FACTORS INFLUENCING QUALITY OF CARE

IN MATERNAL HEALTH CARE SERVICES IN RURAL GHANA.

A CASE STUDY IN KINTAMPO

NORTH MUNICIPALITY AND SOUTH DISTRICT.

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Ghana

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Factors Influencing Quality Of Care In Maternal Health Care Services In Rural Ghana. A Case Study in Kintampo North Municipality and South District.

A thesis submitted in partial fulfilment of the requirement for the degree of Master of Public Health

By

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Declaration:
Where other people's work has been used (either from a printed source, internet or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements. The thesis "Factors influencing the quality of care in maternal health care services in Rural Ghana. A case study in Kintampo North Municipality and South Districts" is my own work.

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Abbreviations

ANC	Antenatal Care
BEmONC	Basic Emergency Obstetric and Neonatal Care
CEmONC	Comprehensive Emergency Obstetric and Neonatal Care
CHO	Community Health Officer
DHMT	District Health Management Team
EmONC	Emergency Obstetric and Neonatal Care
GDP	Gross Domestic Product
GHS	Ghana Health Service
GOG	Government of Ghana
GSS	Ghana Statistical Service
HFA	Health Facility Administrators
HFI	Health Facility In-charges
IDI	In-Depth Interview
KHDSS	Kintampo Health Demographic Surveillance System
KHRC	Kintampo Health Research Centre
LMICs	Low and Middle-Income Countries
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
MOH	Ministry of Health
NHIS	National Health Insurance Scheme.
PSQ	Patient Satisfaction Questionnaire
SDG	Sustainable Development Goal
SOPs	Standard Operating Procedures
TBA	Traditional Birth Attendant
WHO	World Health Organization

Glossary

Maternal Mortality Rate: Maternal Mortality Rate is the number of female deaths over a certain period of time per 100,000 live births during that period related to or aggravated by pregnancy or its management. (1) Mathematically, it is calculated by the total number of deaths over a given period divided by total number of live births in the same period, multiplied by 100,000.

Maternal Death: Maternal death is the "death of a female during pregnancy or within 42 days of after birth or pregnancy termination, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes" (2)

Contraceptive Prevalence Rate: It is the "percentage of women who are currently using, or whose sexual partner is currently using, at least one method of contraception, regardless of the method used. It is usually reported for married or in-union women aged 15 to 49." (3)

Total Fertility Rate (TFR): It is the average number of live births a woman would have by the end of her reproductive life if she were subject to pass through those years bearing children at the current age-specific fertility rate. (4)

Maternal Morbidity: It refers to a health condition either physical, mental or disability of a woman that is attributed to or aggravated by pregnancy and child birth that impacts negatively on woman's wellbeing. (5)

Emergency obstetric and new-born care (EmONC): It refers to a "package of medical interventions to treat life-threatening complications during pregnancy and childbirth". (6)

Basic emergency obstetric and new-born care (BEmONC): It is defined as "seven essential medical interventions, or 'signal functions, for the treatment of major causes of maternal and new-born morbidity and mortality". (6)

Comprehensive Emergency Obstetric and Neonatal Care (CEmONC): It comprises of blood transfusions, surgery (e.g., caesarean section), neonatal intubation and advanced resuscitation. They are advanced care components that require access to advanced supplies and trained staff, which may be burdensome for resource-poor health systems. (6)

Abstract

Introduction: Low quality of care is a major factor contributing to Ghana's high maternal mortality rates especially in rural areas. Majority of maternal deaths could be prevented with access to good quality antenatal (ANC), delivery and postnatal services.

Objective: To explore factors influencing quality of care in maternal healthcare service delivery in Kintampo North Municipality and South District in order to inform policy and recommend appropriate interventions to improve the quality of maternal healthcare services in these two Districts in Ghana.

