice (Ingvil & Bailah, 2015). As a result of the low level of knowledge there is poor demand for, and strong mistrust of the preventive medical model. For example, only one out of four pregnant women seeks out antenatal care. Social and cultural traditions associated with reproduction – such as marriage of adolescents as young as 15 years old, frequent and close pregnancies, and the home birthing tradition all adversely impact decisions to seek reproductive health care until it is too late to save mothers or their children (Agarwal et al., 2010).

A woman's age, number of pregnancies carried, and whether or not she was married were factors that also play an important role in the utilization of maternal health care services. Women carrying their first child were probably more susceptible to difficulties during labour and were more cautious than women who have had several births. Therefore, women who were pregnant for the first time were more motivated to utilize maternity care because they did not know what to expect from the process. Subsequently, as a woman endured more pregnancies, she would rely on her experience and draw from that knowledge (Karkee et al., 2013).

A mother's age may serve as a proxy for the woman's accumulated knowledge of health care services, which would have a positive influence on the use of health services. Older women were more likely to seek maternal healthcare than younger women (Markos & Bogale, 2014). In a study conducted in Jamaica, teenagers were more likely not to attend antenatal care or attend it later, when compared to woman in their twenties (Mekuaninte et al., 2016). In Nigeria,

women in the middle child bearing ages were more likely to use maternal health services than women in early and late child bearing (Iliyasu & Sabubakar, 2015). And so being of older age at marriage is positively associated with the use of healthcare services. One study in rural India reported that utilization of antenatal care was higher among women married at 19 or older compared to those married at less than 19 years (Nawal & Goli, 2013). Early marriage or child marriage is practiced more often in Africa and Southern Asia. In these areas, a higher proportion of teenage girls are married to older men, sometimes as early as 9 or 10 years of age, based on religious and cultural beliefs. The girls may be restricted from seeking healthcare services because of fear or need for permission from a spouse or in-laws (Campbell, Martinelli-heckadon, & Wong, 2013).

Ethnicity and religion are often considered markers of cultural background and are thought to influence beliefs, norms, and values in relation to childbirth, service use, and women's status. Ethnic identity may also be associated with health beliefs that influence whether care is sought and whether that care is traditional or biomedical. In a study conducted in Nigeria, it was determined that ethnicity seemed to make no significant difference in the use of antenatal care; however, it made a significant difference in the use of skilled assistance and post-natal care. In the same study, it was found that the level of service utilization was significantly higher among the Igbo (in the Southeast) compared to the Hausa (in the North) (Iliyasu et al., 2010). This result reflects the influence of the cultural and religious beliefs in the north. The Islamic religion may have had a strong influence on the cultural beliefs and traditions on child birth practices among the

Hausa in the North. The Igbo seemed to utilise maternal healthcare facilities more because of their Western style education and Christian religion. Whether or not a woman is employed is one of the most important factors that positively influenced the use of maternal healthcare. Women who were working and earning money may have been able to save and decided to spend on facility delivery (Tura et al., 2014).

Obstetric Beliefs among Expectant Mothers

Tradition in its technical sense is defined as a tried and tested way of behaviour with positive results over centuries revealed or unveiled to mankind (Makic, Martin, Burns, Philbrick, & Rauen, 2013). Rituals and ceremonies flourish in every culture, and have done so throughout history. Perhaps the two most ritual-inspiring events are birth and death, events that have seeped into culture, mysticism, religion and local custom. Rituals governing decisions made on labour during childbirth flourish the world over. These decisions can be even more difficult in Ghana where women with varying degrees of education and incomes have varying degrees of accessibility to certain types of medical care coupled with the multiplicity of traditions within what we may consider to be one ethnicity that create barriers. Culture and beliefs play a major role in women's decision to seek health care (Kabakyenga et al., 2012).

A study in rural northern Tanzania showed cultural beliefs influenced home delivery but not the main factors that hinder women from seeking care. Women deliver secretly at home due to fear of prolonged labour that is perceived to be the result of having affairs outside marriage during pregnancy (Urassa et al.,

2012). If she is not delivering in private, the women would have to mention the name(s) of the man or men she slept with and if she cannot still deliver, then she would have to go to hospital. This practice is also common among the people of Northern Ghana especially with the Dagaaba and considered a case of punishment for adultery. Confessions are believed to be followed often by swift delivery (source unpublished). In the Ngorongoro district in Tanzania, home delivery is a cultural norm for normal pregnancy. Women, husbands, TBAs and the elderly perceived that only women with obstetric complications should deliver at health facility with assistance of skilled birth attendant (Urassa et al., 2012).

A study done in India revealed that women take local herbal medicine to stimulate contractions (Agarwal et al., 2010). These herbal medications given in unquantifiable dosages often result in repeated and strong contractions that occasionally lead to rupture of the uterus, a probable cause of maternal and newborn death. Even when women are informed during ANC visits not to take herbal local medicine, they still take it as a cultural norm. Even though these herbal medicines are not without benefits experience showed that the adverse effects far outweigh their benefits. A study in Burkina Faso found that socio-cultural norms have a strong influence on expectant mothers' choice of place of delivery (Nawal & Goli, 2013). Other women choose to turn to their religion when it comes to having babies. Religion is so integrated into every aspect of life. The growing faith in the new technology of Western medicine cause modern practices to seem like a secure option for women, as well. Many of these beliefs have changed and evolved over time because of information now available to traditional, religious,

and modern caregivers and also the mothers themselves. However, another study in rural Gambia noted that during labour, women have to seek advice from elderly women whom they believed have the experience to decide at what time and where to go for delivery (Bintabara et al., 2015).

In rural Bangladesh, a study identified that health care patronage is the last option after traditional approaches fail to curb birth difficulties (Nawal & Goli, 2013). They used to treat illness with traditional ways using untrained TBA or ignore the illness according to their perception. A study in rural Vietnam found that socio-cultural factors hinder young couples from making decision and controlling their own lives (WHO, 2015c). Not long ago, expectant mothers were restricted from eating snails; it was believed to cause a twist in the mouth of the unborn baby (Karkee et al., 2013). Also, any intake of honey was discouraged because it was thought to plug the birth canal. Sweeping at night or climbing trees by pregnant women makes them vulnerable to the baby's soul being swept away and was therefore forbidden (Fischer, 2002). As modern medicine slowly trickles through Ghana and becomes more popular, superstitions spread less frequently. However, some communities in Central Africa believe sexual embarrassment of the pregnant woman will promote labour and customs include the father of the baby exposing his genitalia to her (Makic et al., 2013).

In parts of Jamaica it is customary to promote labour by giving a pregnant woman a sweaty shirt to smell (Crowther & Hall, 2015). In parts of India, a jar of grain is broken in front of a heavily pregnant woman in the belief that she will see the grain spill before her and her body will respond likewise (Agarwal et al.,

2010). Ancient Egyptians also incorporated rituals and ceremonies as an integral part of the pregnancy and birth experience (Crowther & Hall, 2015). Women also held a great fear of blood; especially blood associated with menstruation and childbirth, and thus performed ritual cleansings of mother and baby after birth.

One of the more prolific birth related rituals involves the placenta. For most women giving birth in a hospital in Australia, the placenta is a mere afterthought, and many do not even see it at all. The disposal of the placenta is part of the ritual for staff in these settings, the ritual of cleaning up and disposing of birth's waste. On the other hand, in a home birth environment, considering the placenta as waste is almost unheard of; the placenta is given respect and ceremony, be that through its burial in the yard, honouring it through art, or valuing its healing properties by consuming it (Crowther & Hall, 2015).

The placenta is given so much power in various parts of the world that the rituals associated with it can mean the difference of life or death for a new-born and his/her family or village. The mythology surrounding the placenta brings ritual and ceremony to the fore of the birth experience in many cultures. In Northern Sumatra for example, local mythology holds that the placenta lets one of seven souls the newborn child possesses, so great care and respect is taken in its treatment (Iliyasu & Sabubakar, 2015). For women in Hungary who wanted no more children, it was customary to burn the placenta and place the ashes in her husband's drink, while in Japanese culture it was believed eating the placenta would increase a woman's fertility (Dal & Knauth, 2014). In Austria and parts of Italy, it was believed that the blood of a fresh placenta held great medicinal

properties, for everything from the removal of birthmarks to the cure for epilepsy (Hassan., Youness., Zahran., & Nady, 2015). Placenta burial is common among home birth experiences in Australia. Many women say this practice respects the placenta as a life giving organ, and burial respects that by allowing it to enhance the life of another living organism.

Placenta burial is a common ritual for many cultures and the mythology behind these practices can include the belief that evil spirits can enter the home or village of a new-born child through the placenta, so it is quickly buried to reduce this risk (Crowther & Hall, 2015). Some cultures like Native Hawaiian, Navajo and Maori tribes believe by burying the placenta in the homeland, the child is bound to the land and his/her ancestral heritage (Hassan et al., 2015). In Thai culture the placenta is salted, jarred and buried under a tree that corresponds to the symbol of the Asian year of the child's birth. Many believe the spiritual connection between the placenta and the baby should not be artificially broken. Among the Kikuyu in Kenya, the placenta and the umbilical cord are believed to symbolize the attachment of the child to the mother and its roots in the traditional society (Byford-Richardson et al., 2013).

Other rituals associated with birth in the West are the swaddling, or wrapping of new-borns, said to make them feel secure. This practice dates back to second millennium BC in Egypt, where infants were swaddled to protect them from malevolent spirits, the swaddling disguised the baby as mummified, to fool the evil spirits that lurked the neighbourhood after the birth of a baby. The wrapping also symbolized the god Ptah, a god of protection and healing (Otoo et

al., 2015). In the Tudor period in England, traditional Catholicism encouraged the practice of classing the child after swaddling, and sprinkling it with protective salt (Crissman et al., 2015).

Spirituality and religiosity are recognized as important components of health and well-being. Women have used prayer and other spiritual practices for their own and others' health concerns for thousands of years. Most current literature focuses on the spiritual health of individuals living with chronic illnesses and those who are terminally ill, whereas there is relatively little focus on spirituality or religiosity during the childbearing years. However, a study documented the relationship between religious involvement and health risk behaviours in childbearing women, concluding that such involvement was significantly correlated with less-risk health behaviours (Crowther & Hall, 2015). Although spirituality and religiosity may be related, women may be spiritual without being religious, and more research on this association is recommended. Childbearing and motherhood may be ideal contexts in which to enrich spirituality. Cross-culturally and throughout history, pregnancy and childbirth have been perceived as spiritual events because of the miraculous processes involved. Birth narratives provide insights into the connection between childbearing and spirituality and present significant information. Birth stories actually offer a powerful and rich source of data (Crowther & Hall, 2015). Greater emphasis needs to be accorded to valuing of women's stories as data. Attending to women's spiritual experiences during childbearing is an important way to enhance care.

Religious beliefs within the community may also act as a barrier for seeking care. Khan et al., (2012) found that religious beliefs were a barrier for ANC utilization in Bangladesh. Husbands and mothers-in-law were usually the decision makers about ANC and some women also found the idea of ANC to be shameful, especially if they felt they would be examined by a male worker. A similar findings was reported among Ethiopian Afar, where women stated during focus group discussions that only God and their husband could see them naked (Tura et al., 2014). Pregnant women may prefer consultation with local religious leaders, traditional healers, and TBAs to seeking care from qualified health providers.

In rural Gambia, older women in menopause are seen as experts on pregnancy and childbirth who decide what should be done and their advice is taken. For example, an older woman may advise a woman in labour to wait until the next Muslim praying time before seeking care because labour and child birth takes place at certain times and these times correspond with the Muslim praying times (Campbell & Graham, 2006). In Uganda, women felt embarrassed to give birth in a health facility because other members of the community would think they were not brave enough to give birth on their own (Kabakyenga et al., 2012). In the study, birth represented a rare opportunity for a woman to demonstrate pride, courage, and bring honour to her and her husband's families by her stoic demeanour. The woman who managed to deliver without indication that she was in labour and without calling for assistance until the child was born was especially esteemed.

Other harmful traditional practices that impact maternal health include female genital mutilation (FGM), early marriage, early pregnancy, traditional birth practices such as pushing on the abdomen to hasten delivery, and the use of certain surgical procedures and concoctions as labour enhancers (Okka & Durduran, 2016). For example in northern Nigeria, traditional healers make an incision in the vagina of women who are not making progress in labour (Iliyasu et al., 2010). This is also practised in Ghana (Otoo et al., 2015). Some ethnic groups in Sub-Saharan Africa discourage pregnant women from eating meat and eggs, because it is believed that eating meat during pregnancy will cause her to give birth to a witch (Soubeiga et al., 2014). Notwithstanding the numerous health challenges of tradition, spirituality and socio-cultural systems the practices attract Ghanaian women because of their time-tested methods successfully used by generations of mothers and grandmothers. Some traditional practices are however beneficial to the mother and baby. For example, among many cultures in Africa, women were encouraged to breastfeed their infant for over a year, thus encouraging the practice of spacing between pregnancies (Soubeiga et al., 2014).

Family Support in Birth Preparedness Practices

Pregnancy, birth and the postnatal period is a time of major psychological and social change for women as they negotiate their roles as mothers. Supporting mothers' emotional wellbeing during the perinatal period is now recognized to be as important as the traditional focus on the physical health of the mother and child (Jones et al., 2005). Increasing evidence about early brain development and the way in which infants develop emotional and behavioural wellbeing within the

context of their early relationships, has highlighted the particular importance of building a bond with the unborn baby, and sensitive early care giving (Jones et al., 2005). Family support can serve as the foundation of security and growth for an expectant mother and baby. Expert suggests that family support has a positive impact on the attitude of pregnant women; including women with an unwanted pregnancy (Haobijam, Sharma, & David, 2010). Family support can help lower the anxieties associated with pregnancy and provide a feeling of security for mothers.

Today obstetricians encourage the family's participation during the entire course of pregnancy. Ideally one or two members must accompany a pregnant woman during every prenatal visit to her doctor. This will even help the family members connect with baby and also lend a helping hand to the mother (Theresa, Abrams, Mcbain, & Link, 2015). Simple gestures of family support and attachment are of importance during and after pregnancy. The transition to parenthood focuses explicitly on the emotional and social changes that take place during pregnancy and the immediate postnatal period and recognizes that this is a stressful time that involves both men and women making significant psychological changes and adapting to new roles (Iliyasu et al., 2010). The relationships of many couples may be severely challenged during this period, and sometimes break down after the birth of a baby. It has been argued that the conspiracy of silence that surrounds this period can leave parents feeling that they are the only ones having a hard time.

A study that focused on the key features of the transition to parenthood found that significant numbers of low risk parents experience psychological stress during this time, and that their concerns were much broader than the issues addressed by traditional antenatal classes (Agarwal et al., 2010). Most couples are able to cope with these changes: tiredness, loss of libido, and lack of focus on the parental relationship until things improve and some level of normality returns. A recent study conducted in both developed and under developed regions globally showed that 90% of couples found their relationship deteriorated after their first baby was born (Haobijam et al., 2010). It was significant that the couples who were strongly united and romantic in their relationship before the pregnancy found it harder to adapt to parenthood than those whose relationships were already faltering. Unfortunately for some couples, their relationship does not always recover. An Early Years study estimated that around 14% of couples split up before the baby is born, or the new-born were not living with both their biological parents (Kabakyenga et al., 2012). Increased recognition of the significance of the changes taking place for both men and women during the transition to parenthood, and the importance of preparing new parents for their new roles underpins the recent development of Preparation for Parenthood classes, many of which are replacing the more standard 'antenatal classes'. For example, a recently developed model focuses on preparing parents for parenthood by addressing the emotional changes that take place during this period, and helping parents to address the problems that occur (Iliyasu et al., 2010).