Methods: A combination of a primary study (quantitative and qualitative methods) and literature review are used for this thesis. A cross sectional study was conducted in health facilities and communities in Kintampo North Municipality and South District from October 2014 to April 2015. An inventory was conducted in 29 health facilities. Mothers' satisfaction was assessed among 118 mothers and 22 in-depth interviews conducted among health facility in charges /Administrators.

Results: Most health facilities lacked the necessary infrastructure, materials, equipment and staff for the provision of quality maternal healthcare. Of all the health facilities only 34% of them provided delivery services and 38% of them had delivery forceps for emergency obstetric care. Only 9 health facilities had midwives. Laboratory investigations for maternal healthcare were limited. Health workers had good understanding of quality of care. Majority (94%) of mothers were satisfied with the services provided in the health facilities, however 53% of them did not have enough explanations to complications in pregnancy and labour. Findings from the literature review on relevant studies in Ghana were consistent with the results from the primary data.

Conclusion: In summary, findings from the literature review and the primary study shows that most of the health facilities in Ghana lack adequate infrastructure/materials and staff especially midwives. Health workers had good understanding of quality of care however were unable to provide quality of care due to health resource constraints. Although majority of mothers were satisfied with the overall services they lacked adequate knowledge on complications in pregnancy and labour.

Recommendations: The Ghana Health Service and District Health Management Team should review their standards to increase the number of facilities providing maternal healthcare services in the districts. Health facilities should be adequately equipped with necessary equipment and infrastructure for the provision of quality maternal healthcare.
Key words: Maternal Healthcare, Quality of care, Kintampo, Ghana.
Word Count: 13,038

Introduction and Organisation of Thesis

Globally, maternal mortalities are issues of enormous public health concern. In 2013, approximately 289,000 women died due to complications in pregnancy and childbirth in the world. (7) The World Health Organization (WHO) reports that, everyday about 830 women die from preventable causes related to pregnancy and child birth. (1, 2) About 99% of these deaths occur in Low and Middle-Income Countries (LMICs). (7) Maternal mortality is higher among women in rural areas and poor communities. (7) Sub-Saharan Africa records the highest Maternal Mortality Rate (MMR) of 500 per 100000 live births. (7) This accounts for 62% of maternal deaths in the world. (8) Majority of these deaths could be prevented with good quality Antenatal (ANC), Delivery and Postnatal services. (9)

Ghana is one of the LMICs in Sub-Saharan Africa that is affected. (10) The challenges of maternal mortality and morbidities led to the international community providing targets for improving maternal health in the just ended Millennium Development Goal (MDG) and now the Sustainable Development Goal (SDG). (11,12) Although Ghana was committed to achieving the MDG 5 targets, reports show that Ghana was unable to reduce MMR by three quarters between 1990 and 2015. (1,13,14) The MMR decreased from 570 deaths per 100,000 live births in the year 2000 to 380 deaths per 100,000 live births in 2013. However the progress was slow and not as expected. (11) In 2008, the Government of Ghana (GOG) responded to the slow progress by declaring maternal health as a "national emergency". (12) A synthesis report by the Ministry of Health (MOH) and other stakeholders showed that national level challenges to maternal health is the poor access to quality maternal healthcare services especially in rural areas. (12)

In a study conducted by Adusi-Poku et al, it was evident that strong link exist between quality of care and maternal deaths. (15) Despite this realization, poor quality of service continue to be a problem in Ghana especially in the rural communities. (12) It is prudent to study the factors influencing quality of care in maternal healthcare services in rural Ghana.

As a Research Officer in Kintampo Health Research Centre (KHRC), I have worked on Maternal and Child Health projects for the past five years. During this time, I had the opportunity to work with the Ghana Health Service (GHS), health facilities and communities in rural and urban areas. Through my work I learnt that low quality of service significantly contributes to high rates of mortality and morbidities in maternal healthcare in the district. This experience motivated me to collaborate with other young scientist to do a case study in these two districts in Ghana on the quality of care provided. This research proposal was chosen among 30 competing proposals for KHRC Director's Small Grant Initiative to develop young scientists in KHRC. I was one of the lead investigators under the

supervision and mentorship of other senior Research Fellows. The data has not being analysed because I had to come for the ICHD course however data cleaning was completed. With the knowledge I gained from the ICHD course, I decided to analyse part of the data for this thesis.