A range of factors can influence the capacity of mothers-to-be to engage with their developing baby, including whether the baby was planned for and/or wanted. The level and nature of the mother's engagement is indicated by the mental representations (i.e. mental images) about the developing baby that take place between the fourth and seventh months of gestation. These mental representations are shaped not only by the biological changes taking place but also by a range of psychic and social factors such as the mother's memories of her own early relationships, family traditions, hopes, fears and fantasies (Jones et al., 2005). The bonding with the baby that is indicated by these mental representations is an important foundation for the mother's later relationship with the real baby. Research found that the richness of antenatal maternal representations was significantly linked with the security of the infant's attachment to the parents at one year of age (Jones et al., 2005). Women who had experienced domestic abuse had significantly more negative representations of their infants and themselves, and their babies were more likely to be insecurely attached. Mothers who already had 2-3 children under 7 years and an unplanned pregnancy had more negative representations (Urassa et al., 2012).

The process of 'bonding' refers to the intense emotional connection that takes place between a mother and a baby (Tura et al., 2014). Although babies are born ready to socially interact with their parents, a range of factors may interfere with the capacity of the mother to bond with the baby. While many early difficulties immediately following the birth may disappear over the first few days and months, they may also be a sign of pending problems. Overviews of the

evidence from humans and other mammals suggest that the close body contact of the infant and his/her mother during the immediate post- birth period influences the physiology and behaviour of both, and that this takes place as a result of a range of mechanisms including behavioural programming, secretion of neuroendocrine substrates and activation of sensory cues, in addition to changes brought about as a result of breastfeeding (Fischer, 2002). Skin-to-skin contact between mother and baby after birth reduces crying, improves mother-infant interaction, keeps the baby warmer, and the extra tactile, olfactory and thermal cues may stimulate babies to initiate breastfeeding more successfully (Jones et al., 2005).

New-born babies tend to be more alert within the first two hours of life, and this should be considered an important time for initiating successful mother and child interaction. Other methods of promoting bonding and sensitive parenting that are recommended by the Healthy Child Programme (HCP) include encouraging mothers to use soft baby carriers, and participation in an infant massage class. The Ghanaian way of bathing the child, carrying the child and enclosure of the new mother with the baby until a given number of days can also help promote mother and baby bonding as this is successful among the Dagaaba communities (Otoo et al., 2015). The postnatal period involves further emotional and psychological transitions for new parents. While many of these are similar for men, a survey of new mothers and fathers showed that men's feelings and experiences during this time differed in a number of important ways from those of women. Both parents, however, viewed parenthood as having a negative impact

on their sex life due in the part to the associated changes in women's bodies and their identities as parents (Soubeiga et al., 2014).

The closeness that many couples experience during pregnancy is often expected to continue after the baby is born. Following childbirth, however, there is frequently a polarization of goals and expectations as men and women negotiate their new roles. It has been suggested that this experience of polarization is influenced by the 'motherhood constellation' which is, a temporary period in which the mother is pre-occupied with several themes (Campbell et al., 2013). One of these, the 'life growth theme', is biologically driven, making the mother's need to keep the baby alive her top priority. Couples are often unprepared for these fundamental changes in sense of self, and without the recognition that these transitional changes will affect their relationship; there may be resentment and blame. For example, after childbirth, the mother may seem more concerned with the man as a father than as a sexual partner. Although the baby may be the focus, it is often the fundamental changes in the parents that cause the disunity, and couples may need to mourn the loss of their close relationship before they can celebrate their new roles.

In addition, there may be deep tensions between the cultural aspirations of a contemporary woman living in the developed world and the experience of deep biological drives associated with motherhood. These tensions may be exacerbated by the transition from being a competent woman in control of her life to an incompetent, inexperienced mother (Haobijam et al., 2010). As support networks

loosen and traditional rituals decline, the challenge to health professionals lays in ensuring the healthy birth of the social mother and father (Solnes et al., 2013).

Special efforts should be made to emphasize men's shared responsibility and promote their active involvement in maternity care. In spite of this, pregnancy and childbirth continue to be regarded as exclusively women's affairs in most African countries. Men generally do not accompany their wives for antenatal care and are not expected to be in the labour room during delivery (August et al., 2015). However, men are socially and economically dominant, especially in Ghana; they exert a strong influence over their wives, determining the timing and conditions of sexual relations, family size, and access to health care (Asp et al., 2014). This situation makes men critical partners for the improvement of maternal health and reduction of maternal mortality. Strategies for involving men include raising their awareness about emergency obstetric conditions, and engaging them in birth preparedness and complication readiness (August et al., 2015). This is based on the premise that increased awareness of men will enable their support for early spousal utilization of emergency obstetric services. Similarly, preparing for birth and being ready for complications could reduce all three phases of delay and thereby positively impact birth outcomes. Studies on the participation of men in maternal care have been reported mostly from southern part of Nigeria.

Ekabua et al., (2011) reported a high level of awareness and participation of men in maternity care in Osun state. Likewise, Iliyasu et al., (2010b) reported that 86% of antenatal clients in University College Hospital, Ibadan, preferred their husbands as companions during labour, whilst only 7% and 5% favoured

their mothers and siblings, respectively. However, little such research has been conducted in northern Ghana—a culturally distinct region contributing disproportionately to the country's high maternal mortality ratio.

Traditional Ways Family Supports Pregnant Women in Northern Ghana

Based on personal observation among the Dagaaba, when the female relatives of a woman notice she is pregnant they greet her one morning just outside her bedroom door and blow ash in her face. About 2 weeks before she is to give birth, they call her mother to come and be with her daughter. At this time the husband move out of the bedroom and the mother sleeps with her pregnant daughter. The in-laws call for the mother because they believe that there are things a woman can only talk to her mother about. The pregnant woman's mother will talk to her daughter during those two weeks to learn how the pregnancy went and she will decide if they need a birth attendant or the women of the house can see to the birth. If the pregnant woman had a difficult pregnancy, then the TBA will be called.

Women often give birth just squatting down and pushing out the baby. After birth only very near relatives and very good friends can visit for 2 weeks. The visit must be short. They believe if a woman talks too much after birth, it is not good for her. The new mother does not leave the room except to take care of her bodily functions. Her mother remains in the bed with her day and night. In the night, after the new mother feeds the baby the grandmother takes the baby and cares for it and gets it back to sleep. Thus, the new mother gets the rest she needs. Baby boys remain in the room for 3 months but baby girls remain in the room for

4 months. The room is kept warm by a portable fireplace. This helps the baby get strong enough to face the elements. Up until the time the baby can leave the room, it is called “the stranger”. On the morning when the baby is going to leave the room, someone gets up very early and goes to the soothsayer to give the baby its name. In the North, names are often chosen to represent an event in the parents’ life or after a family member, but the parents must go to the village priest to be sure the name is the right name.

There are many good reasons for these traditions. It is very good to get some sleep right after giving birth. The new mother staying in the room for 2 weeks is also a good way for her to recover and get some needed rest. Naming after three or four months just makes sense because of the high infant mortality rate. Keeping the baby in for 3-4 months also shows concern about infant mortality.

Community Support for Pregnant Women

The community support system (CmSS) is a mechanism for establishing a community-led structure which tracks all pregnant women, and provides need-based support for making their pregnancy safer, including timely use of life-saving emergency obstetric care services (Ekabua et al., 2011). CmSS consists of a process where the causes of maternal mortality and morbidity are identified through a death and disability review in the community. Then, this information is shared with the community through village meetings led by local volunteers. The community then identifies their role in preventing avoidable maternal death and promotes a zero tolerance to maternal deaths and violence against women (Jones

et al., 2005). Lastly, the community forms a committee known as Community Support Group (CSG) which establishes linkages with the health system and local government.

The community becomes a 'watch dog' in order to prevent harmful practices. The CmSS process has also identified and addressed the issue of early marriage and violence against women, which have made an impact on maternal health outcomes in communities (Campbell et al., 2013). It is a two-way coordination accountability mechanism between communities (at the village level) and health care providers and policy makers (at the sub-district level) established through regular meetings. The result: a greater voice for women and other community members with regard to the governance of local health systems, and greater accountability of service providers and local government to community members for ensuring quality care. Experience suggests that discussions about preparing for birth should occur not only with pregnant women but with the communities that support them. The aim is education, motivation, cohesion and mobilization of pregnant women, families and communities (Ekabua et al., 2011). Community participatory approaches are most effective. A project that used such an approach in Cambodia was evaluated and found that community engagement was a feasible, effective and cost-effective way to introduce birth preparedness; The project increased referrals to hospital by 281% (Skinner & Rathavy, 2009).

Another well evaluated example of a birth preparedness intervention is the Home Based Life Savings Skills (HBLSS) training program devised by the

American College of Nurses and Midwives to increase access to basic life saving measures within the home and community and by decreasing delays in reaching referral facilities where life-threatening problems can be managed (Skinner & Rathavy, 2009). HBLSS takes into account the social context of childbirth, focusing on the pregnant woman, her family caregivers, and the home birth attendant as a team. The model has been implemented in India, Ethiopia, Haiti and Liberia. An evaluation of the model in rural India found that role-play and demonstration enhanced retention of knowledge and skills for recognition and intervention for maternal bleeding and new-born sepsis, but did not change care-seeking during emergencies (Stanton, 2004). An evaluation of the program in the Oromia region of Ethiopia found that learning was retained, and after three years, 54% of women giving birth were exposed to the training. Lack of emergency transport prevented decrease in delays for referral (Skinner & Rathavy, 2009).

The Essence of the Study/Summary

Birth preparedness is viewed as one of several needed responses to the three delays model, which categorizes the causes of maternal death as the following: delays in deciding to seek medical care, delays in reaching medical care, and delays in receiving treatment for major obstetric complications (Thaddeus and Maine 1994). Knowledge regarding the risks associated with pregnancy and delivery and the availability of emergency obstetric care, arranging in advance to have a skilled attendant at delivery, saving money to cover the expenses associated with an obstetric emergency, advance arrangements for transportation, and identification of a blood donor in the case of an obstetric

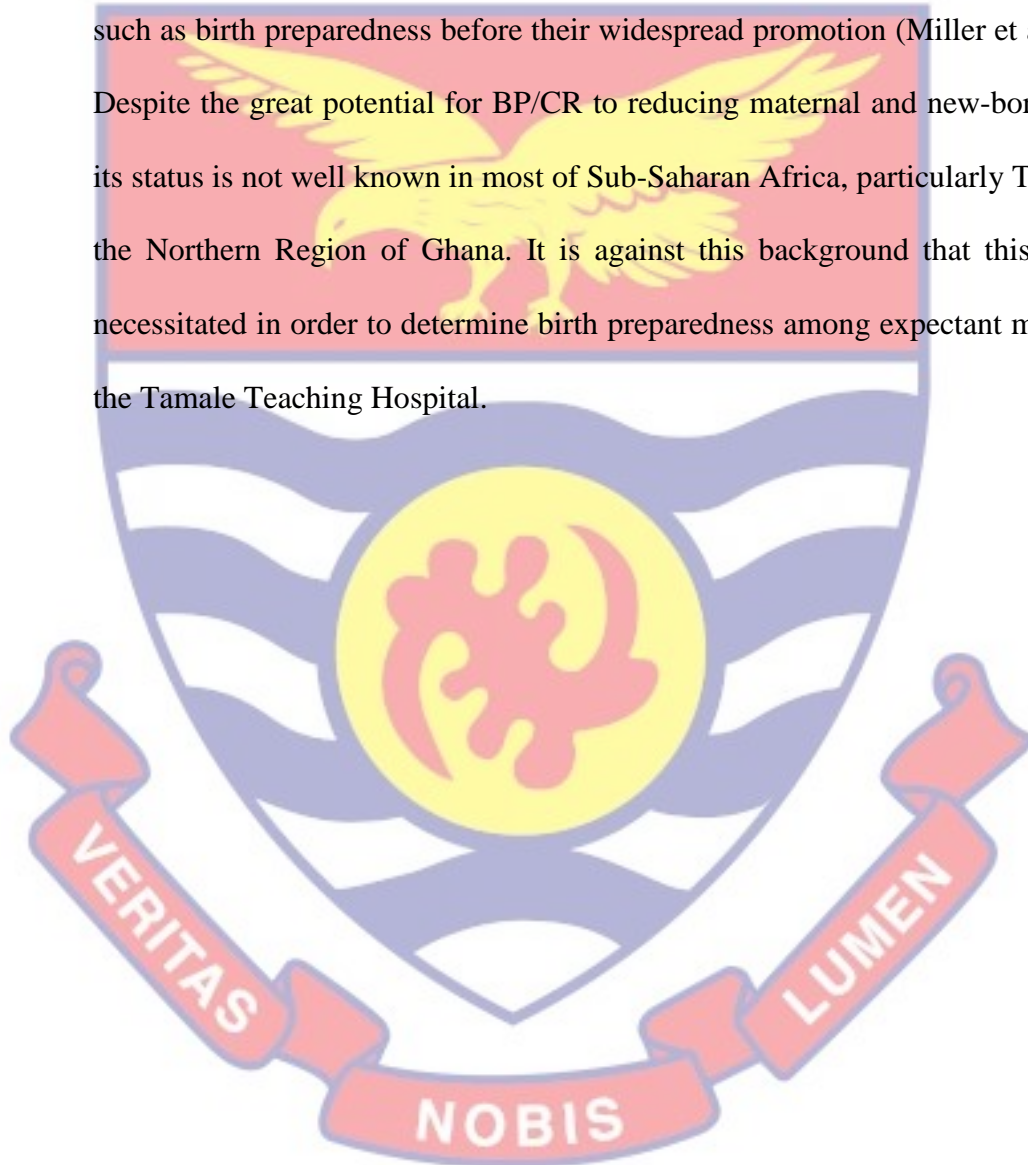
emergency are all components of birth preparedness, which logically could decrease one or all of the three delays and increase the likelihood of surviving an obstetric emergency.

Unfortunately, the literature to date regarding the effectiveness of birth preparedness interventions to increase use of skilled professionals at delivery is very limited. For example, Stanton, (2004) review of more than 150 studies of the effectiveness of a broad range of behaviour change interventions to change specific community and household-level behaviours within Safe Motherhood programs identified only seven studies from projects that aimed to increase use of health services among pregnant women. The interventions evaluated in the seven studies varied, but all relied on various health education, communication, participatory, or social support strategies. In six of the studies that emphasized increasing knowledge of the danger signs of pregnancy, all reported increases in the knowledge, although statistical testing was not reported in all cases. Three of the seven studies documented increases in use of skilled delivery care. None of the studies, however, could attribute these increases to behaviour change interventions due to limitations in study design, sample size, and the absence of reported data regarding exposure to the package of interventions.

The WHO (2015) reported that, 1 out of every 16 women dies of pregnancy related causes in developing countries, compared with only 1 in 2,800 women in developed regions. The risk of maternal mortality is highest for girls under 15, many of whom have no access to contraception. Without the necessary

intervention, projections estimate that one in every five women will die in Africa from pregnancy related complications (Karkee et al., 2013).

Within the Safe Motherhood community, there is growing consensus of the need to empirically demonstrate the effectiveness of specific interventions such as birth preparedness before their widespread promotion (Miller et al. 2003). Despite the great potential for BP/CR to reducing maternal and new-born deaths, its status is not well known in most of Sub-Saharan Africa, particularly Tamale, in the Northern Region of Ghana. It is against this background that this study is necessitated in order to determine birth preparedness among expectant mothers in the Tamale Teaching Hospital.



CHAPTER THREE

RESEARCH METHODS

This study assessed the level of awareness, attitude and behaviour of women to birth preparedness and pregnancy complications readiness among expectant mothers. The methodological approach used provided insight to: the study design, study setting and population under study, sampling and sample size determination. This chapter also throws light on the instrument used for the study and how it was developed to address the following research questions. The chapter further describes the mechanisms put in place to ensuring clients' safety and confidentiality. Boundaries regarding inclusion and exclusion criteria are set and the statistical tools for analysis of data expatiated.

Study Design

This study used a descriptive, cross-sectional study design to assess birth preparedness and pregnancy complications readiness among expectant mothers in Tamale Central of the Northern Region of Ghana during their most recent pregnancy and delivery. The cross-sectional design involves the collection of data at one point in time or multiple times in a short period and was therefore suitable for this study. The main advantage of cross-sectional designs is that they are economical and easy to manage. There are, however, problems in inferring changes and trends overtime using cross-sectional designs.