The main research question is "what are the factors influencing quality of care in maternal healthcare services and are mothers satisfied with the services provided in the Kintampo North Municipality and South Districts? The two districts are referred to as "Kintampo Districts". The study was done in these two districts because they are similar to other rural districts in Ghana in terms of resource allocations in the health system with little variations. They are close to the Northern Region in Ghana and also deprived. (16) KHRC is located in these two districts. (17) The Centre maintains the Kintampo Health Demographic Surveillance System (KHDSS) (17) which made it convenient for the study to be conducted and to use the two districts as a case study.

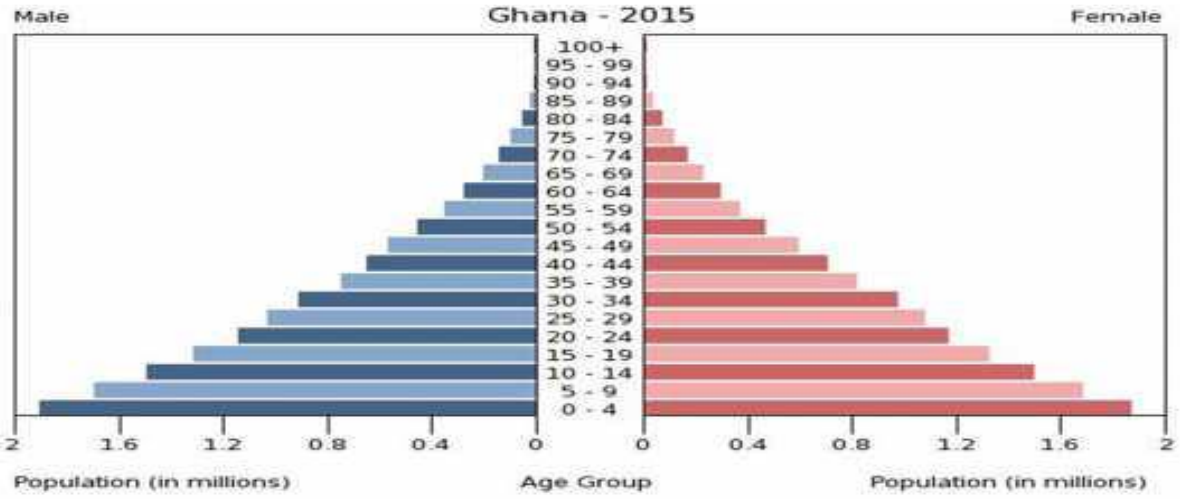
This thesis employed a literature review and a primary data collected in these two districts in Ghana. The factors studied are based on the Donabedian conceptual framework on quality of care. (18) The thesis is structured in five chapters. Chapter one presents the background information of Ghana which is the country of study and the two districts (Kintampo North Municipality and South District) in the Brong Ahafo Region. Chapter two presents the problem statement, justification, objectives, methodology and conceptual framework. Chapter three reports the results for the literature review of relevant studies in Ghana based on the objectives and guided by the conceptual framework. Chapter four present the result of the primary study on quantitative and qualitative data collected in the Kintampo Districts. Chapter five is the final chapter which links and discusses findings from the literature review and primary study and arrives at conclusion and recommendations.

1. Chapter 1: Background Information

1.1 Background of Ghana

Ghana is a sub-Saharan country on the West Coast of Africa. (4)The total land area is 238,589 square kilometres and is bordered on the west by Cote d'Ivoire, east by Togo, the north by Burkina Faso and the south by the Gulf of Guinea. (4) Ghana's population is estimated at 27.67 million in 2015 (19) with growth rates averaging from 2.4% - 2.7%. (20) The population is youthful with 40% below 15 years and 5% above 65years. (20) About 51.3% are females and 48.7% are males. (20).