Study Setting

The study was conducted at the Tamale Teaching Hospital, located in Tamale Metropolis. The hospital serves as a referral centre for cases from regional hospitals, districts hospitals, private hospitals, and several health centres within and outside the Northern Region. According to the 2014/2015 progress report, the Tamale Teaching Hospital recorded 2489 expectant mothers who attended antenatal clinic during the year under review (TTH Annual report, 2015). Notwithstanding the influential role the facility plays in providing timely obstetric care to expectant mothers, the Metropolis has been bedevilled by a soaring maternal mortality rate, as health records from the Northern Regional Health Directorate revealed that 57 maternal deaths had been recorded for the mid-year of 2015. This could be as a result of the low number of functional midwives (295) in the Region; and 7 of these midwives were due for retirement in 2016. This contributes to poor birth preparedness by expectant mothers at Tamale Teaching Hospital and in the Metropolis at large.

The Teaching and Regional Hospitals have higher figures than the national average because most of the very ill patients are usually referred to these tertiary centres for management. Maternal mortality has previously not been studied at the Tamale Teaching Hospital, but being the main referral hospital in Northern Ghana, its institutional figures from internal audits over the past few years have been unacceptably high. The main causes of 139 audited maternal deaths in The Tamale Teaching Hospital from 2008 to 2010 were sepsis (19.8%), hypertensive disorders (18.6%), haemorrhage (15.8%), unsafe abortion (11.5%), obstructed

labour (5.7%), anaemia (8.7%), sickle cell disease (5.7%) and malaria (5.0%). The ages of the 139 audited maternal deaths ranged from 14–48 years; with mean age of 26.5 ± 4.6 years. Nearly 50% of the maternal deaths were aged 20–29 years and about 10% were 14–19 years. Eighteen percent (18%) of the maternal deaths were from towns over 150km from Tamale (Gummaga et al, 2011). Therefore, the Tamale Teaching Hospital was chosen as the setting for this study as findings will contribute to solving maternal mortality and morbidity issues in the catchment areas.

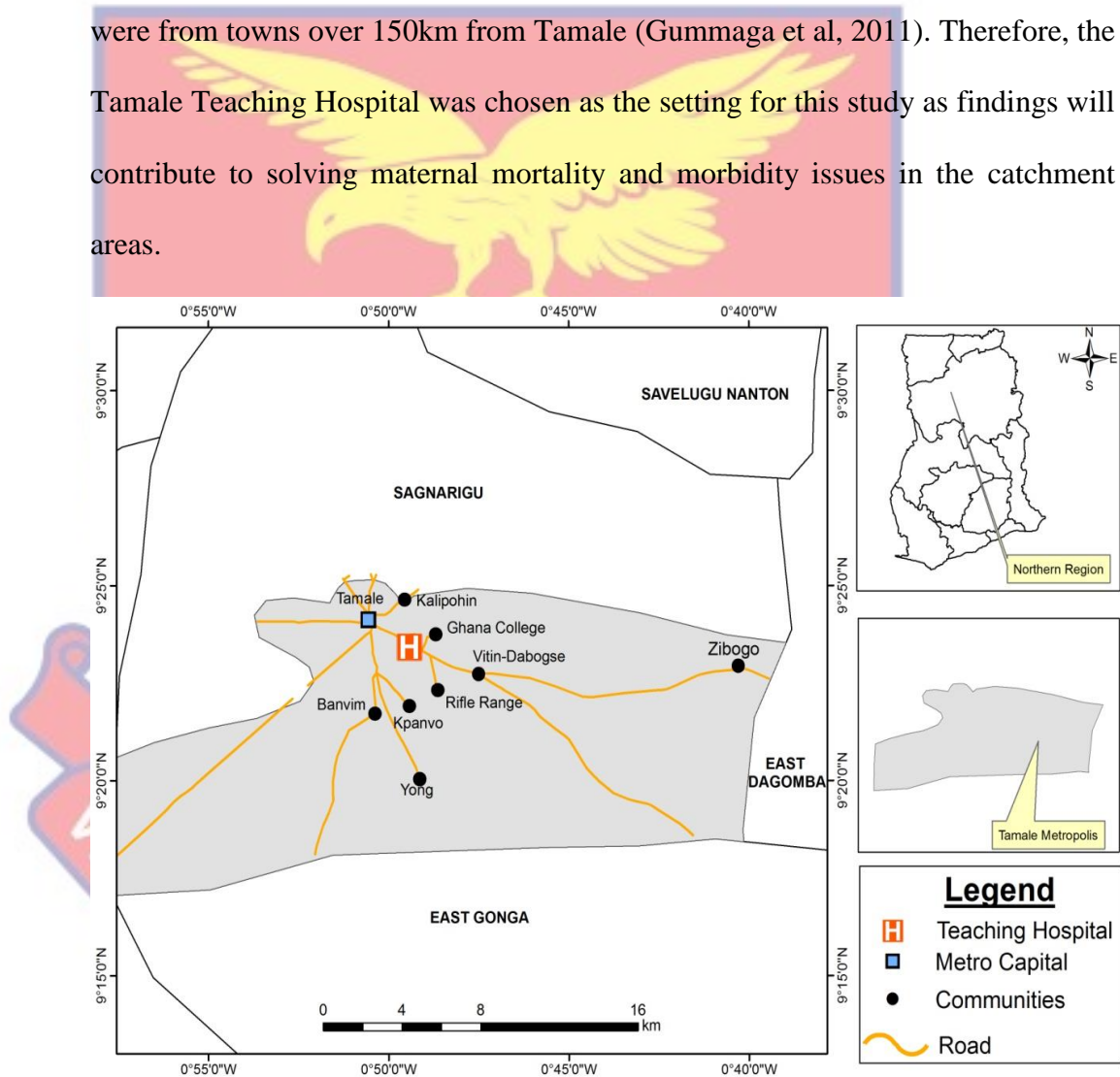


Figure 2: Map showing the study area

Population

The population under study were women of reproductive ages (11 – 50) residing within the Tamale Metropolis. For the purposes of the study, all pregnant

women and mothers who were in the period of exclusive breastfeeding (within 6 months after delivery) qualified to take part in the study. In contrast, pregnant women who migrated into the Metropolis during data collection were excluded from the study. Women whose babies were older than six months and expectant/nursing mothers who were unwilling to be part of the study were also excluded as participation into the study was voluntary.

Sampling and Sample Size Determination

The sample was obtained from expectant mothers attending antenatal clinic at the Tamale Teaching Hospital. The population of expectant mothers who attended antenatal clinic at the Tamale Teaching Hospital during 2013/2014-year review was 2489 (Annual review report, 2014). Adopting a simplified formula from Yamane (1967), the sample size for the above population was calculated as follows: A 95% confidence level and $p=.05$ were assumed for the equation: $n =$

$\frac{N}{1 + N(e)^2}$ where n is the sample size, N is the population and e is the level of precision. Substituting the values in the equation $n = \frac{2489}{1 + 2489(0.05)^2} = 345$

To select participants, a systematic random sampling method was used to calculate the intervals from population of the previous year's ANC attendance which was found to be 2489. The interval was determined (2489/345) and found to be approximately 7. Hence, every seventh mother on the queue who met the inclusion criteria was selected and included in the study. An average of 125 women reported at the ANC per day and a period of two months was used for the

entire data collection process by self-administering at least 40 questionnaires per week until the required sample size of 345 was obtained.

Instrumentation

The main research instrument for the study was a structured questionnaire personally developed and self-administered to participants who met the eligibility criteria of the study within the period of data collection. Although the original questionnaires were in English language, questions were translated into the local languages during the data collection for those who could not speak English. The questionnaire consisted of six sections. Section one contained demographic characteristics of respondents. Sections two and three entailed questions testing the knowledge of expectant mothers on pregnancy-related issues and factors influencing maternal health availability and accessibility in the setting respectively. Section four determined obstetric beliefs among expectant mothers and sections five and six determined family and community support systems during childbirth.

Data Collection Process

The study was a facility-based study that made use of respondents accessing health care at Tamale Teaching Hospital in the Northern Region of Ghana. During the data collection process, six research assistants were trained to assist collect the data. The research assistants were given two days training on research ethics, proper handling and distribution of questionnaires prior to the field work. The research assistants were tasked to explain the questionnaires to

participants in participants own native languages and /or dialects to ensure data accuracy, quality and validity. The pre-trained research assistants with midwifery skills who were fluent in the local languages collected the data by first providing privacy and obtaining a verbal consent followed by a written one. However, some participants were minor (below 18 years of age) and their parental consent and that of the minors were obtained. The objective of the research was explained to the participants before self-administration of the questionnaires to them. Their ANC cards were reviewed to confirm the gestational age and obstetric history. Information on the questionnaire sought to assess participants' knowledge on demographics, BP, support systems, obstetric beliefs and factors influencing BP. The problems encountered during the data collection process included: bureaucratic delays obtaining permission at the health facility, language barrier, and lack of cooperation from some study participants and financial limitations.

Determination of Level of Preparedness

Those who were considered as 'well prepared' met at least three of the following conditions: have made funds available for transportation, have identified the mode of transportation to hospital when labour begins, have arranged for a blood donor and have had birth/emergency preparedness plan. Those who met less than three of the conditions were considered 'less or ill-prepared'.

Ethical Considerations

Ethical clearance was obtained from the following institutions: University of Cape Coast's (UCC) Institutional Research Ethics Review Board (with reference number UCC/IRB/3/40). Permission was also obtained from Tamale Teaching Hospital, Northern Regional Health Directorate and Department of Nursing, UCC to conduct the study. The participants were also made aware that the research was for academic purposes and participation in the study was voluntary. They could choose to partake in the research or withdraw from it at any point in time without any punitive measures taken against them. Parental consent together with participants below the age of 18 was sought because they were minors. Participants' safety was guaranteed as the data collection process followed their normal pattern of daily activities and information obtained from them was kept strictly confidential. The participants were informed that the research did not guarantee any direct or short term benefit. It was expected, however, that the information elicited would inform policies and programmes in the region to prevent maternal mortality and improve maternal health.

Pilot Study

A pre-test was conducted at the Kings' Medical Centre (KMC) in the Kumbungu District of the Northern Region to validate the instrument for the actual study. Preceding the pilot study, an introductory /clearance letter was given to the medical superintendent at the Kings' Medical Centre (KMC) in order to obtain permission for the pre-test. This permission was granted and questionnaires were self-administered to 35 volunteer clients at the antenatal clinic after

obtaining their consent for the trial. Technical words in the questionnaires were explained to the respondents in their mother tongue with the help of the research assistants.

Data Processing and Analyses

Data was double entered into Microsoft Excel spreadsheet and validated for data errors. Data was then coded and exported to SPSS version 20.0 for Windows for analysis (Julie, 2007). Descriptive statistics such as frequencies and percentages were used to describe or summarise data as well as determine the level of awareness of respondents on birth preparedness. The Pearson's chi-square test was conducted to determine the level of association between birth preparedness and respective maternal demographic variables such as age, educational status, marital status, awareness of obstetric risk factors and income levels. A p-value <0.05 was considered statistically significant. Where significant relationships existed, such comparative variables were put into a logistic regression model to ascertain the strength of association between respective variables. Statistical inferences were drawn based on the data collected and results presented.

Chapter Summary

This study was conducted at Tamale Teaching Hospital which serves as a referral centre for cases from regional hospitals, districts hospitals, private hospitals, and several health centres within and outside the Northern Region. An institution based cross-sectional study was conducted from February 16, 2016 to April 16, 2016. Adopting a simplified formula from Yamane (1967) the sample

size was determined by considering the following assumptions; 95% level of confidence; 5% marginal error ($e=0.05$), and non-response rate of 5%. The total population under study was estimated to be 2489. Thus, the final sample size

required was $n = \frac{N}{1 + N(e)^2}$ where n is the sample size, N is the population

under study and e is the level of precision. Substituting the values in the equation $n = \frac{2489}{1 + 2489(0.05)^2} = 345$ participants. For the purposes of the study, all pregnant women and mothers who were in the period of exclusive breastfeeding (within 6 months after delivery) qualified to take part in the study.

In contrast, pregnant women who migrated into the metropolis during data collection were excluded from the study. Ethical clearance was obtained for the study from University of Cape Coast's Institutional Research Ethics Review Board. Data were collected using a self-administered structured questionnaire. Data was double entered into Excel, validated for data entry errors and exported into SPSS version 20.0 for Windows for analysis. Variables having p value ≤ 0.05 in the multivariate analysis were taken as significant predictors for birth preparedness.

CHAPTER FOUR

RESULTS AND DISCUSSION

In this chapter, key findings from data collected from the 345 participants were presented quantitatively. Results were interpreted using descriptive and inferential statistics. The research questions that guided these interpretations are as follows: Does knowledge of danger signs of pregnancy predict birth preparedness? What factors influence access to maternal health services during childbirth? What family support do pregnant women get during pregnancy and childbirth? What obstetric beliefs exist among expectant mothers and families? What support systems are in place in the community for pregnant women in case of emergency child birth? Participants socio-demographic characteristics were first examined to find out the influence these may have on the choice of place of delivery by pregnant women.

Demographic and General Information

Table (1) presents the socio-demographic profile of pregnant women surveyed. The characteristics analyzed included: age, marital status, educational status, ethnicity, religion, occupational status and income level.

Table 1- *Demographic and background information of women receiving antenatal and prenatal care at the Tamale Teaching Hospital*

Variable	N (%)
Age	
11-20	68 (19.7)
21-30	188 (54.5)
31-40	77 (22.3)
41-50	12 (3.5)
Ethnicity	
Dagomba	180 (52.2)
Gonja	45 (13.0)
Ewe	16 (4.6)
Akan	19 (5.5)
Konkomba	11 (3.2)
Bimoba	10 (2.9)
Gruni	14 (4.1)
Dagaaba	22 (6.4)
Others	28 (8.1)
Religion	
Muslim	235 (68.1)
Christian	100 (29.0)
Traditionalist	10 (2.9)
Marital Status	
Single	73 (21.2)
Married	250 (72.5)
Widowed	8 (2.3)
Divorced	14 (4.1)
Educational Status	
No formal education	110 (31.9)
JHS	75 (21.7)
SHS	56 (16.2)
Tertiary	104 (30.2)

Table 1 continued

Occupation	
Unemployed/housewife	62 (18.0)
Trader	86 (24.9)
Student	22 (6.4)
Skilled worker	70 (20.3)
Farmer	20 (5.8)
Public/civil service	85 (24.6)
Income level	
Low Income (<C 400)	243 (70.4)
Middle Income (C 500-1500)	90 (26.1)
High Income (C > 1500)	12 (3.5)
Level of knowledge	
Inadequate knowledge	62 (18.0)
Adequate knowledge	283 (82.0)

The findings from table 1 revealed 54.5% of the study participants were within the category of 21-30 years, 72.5% were married, 30.1% were without education, 68.1% belonged to Islam, 52.2% were Dagbamba and Gonjas were 13.0%. With respect to occupation, the findings showed 24% worked in the civil/public sector, 20.3% were skilled workers, 24.9% traders and only 5.8% were farmers. However, 18% were unemployed and over 60% of respondents were not salaried workers and were engaged in businesses with irregular sources of income. Hence, overwhelmingly 70.4% of the participants were low income earners, 26.1% represented middle income earners with only 3.5% belonging to the high income category.

Obstetric History

This consists of information on the number of times a respondent had been pregnant (gravidity), the number of deliveries they had undergone (parity), place of delivery, birth attendant and gestational age as well as the number of visits made to the antenatal clinic (see table 2 below).

Table 2- *Obstetric history of participants attending antenatal clinic at the Tamale Teaching Hospital*

Variable	N (%)
Place of delivery of previous child	
Home	62 (25.4)
Shrine	4 (1.6)
Way to referral centre	5 (2.0)
Health post/CHPS compound	17 (7.0)
Hospital	156 (63.9)
Birth attendants at delivery of previous child	
TBA	39 (16.0)
Mother-In-Laws	34 (13.9)
Passers-By	2 (0.8)
Midwife	136 (55.7)
Doctor	33 (13.5)
Table 2: Obstetric history of participants attending antenatal clinic at the Tamale Teaching Hospital	
Variable	N (%)
Mode of delivery of previous child	
Spontaneous Vaginal Delivery	206 (84.4)
Vacuum Extraction	1 (0.4)
Caesarean Section	37 (15.2)
Number of visit to ANC	
Once	23 (9.4)
Two	24 (9.8)
Three	32 (13.1)
Four Plus	165 (67.6)
Gestational age of current pregnancy before start of ANC	
0-3months	131 (38.0)
4-6months	181 (52.5)
7-9months	33 (9.6)
Source of information about birth preparedness	
Doctor/Midwife	250 (72.5)
Radio/TV/News Paper	51 (14.8)
Internet	35 (10.1)
TBA	9 (2.6)

In this study it was uncovered that 101 participants, representing 31.3% were pregnant for the first time, 28.7% had given birth for the first time, 26.4% had two children and 13.6% had three or more children. With regards to place of previous delivery, 63.9% of the study populace delivered in the hospital, 25.4% at home and 7.0% at a health centre/ CHPS compound. The results revealed also that 55.7% of expectant mothers gave birth with a midwife as birth attendant, 16.0% were delivered by a TBA, 13.9% by mothers-in-law and 13.5% by a doctor. For mode of delivery, findings showed that a majority (84.4%) delivered their previous children naturally. With regard to gestational age of participants' current pregnancies at the first visit to ANC, the findings indicated 38.0% reported for the first ANC visit from 0-3 months pregnant. About 62.1% came for ANC services late, and this could result in poor preparedness with attendant problems. In relation to participants' source of information on obstetric risks, 72.5% got their information from a doctor or a midwife.

Knowledge on Pregnancy Related Issues/Obstetric Risk Factors

Expectant mothers were questioned on whether they knew any danger signs during pregnancy. This question was asked in order to determine whether knowledge of danger signs pregnancy predicts birth preparedness (See table 3). A woman was considered knowledgeable on obstetric danger signs if she spontaneously agreed to at least three obstetric danger signs before (vaginal bleeding, swollen hand and face, blurring of vision), during (severe vaginal bleeding, prolonged labour of >12hr, retained placenta) and after (severe vaginal bleeding, foul smelling vaginal discharge, high fever) pregnancy; one medical

condition in pregnancy (hypertension, anaemia, malaria) and one practice dangerous to pregnancy (intake of concoction, over the counter drugs, fighting).

Table 3- Knowledge on obstetric risk factors of respondents attending antenatal clinic at Tamale Teaching Hospital

	Strongly disagreed	disagreed	Agreed	Strongly agreed
	n (%)	n (%)	n (%)	n (%)
Danger signs pregnant women may experience during pregnancy and birth				
Severe vaginal bleeding	3 (0.9)	49 (14.2)	207 (60)	86 (24.9)
Excessive vomiting in pregnancy	6 (1.7))	79 (22.9)	189 (54.8)	71 (20.6)
Reduced/loss of foetal movement	2 (0.6)	39 (11.3)	210 (60.9)	94 (27.2)
Oedema	4 (1.2)	86 (24.9)	186 (53.9)	58 (16.8)
Main medical related conditions in pregnancy				
Blood pressure (BP)	4 (1.2)	40 (11.6)	215 (62.3)	86 (24.9)
Malaria	4 (1.2)	34 (9.9)	218 (63.20)	89 (25.8)
Anaemia	4 (1.2)	36 (10.4)	207 (60.0)	98 (28.4)
Dangerous practices to both foetus and mother				
Intake of locally prepared concoctions.	6 (1.7)	26 (7.5)	210 (60.9)	87 (25.3)
Over the counter drugs	7 (2)	14 (4.1)	206 (59.7)	102 (29.6)
Domestic violence	2 (0.6)	2 (0.6)	206 (59.7)	123 (35.)
Infection prevention practices				
Sleeping under insecticide treated net	1 (0.3)	59 (17.1)	163 (47.2)	122 (35.4)

Respondents were probed on danger signs pregnant women may experience during pregnancy and birth, and 60% agreed to vaginal bleeding,

54.8% agreed to hyperemesis gravidarium (excessive vomiting in pregnancy), 60.9% to loss of faetal movement and 53.9% agreed to oedema as being obstetric risks. A majority (87.2%) agreed that high blood pressure was an obstetric emergency in pregnancy. About 63.2% agreed malaria is a medical condition in pregnancy while 60.0% agreed to anaemia. Expectant mothers' knowledge was also evaluated on dangerous practices to both mother and foetus; about 60% agreed to locally prepared concoction (*kalgutim*), 60.9% to over the counter drugs and 59.7% agreed to domestic violence as practices that could endanger both mother and foetus. In ensuring infection prevention during pregnancy, 82.6% agreed to sleep in insecticide treated bed net. Overall, the knowledge of participants on pregnancy related issues was very good, as 82% exhibited adequate knowledge compared to 18% with inadequate knowledge.

Access to maternal health services

Access to maternal health services is crucial to ensure safe motherhood care before, during and after delivery. These services include but are not limited to: laboratory services, blood bank services, HIV/AIDS/Hep B counselling services, theatre services and ANC. This section is designed to assess availability, geographic accessibility, affordability and acceptability of maternal health services among expectant mothers. See table 4 below for details.

Table 4- *Maternal health services available to participants at the Tamale Teaching Hospital*

	Strongly disagreed n(%)	Disagreed n (%)	Agreed n (%)	Strongly Agree n (%)
Services available at health facility				
Laboratory, blood bank, HIV/AIDS/Hep B, counselling, theatre services and ANC	3 (0.8)	33 (9.6)	206 (60.6)	100 (29.0)
Barriers to maternal health services				
Judgmental attitude of health workers	7 (2.0)	109 (31.6)	196 (56.8)	33 (9.6)
Lack of ambulance service	14 (4.1)	82 (23.8)	184 (53.3)	65 (18.8)
Deplorable road network	11 (3.2)	97 (28.1)	76 (51.0)	61 (17.7)
Reasons for home birth				
Home birthing tradition	34 (9.9)	210 (60.9)	81 (23.5)	20 (5.8)
Poor hospital Infrastructure	31 (9.0)	130 (37.7)	126 (36.5)	58 (16.8)

Table 4 above showed that 89.6% agreed maternal health services were available at the facility they went to access care but, over 66.4% of the participants agreed the judgmental attitude of health staff impeded access to maternal health services. The study also revealed lack of means of transport especially ambulance service as a great challenge to accessing emergency health care as 72.1% agreed they could not access lifesaving care due to this challenge. Another barrier mentioned in this study was deplorable road network which 68.7% agreed prevented access to maternal health care. These among others were the reasons why some pregnant women chose to deliver at home instead of at the health facility, even though 23.5% and 36.5% of participants agreed some

pregnant women give birth at home due to home birth tradition and poor hospital infrastructure, respectively.

Obstetric Beliefs in Pregnancy and Child Birth

Every social group in the world has specific traditions, cultural practices, and beliefs, and probing into religions further could provide an understanding of a particular culture. Traditional culture plays a major role in the way a woman perceived and prepared for her birthing experience in this study. This may positively or negatively affect the use of health care in general and maternal health in particular (see Table 5).

Table 5- *Obstetric Beliefs in Pregnancy and Child Birth*

Obstetric belief	Strongly disagreed n (%)	Disagreed n (%)	Agreed n (%)	Strongly agreed n (%)
Talisman protects against witchcraft	40 (11.6)	91 (26.4)	107 (31.0)	107 (31.0)
A man who sees a woman naked in labour causes obstructed labour	40 (11.6)	116 (33.6)	125 (36.2)	64 (18.6)
Early announcement of pregnancy causes miscarriage	38 (11.0)	74 (21.4)	123 (35.7)	110 (31.9)
Unassisted birth is a mark of fidelity and bravery on the part of the woman	34 (9.9)	111 (32.2)	125 (36.2)	74 (21.4)
Rituals for safe delivery	14 (4.1)	39 (11.3)	127 (36.8)	165 (47.8)

In table 5 above, 62% of the respondents believed a talisman offers protection to the pregnant woman and her unborn child against diseases and evil spiritual attacks; however, 38% of the respondents disagreed with this belief. Similarly, 54.8% of the pregnant women in the study agreed that no man other than the husband or a doctor should see a woman naked in the process of giving birth as this could lead to obstructed labour. With respect to early announcement of pregnancy 67.6% held the belief that the practice could cause miscarriages whilst 32.4% disagreed. Furthermore, 57.6% of the study populace was of the view that unassisted birth is a mark of fidelity and bravery on the part of the woman as opposed to 42.4%. On the other hand, 84.6% of participants as opposed to 15.4% believed that for a safe delivery, a pastor or imam or traditionalist must be called in to perform rituals for the woman in labour based on her faith for safe delivery.

Family Support for Pregnant Women

Pregnancy, birth and the postnatal period are time of major psychological and social change for women as they navigate their roles as mothers. Supporting mothers' emotional wellbeing during the perinatal period is now recognized to be as important as the traditional focus on the physical health of the mother and child. Table 6 reports on family support for pregnant women during pregnancy, labour and the immediate child care.

Table 6- Family support to pregnant women attending antenatal clinic at the Tamale Teaching Hospital

	Strongly disagreed n (%)	Disagreed n (%)	Agreed n (%)	Strongly agree n (%)
Support persons during pregnancy				
Mother, mother-in-law and father-in-law	12 (3.5)	68 (19.7)	217 (62.9)	47 (13.9)
Husband accompanies wife to ANC	164 (47.5)	92 (26.7)	62 (18.0)	27 (7.8)

Respondents identified their mothers, husbands and sisters as people to depend on to listen to them, give them good advice when they notice a danger sign and help them feel loved and wanted. In this study, 76.8% of respondents had support from husbands, mothers, mothers-in-law and fathers-in-law, as against 23.2% who lacked such support. However, 74.2% of respondents disagreed their husbands accompanied them to antenatal clinic as against 25.8% who were privileged to have their husbands accompanying them to ANC (see table 6 above for detail).

Benefits of family support to the pregnant woman

Family support can help lower the anxieties associated with pregnancy and provide a feeling of security for mothers. Today obstetricians encourage the family's participation during the entire course of pregnancy. This forms the bases of table 7 below:

Table 7- *Benefits of family support to the pregnant woman*

	Strongly disagreed n (%)	Disagreed n (%)	Agreed n (%)	Strongly agree n (%)
Adequate support for pregnant women promotes:				
Bonding with mother and baby	7 (2.0)	10 (2.9)	259 (75.1)	69 (20.0)
Good mental state of mother after birth	5 (1.4)	4 (1.4)	249 (72.2)	87 (25.2)
Early recognition of birth problems	4 (1.2)	13 (3.8)	255 (73.9)	72 (20.9)

In this study, 95.1% of participants agreed that family support for the pregnant woman enhances bonding between mother and baby. In respect of stable mental state after birth, 97.4% of participants agreed that given enabling family environment to pregnant women during pregnancy could promote a healthy mind after birth and at the long run minimize post-partum blues. Moreover, whereas 94.8% of participants agreed that adequate family support to the pregnant woman can result in early recognition of obstetric danger signs thereby ensuring timely health seeking behaviour, 5.2% disagreed. From these statistics, it is undoubtedly clear that supporting pregnant women is one of the sure ways of ensuring safe motherhood care.

Community Support System for Emergency Delivery

The community support system (CmSS) is a mechanism for establishing a community-led structure which tracks all pregnant women, and provides need-based support for making their pregnancy safer, including timely use of life-saving emergency obstetric care services. This information is shared with the

community through village meetings led by local volunteers. Table 8 examines the availability of these support systems for expectant mothers.

Table 8- *Community support system during emergency delivery for women receiving antenatal care at the Tamale Teaching Hospital*

	Strongly disagreed n (%)	Disagreed n (%)	Agreed n (%)	Strongly Agreed n (%)
Community leaders who actively support expectant mothers in times of need				
The chief, Queen mother and the assembly-man	210 (60.9)	95 (27.5)	32 (9.3)	8 (2.3)
Available support in community for pregnant women:				
Community support fund for obstetric emergency	219 (63.5)	95 (27.5)	26 (7.5)	5 (1.4)
Organized community transportation system	217 (62.9)	94 (27.2)	29 (8.1)	5 (1.4)
Annual durbars to educate community members on obstetric risk factor	217 (62.9)	89 (25.8)	28 (8.1)	11 (3.2)

The study identified a big gap between support persons in the community and pregnant women as 88.4% of the respondents affirmed that they received virtually no support from the Chief, Queen-mother and the Assembly persons, as opposed to 11.6% of participants who were privileged to have support from their community leaders. With respect to community support fund for obstetric emergency, 91% of participants indicated that no such funds existed in their communities for them to rely on in times of need; only 8.9% of the study populace indicated the availability of support fund in their localities. With regard to annual durbars to educate community members on obstetric risk factors, 88.7%

of the participants noted the unavailability of this medium of education in their communities whereas 11.3% said such durbars existed in their settings (see table 8 above for detailed explanation).

Determinants of Facility Delivery (Binary Analysis)

The level of education is very crucial in a woman's life in behaviour change modification. In this study with 345 participants, 101 of them were primids, whilst 244 had at least one child in the past. With the 244 respondents with at least one child, it was found that 82 of them were without formal education and 39 of them representing 47.6% were likely to have given birth at home, whilst 43 of them representing 52.4%, patronized the health facility for delivery. Those with low education were 54 in number. Whereas 18 (33.3%) of them delivered at home, 36 (66.7%) utilized the health facility for delivery. With regard to the 108 literate participants, 14(23.0%) were likely to give birth at home whilst 94 (87.0%) in the health facility. Hence, it is apparent that the higher the educational level of these expectant mothers the higher their patronage of health facilities for birth and the lower the chances of home delivery (chi-square 27.646, $p < 0.0001$). Unlike educational status, marital status showed little influence on respondents in deciding place of delivery (p-value 0.215). On the other hand, the influence of knowledge on obstetric risk factors is enormous. The total number of respondents with inadequate knowledge was 37, out of which 19 (51.4%) of them delivered at home and 18 (48.6%) gave birth at the health facility. Those with adequate knowledge were 207 in number, and 52 (25.1%) of them delivered at home whilst 155 (74.9%) gave birth at the health facility. This implies that

respondents with adequate knowledge on danger signs of pregnancy related complications would patronize the facility more (74.9%) compared with those with inadequate knowledge (25.1%, chi-square 10.46, $p < 0.005$). The number of times expectant mothers went to the antenatal clinic was also found to have a great impact on the choice of place of delivery. For instance, 79 mothers went to the antenatal clinic below the WHO recommendation (at least 4 ANC visits for all expectant mothers) and 45 (57.0%) participants delivered at home whilst 34 (43.0%) gave birth at a health facility. Out of the 165 respondents who visited ANC at least 4 times 26 (15.8%) delivered at home whereas 139 (84.2%) gave birth at the health facility. This means the more clients visited antenatal clinics the better their chance of delivery at the health facility and vice versa (chi-square 43.963, $p < 0.001$). With regard to age of the 28 respondents who were within 11-20 years of age, 17 (60.7%) delivered at home and 11 (39.3%) in the health facility.

Those within the age group of 21-30 years were 135, out of which 28 (20.7%) gave birth at home whilst 107 (79.3%) delivered at the health facility. Those within the category of 31-40 years of age were 70 in number and 21 (30.0%) of them delivered at home whilst 49 (70.0%) delivered at the health facility. Lastly, 11 respondents fell within 41-50-year group, out of which 5 (45.5%) gave birth in the house as opposed to 6 (54.5%) at the health facility (chi-square 19.59, $P < 0.0001$). The results showed that most of the respondents within 11-20 years delivered at home whereas those in the category of 21-30 and 31-40 years utilized the health facility for birth and were also the least to deliver at home. Hence, the

reason why 60.7% of them in this study gave birth at home compared to their counterpart above 20 years who mostly utilized facility delivery system.

With regards to religion, 168 of the participants were Muslims and 49 (29.2%) of them delivered at home and 119 (70.9%) gave birth at the health facility. Christians were 69, with 17 (24.6%) of them giving birth at home and 52 (75.4%) delivering at the health facility. Traditionalists had the least participants (7), yet with the highest home delivery of 5 (71.4%) and 2 (28.6%) patronizing health facility delivery. In terms of religion, more Christian women deliver in health facility than traditional and Islamic women. Furthermore, 157 out of the 244 participants were engaged in low-income generation activities and 60 (38.2%) of them gave birth to their previous children at home whilst 97 (61.8%) did so at health facilities. Those whose businesses kept them at the middle-income level were 78; whereas 10 (12.8%) of them delivered their babies at home 68 (87.7%) chose to deliver at the health facility. Only 9 of the respondents earned high income, out of whom 1 (11.1%) delivered at home as opposed to 8 (88.9%) opting for health facility delivery. Higher in-come level was therefore a predictor of facility delivery (chi-square 17.756 $p < 0.0001$).

In respect of means of transport, 127 participants considered transportation as a challenge; 27 (24.2%) of them gave birth at home whilst 100 (78.7%) delivered at the health facility. Those who disagreed that means of transport is a determinant of place of delivery were 117, and 44 (37.6%) of them delivered at home whilst 73 (62.4%) gave birth at the health facility (chi-square 7.888, $p = 0.005$), meaning transport was a determinant of choice of place of delivery in

this study. Another determinant for place of delivery by expectant mothers was funds for expenses. Majority of participants who disagreed to availability of community support fund for obstetric emergency delivered more in the house (46.3%), compared to those who agreed to its availability (24.2%, chi-square 9.942, $p=0.002$). In the same vein, mothers who agreed to advanced arrangement of items for delivery in a delivery bag as a predictor of facility delivery patronized the health facility more (76.8%) compared to those who disagreed (63.2%). With regard to home birthing tradition as a determinant of place of birth, 167 respondents felt home birth tradition was outdated to determine place of delivery, and 131 (78.4%) of them therefore gave birth at the health facility while 36 (21.6%) gave birth at home. On the other hand, 77 participants agreed that home birthing tradition still influence many a pregnant woman regarding choice of place of delivery, hence, 35 (45.5%) delivered at home and 42 (54.5%) at the health facility.

Majority of the respondents who agreed that home birthing tradition was a determinant of place of delivery gave birth at home (45.5%) compared to those who disagreed (21.6%) (Chi-square 14.588, $P < 0.0001$). In relation to poor hospital infrastructure and quality of services, a total of 137 respondents 49 (35.8) patronized home birth whilst 88 (64.2%) of them did deliver at a health facility. Those who disagreed to this were 107, out of whom 22 (20.6%) gave birth home and 85 (79.4%) gave birth at the health facility. Similar to home birth tradition, participants who thought poor infrastructure influenced the choice of place of delivery were the most to deliver at home, (35.8) compared with those who

disagreed to it, (20.6%). Table 9 gives more expatiation to birth determinants of choice of place of birth.

Table 9- *Determinants of facility delivery among women accessing ANC at the Tamale Teaching Hospital*

Variable	N	Place of delivery		Chi-square (χ^2)	p-value
		Home n (%)	Facility (n)		
Educational Status					
No Education	82	39 (47.6)	43 (52.4)	27.646	0.0001
Low Education	54	18 (33.3)	36 (66.7)		
High Education	108	14 (13.0)	94 (87.0)		
Marital Status					
Single	30	11 (36.7)	19 (63.3)	4.466	0.2150
Married	195	53 (27.2)	142 (72.8)		
Widowed	7	1 (14.3)	6 (85.7)		
Divorced	12	6 (50.0)	6 (50.0)		
Knowledge on obstetric risk factors grouping					
Inadequate knowledge	37	19 (51.4)	18 (48.6)	10.468	0.0001
Adequate knowledge	207	52 (25.1)	155 (74.9)		
Number of ANC visits					
<4 visits	79	45 (57.0)	34 (43.0)	43.963	0.0001
4+ visits	165	26 (15.8)	139 (84.2)		

Table 9 Continued

Age of respondent					
11-20	28	17 (60.7)	11 (39.3)		
21-30	135	28 (20.7)	107 (79.3)		0.0001
31-40	70	21 (30.0)	49 (70.0)	19.590	
41-50	11	5 (45.5)	6 (54.5)		
Religion					
Muslim	168	49 (29.2)	119 (70.8)		
Christian	69	17 (24.6)	52 (75.4)	6.745	0.0340
Traditionalist	7	5 (71.4)	2 (28.6)		
Income					
low income (C <400)	157	60 (38.2)	97 (61.8)		
middle income (C 500-1500)	78	10 (12.8)	68 (87.2)		
high income (>C 1600)	9	1 (11.1)	8 (88.9)	17.756	0.0001
Means of transport					
Agreed	127	27 (21.3)	100 (78.7)	7.888	0.0005
Disagreed	117	44 (37.6)	73 (62.4)		
Funds for medical expenses					
Agreed	190	46 (24.2)	144 (75.8)		
Disagreed	54	25 (46.3)	29 (53.7)	9.942	0.0002

Table 9 Continued

Birth/emergency preparedness plan

Agreed	108	26 (24.1)	82 (75.9)		
Disagreed	136	45 (33.1)	91 (66.9)	2.371	0.1240

Items for delivery

Agreed	138	32 (23.2)	106 (76.8)		
Disagreed	106	39 (36.8)	67 (63.2)	5.378	0.0200

Home birthing tradition

Agreed	77	35 (45.5)	42 (54.5)		
Disagreed	167	36 (21.6)	131 (78.4)	14.588	0.0001

Poor hospital infrastructure and quality of service

Agreed	137	49 (35.8)	88 (64.2)		
Disagreed	107	22 (20.6)	85 (79.4)	6.733	0.0009

Determinants of facility delivery (Binary Analysis)

In binary logistic regression analysis, educational status of women, number of ANC visits, and home birth tradition were identified as the main determinants of facility of delivery. Those with formal education were more likely to deliver in health facilities compared to those without formal education, and as the level of educational attainment increased, the likelihood of facility delivery increased (See table 10 below).

Table 10- *Determinants of facility delivery among women accessing ANC at the Tamale Teaching Hospital*

Variable	S.E.	df	Sig.	AOR	95% C.I.for AOR	
					Lower	Upper
Age	0.232	1	0.811	1.057	0.671	1.666
Education2	0.247	1	0.011	1.877	1.157	3.044
Religion		2	0.735			
Religion(1)	0.943	1	0.673	1.489	0.234	9.461
Religion(2)	0.985	1	0.926	1.096	0.159	7.561
Knowledge2	0.466	1	0.278	1.658	0.666	4.13
ANC2	0.38	1	0.00	5.359	2.544	11.289
Income		2	0.551			
Income(1)	1.264	1	0.733	0.649	0.054	7.74
Income(2)	1.265	1	0.938	1.104	0.093	13.17
Means of transportation 1	0.561	1	0.382	0.612	0.204	1.84
Items Delivery	0.495	1	0.695	0.824	0.312	2.174
Tradition	0.36	1	0.015	2.393	1.181	4.849
Marriage2	0.29	1	0.915	1.032	0.584	1.822
Birth Plan	0.714	1	0.544	1.542	0.38	6.252
Birth Preparedness	0.896	1	0.769	1.301	0.225	7.536
Attitude of health staff	0.411	1	0.343	0.677	0.302	1.516
Deplorable Road network	0.477	1	0.986	1.008	0.396	2.57
Cost of services	0.496	1	0.931	0.958	0.362	2.533
Constant	2.499	1	0.043	0.006		

Compared to those without any formal education, and lower level of education, those with higher education were about 1.9 times more likely to deliver in a health facility (AOR=1.9, 95% C.I. 1.16-3.04, p=0.01). Compared to those with the number of ANC visits less than four (4), those with four or more (4+) visits were about 5.4 times more likely to deliver in a health facility (AOR=5.4, 95% C.I. 2.54-11.29, p<0.01). More so, compared to those who agree with the “home birthing tradition”, those who disagree with it were about 2.4 times more

likely to deliver in a health facility (AOR=2.4, 95% C.I. 1.18-4.85, p=0.02) (See table 10).

Measurement of birth preparedness

For a mother to be considered ‘well prepared for birth’, she must meet at least three of the following (Markos & Bogale, 2014): knowledge regarding the risks associated with pregnancy and delivery and the availability of emergency obstetric care; arranged in advance items for birth in the delivery bag; saved enough money to cover the expenses associated with an obstetric emergency; advanced arrangements for transportation; arranged for birth attendant and had a companion to place of delivery (Refer to table 11).

Table 11- *Birth Preparedness among women accessing ANC at the Tamale Teaching Hospital*

	Agreed n (%)	Strongly Agreed n (%)	Disagreed n (%)	Strongly Disagree n (%)
Measures for emergency prepared for child birth				
Means of transportation	11 (3.2)	157 (45.5)	121 (35.6)	56 (16.2)
Funds for medical expenses	9 (2.6)	66 (19.1)	116 (33.6)	154 (44.6)
Birth plan	59 (17.1)	142 (41.2)	98 (28.4)	46 (13.3)
Items for birth in delivery bag	52 (15.1)	107 (31.0)	100 (29.0)	86 (24.9)
Birth Preparedness				
Prepared		150 (43.7)		
Unprepared		195 (56.3)		

In this study, 48.2% of respondents had made advanced arrangements for means of transportation as an emergency measure for birth, whilst 51.8% had not. With regard to funds for expenses associated with an obstetric emergency, 21.8% of participants were prepared whereas 78.2% were ill-prepared. It was also uncovered in the study that 41.7% respondents had had a birth plan as opposed to 58.3%. In respect of items in a delivery bag as a measure for emergency preparedness 46.1% of participants were adequately prepared whilst 53.9% were not. For overall preparedness for birth 150 respondents were well prepared representing 43.7% whilst 195 respondents were ill-prepared representing 56.3%. In other words, 43.7% of the participants met at least three of the requirements needed for birth preparedness whereas 56.3% fell below adequate preparedness for birth.

Determinants of Birth Preparedness (Binary Analysis)

The study revealed that respondents who were poorly prepared for birth were those with minimal to no formal education, and the well prepared ones were respondents with high education. Education was found in the study to be integral and directly proportional to birth preparedness, so the higher the education the higher the preparedness for birth. Similarly, participants who were equipped with adequate knowledge on obstetric risk factors were much more prepared compared to their counterpart with inadequate knowledge.

Moreover, antenatal attendance also had a positive influence on birth preparedness as participants who attended ANC at least four times were well prepared for birth compared to their colleagues who visited ANC below the

required four times or not at all. For instance, among participants who visited ANC at least four times 55.2% were prepared for birth whereas among participants who made less than four ANC visits, only 29.1% were prepared for birth. Hence, the more visits respondents made to antenatal clinics, the more they acquired knowledge regarding preparedness for birth (chi-square 14.550, $p < 0.0001$). In reference to age of respondents, the findings in this study showed ill-birth preparedness among clients below 20 years and those above 40 years, with only 25.0% level of preparedness for the both age categories. On the contrary, participants in their middle ages were more ready for birth, unlike their counterparts at the two extremes. Religion also played a key role in this study concerning birth preparedness. Among Christians, 52.0% were prepared for birth compared with 41.7% of Muslim participants. Respondents who were neither Christians nor Muslims and were categorized as traditionalists were 100% unprepared for birth as indicated in the findings.

This could be due to some practices peculiar to this group of people that is not friendly to modern birth preparedness practices. In relation to income level among respondents with low income, 32.1% were prepared for birth, 68.9% of middle income earners and 83.3% of high income earners were prepared for birth. Apparently, as income level increased, there was a corresponding increment in the level of birth preparedness. Therefore, participants in the high income group were much more prepared for birth than those in the low and middle income levels (chi-square 44, $p < 0.0001$). Another factor that was in congruence with level of income was high cost of services. Out of the 345 expectant mothers who partook

in this study, 255 agreed that the cost of accessing health (demand side) and services fee at the facility (supply side) was a challenge to them in their effort to preparing themselves toward birth. This was obvious, as 64.3% of them in the study were not prepared for birth at the time of data collection, due to high cost of services. In a nutshell, the determinants for birth preparedness include: educational status (chi-square 28.471, $p < 0.0001$), level of knowledge (chi-square 17.898, $p < 0.0001$), numbers of ANC visits (chi-square 14.550, $p < 0.0001$), age (chi-square 14.475, $p = 0.0002$), religion (chi-square 10.949, $p = 0.004$) and income level (chi-square 44.208, $p < 0.0001$), and high cost of services (chi-square 23.356, $p < 0.0001$). On the other hand, marital status, attitude of health staff and home birthing tradition did not determine preparedness in this study nevertheless cannot be ignored as they were relevant in other studies. Table 12 below gives further detail and statistical representation of determinants of birth preparedness.

Table 12- *Determinants of birth preparedness among expectant mothers attending ANC at the Tamale Teaching Hospital*

Variable	N	Birth Preparedness		Chi-square (χ^2)	p-value
		Prepared n (%)	Unprepared n (%)		
Educational status					
No Education	110	32 (29.1)	78 (70.9)	28.471	.0001
Low Education	75	24 (32.0)	51 (68.0)		
High Education	160	94 (58.8)	66 (41.2)		
Marital status					
Single	73	21 (28.8)	52 (71.2)	8.627	.0350
Married	250	120 (48.0)	130 (52.0)		
Widowed	8	3 (37.5)	5 (62.5)		
Divorced	14	6 (42.9)	8 (57.1)		

Table 12 continued

Knowledge on obstetric risk factors grouping					
Inadequate knowledge	62	12 (19.4)	50 (80.6)		
Adequate knowledge	283	138 (48.8)	145 (51.2)	17.898	.0001
Number of ANC visits					
<4 visits	79	23 (29.1)	56 (70.9)		
4+ visits	165	91 (55.2)	74 (44.8)	14.550	.0001
Age of respondent					
11-20	68	17 (25.0)	51 (75.0)		
21-30	188	92 (48.9)	96 (51.1)	14.475	.0002
31-40	77	38 (49.4)	39 (50.6)		
41-50	12	3 (25.0)	9 (75.0)		
Religion					
Muslim	235	98 (41.7)	137 (58.3)		
Christian	100	52 (52.0)	48 (48.0)	10.949	.0004
Traditionalist	10	0 (0.0)	10 (100)		
Income					
Low Income	243	78 (32.1)	165 (67.9)		
Middle Income	90	62 (68.9)	28 (31.1)	44.208	.0001
High Income	12	10 (83.3)	2 (16.7)		
Attitude of health staff					
Agreed	229	92 (40.2)	137 (59.8)		
Disagreed	116	58 (50.0)	58 (50.0)	3.025	.0820
High cost of services					
Agreed	255	91 (35.7)	164 (64.3)		
Disagreed	89	58 (65.2)	31 (34.8)	23.356	.0001
Home birthing tradition					
Agreed	101	40 (39.6)	61 (60.4)		
Disagreed	244	101 (45.1)	134 (54.9)	.872	.3500

Determinants of Birth Preparedness (Binary Logistic Regression Analysis)

In binary logistic regression analysis, formal educational status of women, knowledge about obstetric risk factors, income level, and cost of medical services were found to be the main determinants of birth preparedness. Formal education, knowledge about obstetric risk factors, and cost of medical services were found to have protection against unpreparedness before delivery (Refer to table 13 below).

Table 13- *Determinants of birth preparedness among expectant mothers attending ANC at the Tamale Teaching Hospital*

	S.E.	Df	Sig.	AOR	95% C.I.for AOR	
					Lower	Upper
age	0.228	1	0.363	1.23	0.787	1.923
Education2	0.211	1	0.03	0.633	0.419	0.957
religion		2	0.997			
religion(1)	13252.01	1	0.999	0.00	0.00	.
religion(2)	13252.01	1	0.999	0.00	0.00	.
Knowledge2	0.512	1	0.018	0.298	0.109	0.812
ANC2	0.358	1	0.469	0.772	0.383	1.557
income		2	0.018			
income(1)	1.154	1	0.103	6.547	0.682	62.806
income(2)	1.152	1	0.425	2.507	0.262	23.971
Tradition	0.339	1	0.22	1.516	0.78	2.946
Marriage2	0.284	1	0.101	0.628	0.36	1.095
Attitude	0.34	1	0.554	1.223	0.628	2.382
Cost	0.427	1	0.00	0.157	0.068	0.363
Constant	13252.01	1	0.998	1.05E+11		

Compared to women without any formal education and low educational level, those with high educational level had about 40% protection against unpreparedness before delivery (AOR=0.6, 95% C.I. 0.42-0.96, p=0.03). Mothers with adequate knowledge had about 70% protection against unpreparedness before labour (AOR=0.29, 95% C.I. 0.11-0.81, p<0.02) while mothers who disagreed with high cost of medical services at health facilities had about 84%

protection against unpreparedness before labour (AOR=0.16, 95% C.I.0.07-0.36, $p<0.01$).

Discussion

This study identified that most of the respondents were over 20 years of age. This was predictable because most women marry at this age and would like to have babies during this period in life to continue their generation. This notwithstanding, a significant number of the participants was below the age of 20. Despite the fact that risk of maternal death for mothers within this category in low-and middle-income countries doubles that of older females 21-40, this group of very young adolescents is often beyond the reach of national health, education and maternal health services (Markos & Bogale, 2014; Cooke & Tahir, 2013). Markos and Bogale (2014) stated that older women were more likely to seek maternal healthcare than younger women. Similarly, in Nigeria, women in the middle child-bearing ages were more likely to use maternal health services than women in early and late child-bearing ages. And so, being of older age at marriage is positively associated with the use of healthcare services (Cooke & Tahir, 2013).

A study in rural India also reported that utilization of antenatal care was higher among women married at 19 or older compared to those married at less than 19 years of age (Nawal & Goli, 2013). Early marriage or child marriage is practiced more often in Africa and Southern Asia. The western world is no exception, where teenagers marry and/or just live together against their parents' wishes. Under such circumstances, these girls may be restricted from seeking

healthcare services because of fear or need for permission from a spouse or in-laws (Campbell et al., 2013).

Women who had at least primary education were more likely to be prepared for birth and its complications compared to those who did not. These findings have also been observed in the study conducted in Mpwapwa district Tanzania, rural Uganda, North Ethiopia and Indore City India (Agarwal et al., 2010). This observation might be due to the fact that educated women knew the importance of planning for birth, adhere to counselling provided at ANC, and also have the capability of making decisions on issues related to their health. Hence, as educational level of these expectant mothers increased, there was a corresponding increase in the likelihood of facility delivery.

This study further revealed that respondents who were poorly prepared for birth were those with no formal education, and the well-prepared ones were respondents with higher education. Education was found in this study to be integral and directly proportional to birth preparedness. Another study by Urassa et al., (2012) showed that women with formal primary education and above were two times more likely to be prepared for birth and complications, compared to those who lacked formal education. The high level of birth preparedness of the educated women might be related to the fact that women who are educated are more likely to be financially sound and also have better negotiating power and are able to make their own decisions in matters concerning their health than women who are uneducated.

Another reason why better educated women were more prepared for birth is their ability to better understand health messages and search for more information regarding health issues. According to Kabakyenga et al., (2011), similar studies conducted in Tanzania and in Ethiopia have shown clear relationships between high education and awareness of danger signs of pregnancy. Hence, better educated women are more aware of health problems, know more about the availability of health care services and use this information more effectively to maintain or achieve good health status. Mbalinda et al., (2014) also reported that women's education is a key determinant of maternal healthcare utilization. Similarly, Indian women with high school education and above were found to be 11 times more likely to use antenatal care compared to illiterate women (Agarwal et al., 2010). Education of women is therefore likely to enhance autonomy so that women could develop confidence and capabilities to make decisions regarding their own health.

In terms of religion, the study revealed that more Christian women were likely to deliver in a health facility than traditional and Islamic women. This could be as a result of certain beliefs and practices by Muslims and traditionalists that encourage home delivery. In many communities in northern Ghana, it is personally observed that, a woman with her first pregnancy, it is customary to deliver at home and undergo some rituals deemed necessary for survival of both mother and her new born. In a study conducted in Nigeria, the level of preparedness for birth was significantly higher among the Igbos (in the south) and the minority tribe compared to the Hausas (in the north) (Iliyasu et al., 2010). The

Islamic religion may have had a strong influence on the cultural beliefs and traditions on child birth in the north. Also, some women in this study chose to turn to their deities when it comes to having babies, similar to Ancient Egyptian women who incorporated rituals and ceremonies as an integral part of the pregnancy and birth experience by tuning to Meskhenet, a goddess associated with the place of birth, and respect for her was essential for a normal birth (Crowther & Hall, 2015). It is also personally observed in the study catchment area, the new brand of Pentecostalism interferes with timely health care utilisation as women see pastors, prophets and general overseers for special anointing when it comes to pregnancy and birth. For Catholics, belief in the Virgin Mary cannot be overemphasized.

Women who had a salaried job were more likely to be prepared for birth and its complications compared to women who were not employed at the time of the survey. This finding was comparable with the studies conducted in Southern Ethiopia and Uganda (Asp et al., 2014). This might be due to the fact that paid employment meant a greater likelihood of having cash that can be used to prepare for birth and its complications.

The study uncovered that a significant number of the participants were pregnant for the first time. Being pregnant for the first time could pose significant risk on the novices preparing for birth and birth experiences, but literature indicated that because of perceived risk associated with first pregnancy, a woman is more likely to seek maternal health care services for first order than high-order births (Kabakyenga et al., 2012). Having more children may also cause resource

constraints, which could have a negative effect on health care utilization. This explained why participant with larger family size in this study under-utilize maternal health services. Women from large families underutilize various health care services because of too many demands not only on their time but also on their resources if any. Findings from this study showed that very few women booked for ANC visits during the first trimester and those who did so were more likely to be prepared for birth and its complications compared to those who booked after first trimester. In contrast, a study in Nigeria found that those who booked late were more likely to be prepared for birth and its complications (Ekabua et al., 2011). The difference in these findings may be due to the fact that at the Tamale Teaching Hospital, counselling on birth preparedness is done at each ANC visit and repeated counselling among those who book early for ANC may lead to adherence to counselling.

Also, the study in Nigeria was done at health centres where preparedness may not be effective compared to that of a teaching hospital. This study found that women who attended ANC at least four times were more likely to be prepared for birth and its complications compared to those who attended less often. This suggests that attending many antenatal care services visits was an opportunity to inform pregnant women and help to plan for the important components of birth preparedness. At the Tamale Teaching Hospital, antenatal care guidelines and counselling on birth preparedness are required in all visits and so it is expected that women who attended four or more ANC visits received repeated counselling on how to prepare for birth.

On account of mode of delivery, it was evident in this study that majority of the respondents delivered their previous children spontaneously; however, some pregnant participants delivered through unnatural some methods. Even though most of those deliveries were conducted by skilled birth attendants (SBA), a significant number of pregnant women still patronized the services of unskilled birth attendants including mother-in-laws, TBAs, and herbalists. These findings were consistent with that of Adu-Gyamfi, (2012) who reported that 52% of childbirths were assisted by skilled personnel in a Ghanaian study.

In some overseas health systems, a previous caesarean section (C/S) could be considered as an indication for a repeat caesarean section, but successful vaginal birth can be achieved safely for both mother and infant (Crowther & Hall, 2015). This depends on the gynaecological structures of the woman whether it is too narrow or normal, and why the initial caesarean section was done. All things being equal, vaginal birth should therefore be considered as an option for all women with a history of previous caesarean birth, who present for antenatal care. When a caesarean section needs to be considered, the associated risks and benefits should be clearly explained to the woman. Health professionals should understand that some women may not want to consider a caesarean section despite explanation of the likely outcomes. This may be because of their cultural or religious beliefs. Some women considering caesarean section may also be afraid that they will lose a soul or be afraid of this intervention for other reasons. Japanese women tend to view a caesarean section as posing a great burden to a postpartum woman and may prefer to avoid this intervention (Crowther & Hall,

2015). The fear of blood loss and possible transfusion may serve as deterrent to certain religious groups especially, Jehovah witness. Others may object C/S due to the risks of infections especially in HIV endemic areas (Crowther & Hall, 2015).

Ghana, being one of the countries with highest maternal mortality in the world and striving hard in reducing maternal mortality, had resolved through the 3rd Sustainable Development Goal (SDG) to reduce the high maternal mortality ratio by three quarters by 2015. However, this goal is largely unachieved due to inadequate preparedness for birth and lack of skilled care providers (WHO, 2015a). This is considered as one of the major factors accountable for the current trends of maternal and child mortality in the Tamale Metropolis, where health records from the Northern Regional Health Directorate revealed that 57 maternal deaths had been recorded for the mid-year of 2015. According to the Northern Regional Health Directorate's Quarterly reports (2016), the whole Northern Region had only 295 functional midwives. Even though this number is woefully inadequate 7 of these midwives are due for retirement in 2016. This contributes to poor birth preparedness at ANC's in the Tamale Metropolis.

As the occurrences of complications during the process of child birth are unpredictable, every woman needs to be aware of the key danger signs of obstetric complications during pregnancy, delivery and the postpartum period. This knowledge will ultimately empower them and their families to make prompt decisions to seek care from skilled birth attendants. In this study, women who had knowledge on obstetrics danger signs were more likely to be prepared for birth

and its complications compared to those who did not have such knowledge. This can be explained by the fact that knowing obstetrics danger signs may encourage women to be prepared for birth because they know that when any danger sign occurs, they are likely to be attended to if they are in a hospital. It was also observed that women who prepared for birth and its complications were more likely to deliver at a health facility compared to those who did not prepared. The findings were in agreement with that of Moran et al., (2006) who stated that women who prepared for birth are more likely to know where to go for childbirth and tend to know the importance of having safe delivery which is usually available at health facility. Empowering pregnant women with knowledge therefore, will go a long way to improve on facility delivery. Studies in southern Tanzania also showed that the more women have knowledge of at least four or more danger signs the more they utilize a health facility compared to those who have no knowledge of any danger signs (Bintabara et al., 2015).

Maternal morbidity and mortality could be prevented significantly if women and their families recognize obstetric danger signs and promptly seek health care services during labour, delivery and early postpartum period under the supervision of a SBA. Evidence suggested that raising awareness in women about obstetric danger signs would improve early detection of problems and reduce the delay in deciding to seek obstetric care (Hailu et al., 2011). Similarly, because most babies are born at home or are discharged from the hospital in the first 24 hours, increasing community awareness of the danger signs of new-born complications is of critical importance for improving new-born survival. Thus,

this had been identified as one of the key strategies for improving maternal and child health (Tura et al., 2014).

Access to maternal health services is crucial to ensuring safe motherhood care before, during and after delivery. Access has four dimensions: availability, geographic accessibility, affordability and acceptability (Tura et al., 2014)). Barriers to accessing health services can stem from the demand side and/or the supply side. Demand-side determinants are factors influencing the ability to use health services at the individual, household or community level, while supply-side determinants are aspects inherent to the health system that hinder service uptake by individuals, households or the community (Ensor & Cooper, 2004).

The findings from this present study showed that the majority of the study women were aware of the existence of maternal health services such as laboratory services, blood bank services, HIV/AIDS/Hep B counselling services, theatre services and ANC. On the other hand, respondents said there were concurrent challenges accessing these services due to some intractable barriers. The majority felt the judgmental attitude of health staff impeded access to maternal health services. This agrees with the findings of Asp et al., (2014) who reported that unwelcoming staff attitude, poor interpersonal skills as well as complex billing systems at hospitals increased the difficulty of accessing services especially in developing countries. This could breed lack of trust by users in health care providers or the intermediates that link the population with these providers, making people reluctant to use the respective services. The study also revealed lack of means of transport especially ambulance service as a major challenge to

accessing emergency health care. Another barrier mentioned in this study was deplorable road network which prevented many participants from accessing timely maternal health care services. Those who were determined to seek emergency life saving care were also faced with some delays leading to late reporting to the health facility.

In Ghana, as in many developing countries, deaths during pregnancy and childbirth are often linked to the three delays: delays in the home, delays in accessing the health facility and delays at the health facility (Asante, 2011). According to him, the first delay is deciding whether to seek care or not. The report indicated lack of information and inadequate knowledge as responsible for the delay in responding to initial warning signs of complications of pregnancy and danger signals during labour. Certain traditions and cultures in the country maintain that women must wait for approvals from male relatives before seeking help (Fischer, 2002). The second delay is linked to the constraints that women face in accessing health facilities. Weak referral linkages as pointed out exist between community, health centres and district hospitals, making it difficult for women in emergency situations to get the care they need. The situation as mentioned is made worse by poor road and communication networks, distant health facilities, and a lack of transportation and inadequate community support (Ekabua et al., 2011). The third delay identified occurs between the time the woman arrives at the health facility and the facilities response in providing appropriate care. Facility preparedness to respond to obstetric emergencies is

generally inadequate in terms of skilled attendants, equipment, supplies and drugs and motivated staff (Asante, 2011).

Every social group has specific traditions, cultural practices, and beliefs and probing into religions further provide an understanding of a particular culture.

Traditional culture played a major role in the way a woman perceived and prepared for child birth experience; this may positively or negatively affect the use of health care in general and maternal health in particular (Okka and Durduran, 2016).

In this study most of the respondents believed in certain superstitious practices that hinder adherence to scientific health education given at the ANC. Modern ways of providing protection for pregnant women and their unborn babies such vaccination, taking vitamin supplements could be substituted with their outdated practices. A similar study was done among Ethiopian Afar, where women stated during a focus group that only God and their husband could see them naked (Tura et al., 2014). Pregnant women therefore prefer consultation with local religious leaders, traditional healers, and TBAs where expectant mothers assumed autonomy to seeking care from qualified health providers. The danger here is that when there are obstructed labour issues, these traditionally skilful birth attendants introduce local medicine (concoctions) to stimulate contractions. These concoctions, despite their long tested medicinal effects may also result in repeated and strong contractions leading to rupture of the uterus, a probable cause of maternal and new-born death (Iliyasu & Sabubakar, 2015). Majority of participants held the belief that early announcing pregnancy invites

enemies to destroy it or invokes on the woman ill-health. According to Craig (2009), respondents who believed in this normally start ANC visit late in order to protect their pregnancy against miscarriages.

Furthermore, this exposed that unassisted birth is a mark of fidelity and bravery on the part of the woman. This is in line with a study conducted in Uganda that reported women felt embarrassed to give birth in a health facility because other members of the community would think they were not brave enough to give birth on their own (Kabakyenga et al., 2012). Child-birth therefore, represents a rare opportunity for a woman to demonstrate pride, courage, and bring honour to her and her husband's families by her stoic demeanour. The woman who managed to deliver without indication that she was in labour and without calling for assistance until the child was born was especially esteemed. On the other hand some participants also believed that for a safe delivery, spiritual leaders must be called in to recite special prayers for the woman in labour based on her faith, for safe delivery. During obstructed labour, the pregnant woman was made by these unskilled birth attendants to mention the name(s) of the man or men she might have slept with during pregnancy in order to deliver normally. If she could not still deliver then she was made to go to the hospital by which time she might be near death (Crowther & Hall, 2015). According to Fischer women have used prayer and other spiritual practices for their own and others' health concerns for thousands of years (Fischer, 2002). This they believe is a prerequisite for safe delivery. However, it is a medium for deadly delays.

Supporting mothers' emotional wellbeing during the perinatal period is now recognized to be as important as the traditional focus on the physical health of the mother and child. A study that focused on the key features of the transition to parenthood found that significant numbers of low risk parents experience psychological stress during this time and that their concerns were much broader than the issues addressed by traditional antenatal classes (Jones et al., 2005). The findings of this study showed majority of respondents had support from husbands, mothers, mothers-in-law and fathers-in-law. Even though most husband avail their support to their vulnerable wives during pregnancy few of them followed them for ANC services. This was ascertained in this current study as majority of the women affirmed their husbands never followed them to antenatal clinic. On the contrary, a study carried out in Uganda showed that 42.9% of expectant mothers reported that they were accompanied by their spouses to the ANC, 35% had their spouses help them with household chores during the antenatal period (Mbalinda et al., 2014).

According to Haobijam et al., (2010) couples who were strongly united and romantic in their relationship before the pregnancy found it harder to adapt to parenthood than those whose relationships were already faltering. Unfortunately for some couples, their relationship does not always recover as around 14% of couples split up before the baby was born. Preparing parents for parenthood by addressing the emotional changes that take place during this period, and helping parents to address the problems that occur is therefore paramount. Men generally do not accompany their wives for antenatal care and are not expected to be in the

labour room during delivery. Pregnancy and childbirth continue to be regarded as exclusively women's affairs in most African countries. However, men are socially and economically dominant especially in northern Ghana. They exert a strong influence over their wives, determining the timing and conditions of sexual relations, family size, and access to health care. This situation makes men critical partners for the improvement of maternal health and reduction of maternal mortality. Special efforts should be made to emphasize men's shared responsibility and promote their active involvement in maternity care.

Strategies for involving men include raising their awareness about emergency obstetric conditions, and engaging them in birth preparedness and complication readiness (August et al., 2015). This is based on the premise that increased awareness of men will enable their support for early spousal utilization of emergency obstetric services. Similarly, preparing for birth and being ready for its complications could reduce all three phases of delay and thereby positively impact birth outcomes. Studies on the participation of men in maternal care have been reported mostly from southern part of Nigeria (Iliyasu et al., 2010)..

Community Support System consists of a process where the causes of maternal mortality and morbidity are identified through a death and disability review in the community. Then, this information is shared with the community through village meetings led by local volunteers. The community then identifies their role in preventing avoidable maternal death and promotes a zero tolerance to maternal deaths and violence against women. Lastly, the community forms a committee known as Community Support Group (CSG) which establishes

linkages with the health system and local government (Ekabua et al., 2011). This study identified a big gap between support persons in the community for pregnant women. Community initiatives such as support fund, transportation and durbars in the communities of participants as means of augmenting government's effort to combating maternal death were not in existence. These could contribute to the soaring maternal morbidity and mortality in the study area, rendering impotent the frantic effort in combating maternal death by the Ghana Health Service, Ministry of Health and International safe motherhood organizations.

Maternal deaths in the northern part of Ghana could be reduced if qualified and dedicated Nurses, Midwives and Doctors are ready to serve humanity in a professional manner. Until road networks in the country are properly constructed and accessible to all parts of Ghana, the effort to reduce maternal mortality would be unattainable. This notwithstanding, an evaluation of community support in rural India demonstration enhanced retention of knowledge and skills for recognition and intervention for maternal bleeding and new-born sepsis (Solnes et al., 2013). A program in the Oromia region of Ethiopia found that learning was retained and after three years 54% of women giving birth were exposed to the training (Sunnyvale et al., 2016).

Another well evaluated example of a birth preparedness intervention is the Home Based Life Savings Skills (HBLSS) training program devised by the American College of Nurses and Midwives to increase access to basic life saving measures within the home and community and by decreasing delays in reaching referral facilities where life-threatening problems can be managed (Skinner &

Rathavy, 2009). HBLSS takes into account the social context of childbirth, focusing on the pregnant woman, her family caregivers, and the home birth attendant as a team. The model has also been implemented in India, Ethiopia, Haiti and Liberia with numerous successes. In order to bridge the gap between community and pregnant women it is prudent to provide the following key functions: conducts community surveillance for tracking, registration of pregnancy to facilitates, birth preparedness including dialogue with husbands and in-laws in addition to pregnant women; mobilize local funds and resources to support emergency transportation and referral; promote accountability and responsiveness through community feedback and advocacy;, and creates an enabling environment for pregnant women.

The practice and determinants of BP among pregnant women attending antenatal clinic at the Tamale Teaching Hospital was assessed. Only a few participants met at least three of the prerequisites for PB: Knowledge regarding the risks associated with pregnancy, delivery and available emergency obstetric care; arrangement in advance items for birth in the delivery bag; saving enough money to cover the expenses associated with obstetric emergency; advanced arrangements for transportation to referral centre and adequate knowledge on pregnancy obstetric risks.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION

This chapter summarizes the entire study; the findings of the study, recommendations by the researcher, limitations encountered and direction for future research.

Summary of the Main Findings

This study provided an overview on birth preparedness among antenatal clients in the Tamale Teaching Hospital that aimed at promoting the timely utilization of skilled maternal health care especially during childbirth. The study women constituted young adults with the majority of them being Muslims in the low income group and married with at least 9 years of formal education. Majority of them had their previous deliveries in a health facility under the supervision of a midwife or a doctor and most of these deliveries were spontaneous vaginal deliveries. Majority of them had had more than four ANC visits in the index pregnancy. One interesting finding exposed the low prevalence of birth preparedness among the rather older cohort of women (40-50 years). Having being multiparous, such a cohort were expected to have gained an enormous experience regarding birth preparedness but this study revealed otherwise.

The proportion of women who were well prepared for birth and were ready for any pregnancy related complications was not satisfactory (43.7%). Even though respondents were not well prepared for birth, they were well informed on the various danger signs of pregnancy including: severe vaginal bleeding, hyperemesis gravidarium, reduced or loss of foetal movement and oedema.

Identified determinants or predictors of birth preparedness were found to be: age, education level, number of ANC visits, income status, marital status, knowledge of key obstetric danger signs and cost of services.

Participants were also well informed on medically related conditions such as high blood pressure and anaemia. Awareness on available maternal health services among the study populace was also high. Women with a high level of education exhibited a stronger awareness of the significance of skilled childbirth in comparison to their less educated counterparts, hence the need for key stakeholders to recognise the integral role played by formal education towards achieving safer delivery patterns amongst women. Similarly, women from good financial backgrounds demonstrated high awareness of the benefits associated with utilising skilled antenatal services and hence prepared adequately for birth.

Identified health beliefs that influenced birth preparedness and facility delivery were: women not allowing any man to see their nakedness except their spouses; early announcement of pregnancy could lead to miscarriages; wearing of talisman offer protection to both mother and foetus; safe delivery is assured by pastors/imams/traditionalists reciting special prayers for women; and the belief that women who deliver on their own were brave, adorable and faithful to their spouses. Also, Muslims and traditionalists were largely been influenced by religions, whilst Christians were least influenced.

Key difficulties faced by women in accessing antenatal services were poor road and communication networks, distant health facilities, lack of transportation and inadequate community support. Despite several reports exposing these as

persistent barriers to maternal and child healthcare, this study showed that efforts to address such challenges may be elusive. Identified barriers to birth preparedness and access to facility delivery were: judgmental attitude of health workers, lack of ambulance services, deplorable road network and high cost of service. Reasons why participants preferred to deliver at home in this study included home birthing tradition, judgmental attitude of health workers and poor hospital infrastructure.

The respondents identified a gap between pregnant women and community leaders and enumerated the following as weaknesses to support systems in the community: lack of community support fund for emergency obstetric care; lack of community transportation system and lack of annual durbars to educate community members on obstetric risk factors. This study showed a significant lack of spousal support for women where they needed it most.

Conclusions

The study purposely designed to assess birth preparedness among expectant mothers and investigated the determinants influencing facility-based deliveries in the Tamale Metropolis based on set objectives: assess expectant mothers' knowledge on obstetric risk factors; assess maternal health service availability and accessibility to pregnant women; find out family support for the pregnant woman; determine the obstetric beliefs among the study population and establish community support systems for pregnant women.

Based on demographic characteristics the study established a significant number of participants below the age of 20 most of who were primids. This group of young adolescents were poorly prepared for birth and likely to give birth at home, compared to their counterparts above 20 years who mostly utilize facility delivery systems. The African Traditional Religion had the least participants (7) yet with the highest home delivery as all the participants in this category were unprepared for birth. Hence a significant number of them patronized unskilled people for delivery as indicated in the findings.

The study showed that most pregnant women came for ANC services very late, as some of them were reported to the health facility with the *foetus head in vagina*, and some on their way to the health facility. Participants who attended ANC at least four times were well prepared for birth compared to their colleagues who visited ANC below the required four times or not at all. The study populace had greater knowledge on obstetric risks related to pregnancy. Maternal health services were available at the facility but there were also concurrent challenges accessing these services due to some barriers resulting in the inability of some pregnant women to access maternal care. Obstetric beliefs regarding childbirth also played a major role for the three delays in the way the pregnant women perceived and prepared for birth and this affected maternal health services utilization. Modern ways of providing protection for pregnant women and their unborn babies were substituted with obsolete beliefs and practices. Some pregnant women also preferred consultation with local religious leaders, traditional healers, and traditional birth attendants (TBAs) to seeking care from qualified health

providers; particularly common among the Muslim and Traditional cohort of women. The danger here is that when there was obstructed labour these unskilled birth attendants introduced local medicine (*kalgutim*) to stimulate contractions, resulting in repeated contractions that had the tendency of rupturing the uterus.

The belief that for a safe delivery, a pastor or imam or traditionalist must be called in to recite special prayers for the woman in labour based on her faith for safe delivery also hindered seeking timely obstetric care.

Supporting mothers' emotional wellbeing during the perinatal period is crucial but most of the respondents lack this all important support from their husbands. Overall, the level of knowledge of participants in respect of pregnancy related issues was high but it did not reflect in preparedness for birth.

Recommendations and Suggested Areas for Further Research

Based on the findings of this study and the conclusions drawn, the following recommendations are made for improving policy, knowledge and practice as far as birth preparedness is concerned:

- Rigorous education by midwives targeted at pregnant women and their close associate is critical since study findings indicated a gap in adherence to birth preparedness practices.
- Midwives should consider assisting expectant mothers to design goal oriented birth plans, comprising: the desired place of birth; the preferred birth attendant; the location of the closest appropriate care facility; funds for birth-related and emergency expenses; a birth --companion; support in looking after the home and children while the woman is away; transport to

a health facility for the birth; transport in the case of an obstetric emergency and identification of compatible blood donors in case of emergency.

- The Ministry of Health through the Ghana Health Services should create friendly clinics for the vulnerable group of this study (under aged pregnant mothers) and extend the free maternal care to cover the demand-side expenses to enable them patronize maternal health services.
- Special efforts should be made by the government and safe motherhood organizations to incentivise men who accompany their wives to antenatal clinics from conception till delivery to emphasize men's shared responsibility and promote their active involvement in maternity care.
- Health policy makers should partner with chiefs, queen mothers, assembly persons and community volunteers in fixing obstetric emergency strategies such as free transport systems for women in labour from their homes to referral centres. Community members should be thoroughly educated at organized community durbars to eschew all cultural practices and killer obstetric beliefs that often lead to delays in seeking emergency obstetric care as indicated in this study.
- Domiciliary midwifery should also be encouraged and regulated by the Nurses' and Midwives' Council of Ghana while strong partnerships are built between skilled birth attendants and TBAs.
- This study largely depended on facility-based data and might not indicate the true rate of BP/CR practice in the community. It is therefore

recommended that a larger prospective cohort study be carried out nationwide to improve the generalizeability of findings.



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APPENDIX A

QUESTIONNAIRE AND VOLUNTARY CONSENT

I am Solomon Suglo, a student of University of Cape Coast on the Master of Nursing Programme. I am carrying out research on the topic: *Birth Preparedness among Antenatal Clients in the Tamale Metropolis*. Hence, if you are willing to participate I would like to know what you know and the kind of preparations you have made during your pregnancy. Information obtained from you shall be handled with utmost confidentiality. You are not required to mention your name and the information you provide will not be linked with you in any way or at any stage of this study. You have the right to participate in or opt out from the study based on your discretion. Thank you.

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research titled (*Birth Preparedness among Antenatal Clients in Tamale Metropolis*) 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.

Sign. of Respondent.....Date.....

Sign. of Witness.....

SECTION 1: Socio-Demographic Characteristics. Please Tick The Response That Is Most Descriptive Of You.

1. Age: (a) 11- 20 years (b) 21-30 years
(c) 31 -40 years (d) 41-50 years

2. Ethnicity :

- (a) Dagomba (b) Gonja (c) Ewe
(d) Konkomba (e) Bimoba (f) Gruni
(g) Dagaaba (h) other (specify).....

3. **Religion:**

- a) Muslim (b) Christian (c) Traditionalist
(d) Others (specify).....

4. **Marital Status**

- (a) Single (b) Married (c) Widowed
(d) Divorced (e) Separated Cohabitation

5. **Education Completed**

- a) No formal education (b) JHS (b) Secondary
(d) Tertiary

6. **Income level:**

- (a) Low income (below 400 cedi)
(b) Middle income (400-1500 cedi)
(c) High income (1600 cedi and above)

7. **Occupation**

8. **Possible sources of information about birth preparedness: choose the option applicable to you**

- (a) Doctor/midwife (b) Radio/TV/News paper
(c) The internet (d) TBA

9. **Parity: how many biological children do you have?**

- a) None (2) One
c) Two (d) Three and above

10. **Which of the following places (settings) did you give birth to your previous child?**

- a) At home (b) Shrine (c) On the way to referral centre
d) Health post (e) CHPS Compound f) Hospital
g) Not applicable

11. **Which of the following birth attendants delivered you of your previous pregnancy?**

- a) TBA (b) Mother-In-law/Family Member
(c) Passers-By (d) Midwife
(e) Doctor f) Not applicable

12. What was the mode of delivery of your previous child?

- a) Spontaneous Vaginal Delivery (SVD)
 (b) Vacuum extraction (c) Forceps delivery
 (d) Caesarean section (C/S) e) Not applicable

13. How many visits did you make to health facility for ANC services before delivery of your previous child?

- (a) Once (b) Two (c) Three
 (d) Four (e) Five and above
 f) Not applicable

14. How many months old was your current pregnancy during your first visit for ANC services?

- a) 0-3 months (b) 4-6 months
 (c) 7-9 months

Section 2: This section seeks to assess your knowledge on emergency birth preparedness. You are required to respond to each statement by rating each with the strength of your agreement with it: agreed (A), strongly agreed (SA), disagreed (D) or strongly disagreed (SD)

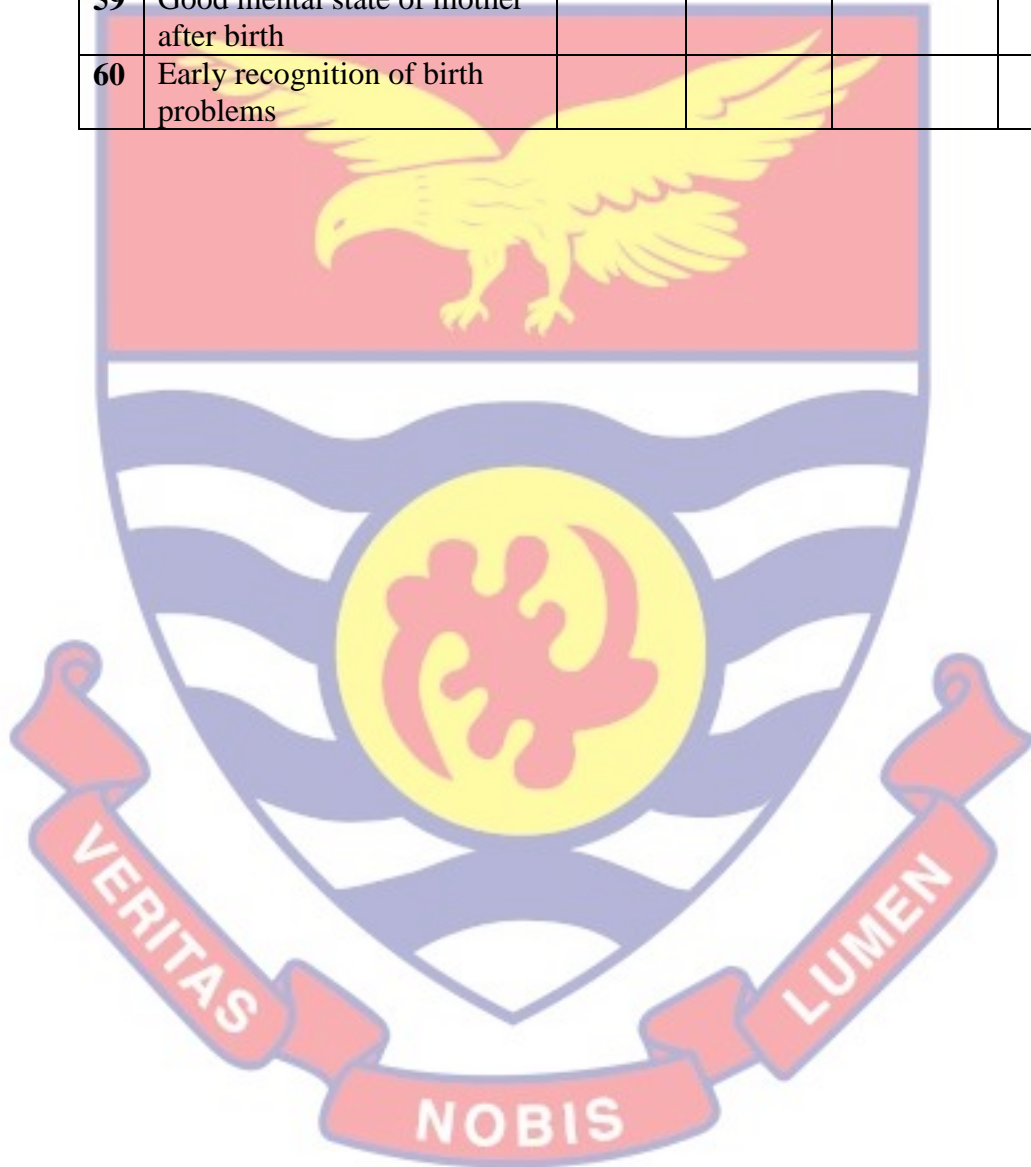
SECTION 2: KNOWLEDGE OF EXPECTANT MOTHERS ON PREGNANCY RELATED ISSUES					
Danger signs pregnant women may experience during pregnancy and birth include:		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
15	Severe vaginal bleeding				
16	Hyperemesis gravidarium (severe vomiting)				
17	Reduced/ loss of faetal movement				
18	Oedema				
The main medically related conditions in pregnancy that often result in death include:		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
19	High blood pressure				
20	Malaria				
21	Anaemia				

I can endanger my life and my unborn child if I patronize the following practices		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
22	Locally prepared concoctions (' <i>kalgu-tim</i> ')				
23	Over the counter drugs				
24	Domestic violence				
Routine medications given me at ANC to maintain good health include:		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
25	Folic acid, fasilate, vitamin supplements and tetanus toxoid				
Infection prevention practices during pregnancy for all expectant mothers include:		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
26	Sleeping in insecticide treated nets				
27	Hand washing with soap under running water after visiting toilet and before and after cooking				
Mothers after delivery should know and practice the following for optimum care of the baby		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
28	Breastfeed baby with only breast milk including the first breast milk for the first 4-6 months				
29	Dress cord with normal saline and keep it clean and dry				
SECTION 3: Maternal Health Services Availability and Accessibility					
The facility I intend to give birth renders the following services:		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
30	Laboratory services, Blood bank services, HIV/AIDS/Hepatitis B screening /Counselling services and theatre services.				
I have the following in place as a measure for emergency labour and childbirth:		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
31	Means of transport to health facility				

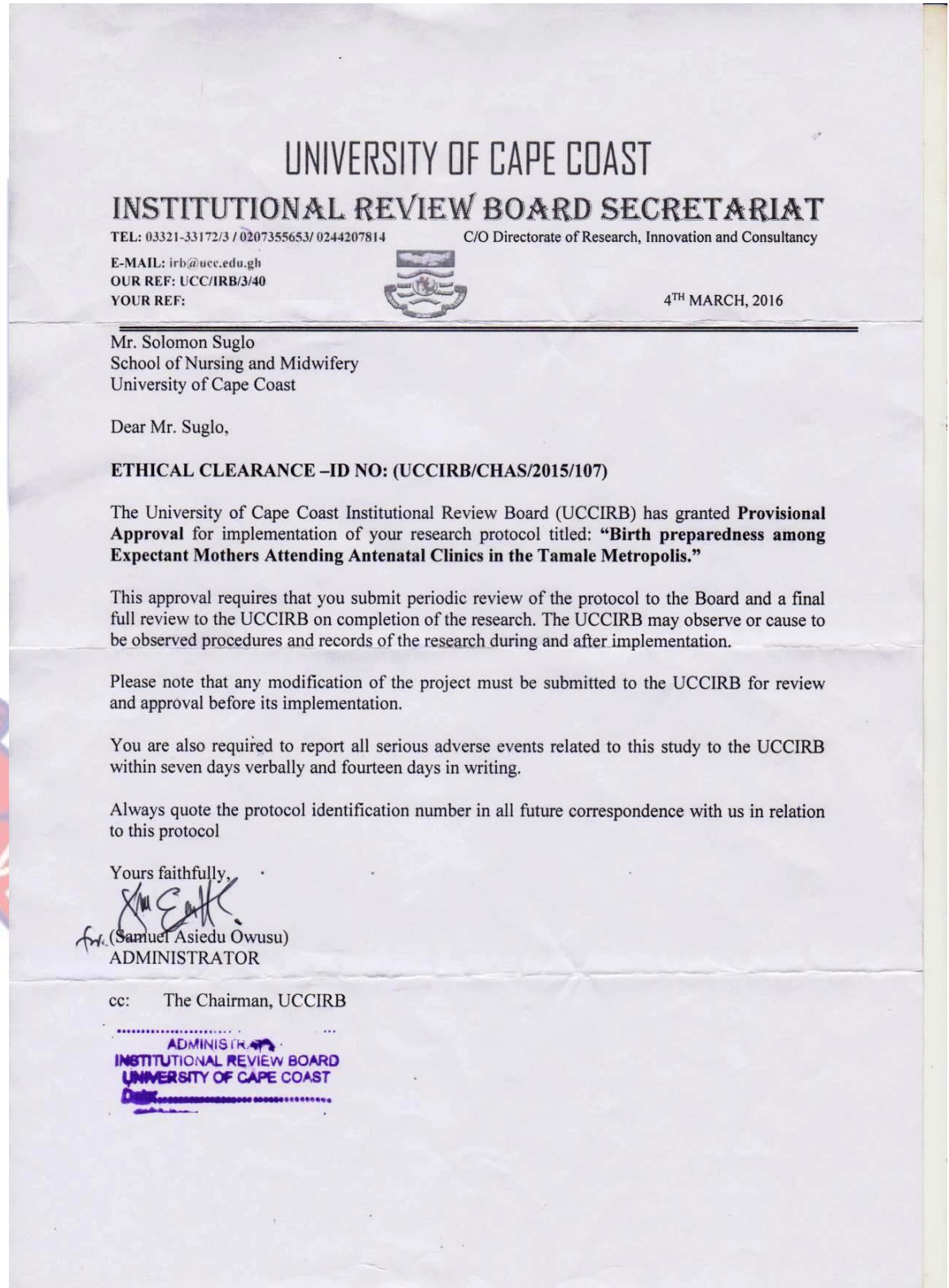
32	Fund for medical expenses/Active health insurance				
33	Birth/Emergency preparedness plan				
34	Items needed for antenatal and delivery in my delivery bag				
The barriers to maternal health services and accessibility in my locality include:		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
35	Judgmental attitude of health workers				
36	Lack of ambulance services for emergency referral				
37	Deplorable road network				
38	High cost of services				
I prefer giving birth at home to the hospital because of the following reasons:		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
39	Home birthing traditions				
40	Poor hospital infrastructure and quality of service				
41	Bad attitude of health workers				
SECTION 4: OBSTETRIC BELIEFS IN PREGNANCY AND CHILDBIRTH AMONG EXPECTANT MOTHERS					
OBSTETRIC BELIEFS		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
42	A man other than the husband who sees a woman naked in labour causes obstructed labour				
43	Childbirth is easy if the woman and her husband tell names of all their previous lovers.				
44	Early announcement of pregnancy causes miscarriage				
45	Unassisted birth is a mark of fidelity and bravery on the part of the woman				

46	Pre-natal vitamin and treatment make the unborn baby's head grow bigger than its body.				
47	Women who eat meat, eggs and snails during pregnancy give birth to witches				
48	Wearing of talisman and amulets offer protection to pregnancy against witchcraft				
49	Pastor/imam/traditionalist must recite special prayers for safe delivery				
SECTION 5: FAMILY SUPPORT FOR PREGNANT WOMEN					
Support persons/type of support by family		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
50	Husband, mother, mother-in-law and father-in-law				
51	My family assists me to avoid delays at home during emergency labour				
52	My husband usually accompanies me to ANC				
SECTION 6: COMMUNITY SUPPORT SYSTEM DURING EMERGENCY DELIVERY					
In my community the following persons actively support expectant mothers in times of need		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
53	The chief, Queen mother and the assembly-man				
Support systems available in my community for pregnant women include:		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
54	Community support fund for obstetric emergency				
55	Organized community transportation system				
56	Annual durbars to educate community members on obstetric risk factors through				

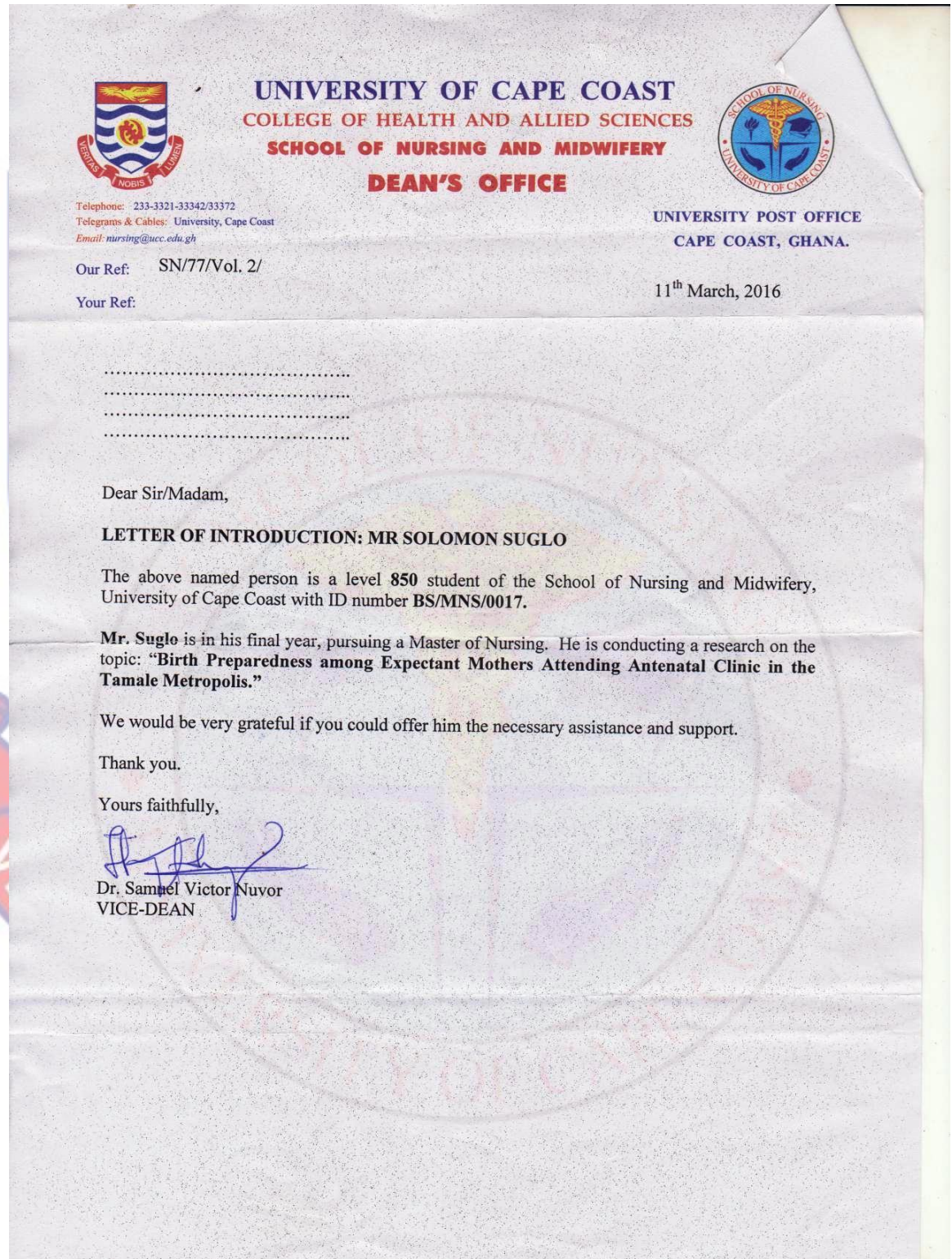
	role play				
Adequate support for pregnant women promotes the following:		Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
57	Bonding with mother and baby				
58	Enhance good relationship between couple				
59	Good mental state of mother after birth				
60	Early recognition of birth problems				



APPENDIX B
UNIVERSITY OF CAPE COAST IRB LETTER



APPENDIX C
INTRODUCTORY LETTER FROM DEAN




APPENDIX D

GHHS` PERMISSION LETTER

GHANA HEALTH SERVICE

OUR CORE VALUES:
1. People-Centered
2. Professionalism
3. Team work
4. Innovation
5. Discipline
6. Integrity

My Ref No: GHS/NR/12-0651
Your Ref No:


Your Health - Our Concern

Regional Health Directorate
Ghana Health Service
P.O. BOX 99
Tamale

Tuesday, 23 February 2016
Tel: (233) (03720) 22912, 22710, 22146
Fax: (233) (03720) 22941
Email: rdhs.nr@ghamail.org

PERMISSION TO COLLECT DATA
MR SOLOMON SUGLO

Mr. Solomon is a second year Master of Nursing student University of Cape Coast.
As part of the requirement for the award of his degree he is required to undertake a one-year research for which he will be presenting a thesis.

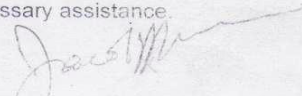
Mr. Suglo identified birth preparedness of expectant mothers as a major challenge to reducing maternal mortality in Northern Ghana.
He is collecting data on the support systems and barriers to accessing antenatal care among pregnant women in Northern Ghana.

Your facility has been chosen as one of the sites for his research work.

Mr. Suglo is also a practicing professional nurse and all information collected will be treated as confidential.

I hope Mr.Solomon Suglo is accorded the necessary assistance.

Thank you.


Dr. Jacob Y. Mahama
Reg. Director of Health Services
Northern Region

➤ **THE MED.SUPT./IN-CHARGE**

APPENDIX E
AUTHORIZATION CERTIFICATE FROM TTH



Department of Research & Development
Tamale Teaching Hospital

TTH/R&D/SR/13/171
16/02/2016

TO WHOM IT MAY CONCERN

**CERTIFICATE OF AUTHORIZATION TO CONDUCT RESEARCH IN TAMALE
TEACHING HOSPITAL**

I hereby introduce to you **Mr. Solomon Suglo** a second year Master of Nursing student from the University Of Cape Coast, School of Nursing. Who has been duly authorized to conduct a study on "**Birth Preparedness among Expectant Mothers Attending Antenatal Clinic in Tamale Metropolis**".

Please accord him the necessary assistance to be able to complete his study. If in doubt, kindly contact the Research Unit at the second floor of the administration block or on Telephone 0209281020. In addition, kindly report any misconduct of the Researcher to the Research Unit for necessary action, please.

Please note that this approval is given for a period of 3 months, beginning from 16th of February, 2016 to 16th of April, 2016.

Thank You.

ALHASSAN MOHAMMED SHAMUDEEN
(HEAD, RESEARCH & DEVELOPMENT)