Figure 1: Population Distribution of Ghana, Age and Sex.



Source: 2010 Housing and population census (21)

The Gross Domestic Product (GDP) of Ghana was $38.62 billion in 2014. (22) The per Capita GDP was $1,426 in 2013. (19) Ghana is a multi-party democratic state and conducts elections every four years. The main organs of government are Executive, Legislature and Judiciary. (4) Ghana is divided into 10 administrative regions and 216 districts. Kintampo North Municipality and South Districts are two of these districts. (4)

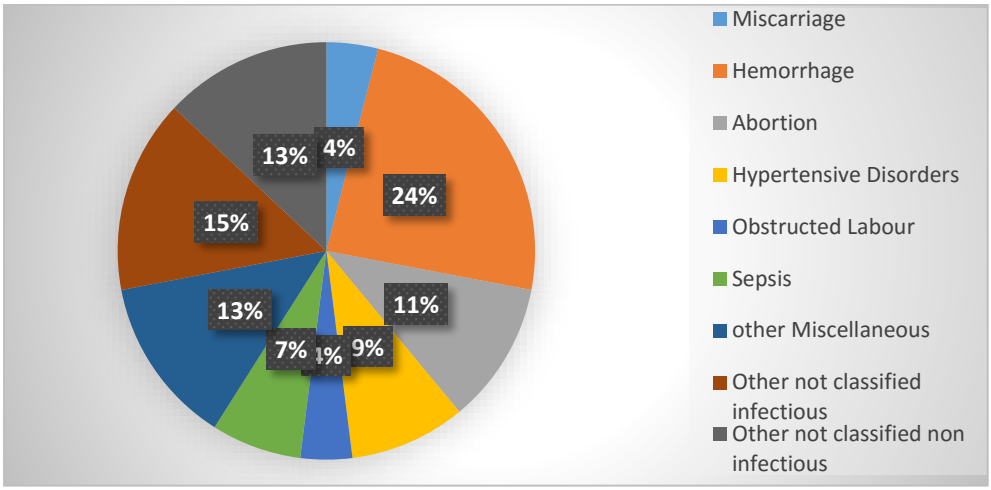
Figure 2: Map of Ghana by Regions, Districts and Neighboring Countries.

Source: United Nations 2015 (23)

1.2 Health Situation in Ghana.

Life expectancy at birth is 63 years for males and 68 years for females. (24) The total fertility rate is 4.2 children per woman. (4) Crude birth rate is 28.2 per 1000 population in the urban areas and 33.1 per 1000 in the rural area. (4) The crude death rate is 8.3 per 1000 population. (25) The under-five mortality rate is 60 per 1000 live births and neonatal mortality rate was 32 per 1,000 live births in 2013. (4) The neonatal mortality accounts for 48% of under-five deaths. (4) The MMR is 380 per 100000 live births accounting for 14% of female deaths and the second highest cause of female deaths in Ghana. (26)

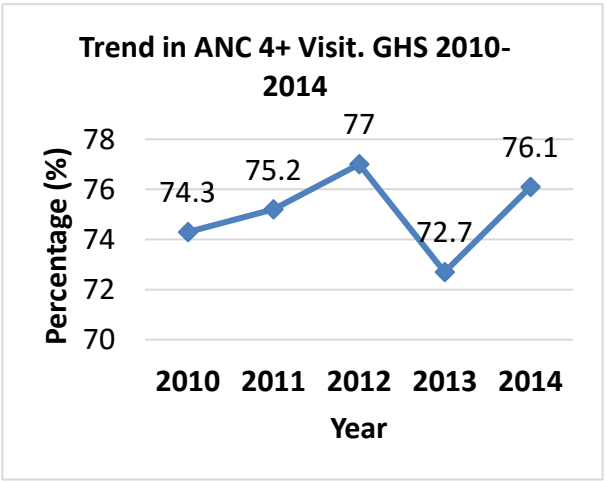
Figure 3: Causes of Maternal Mortality, Ghana.

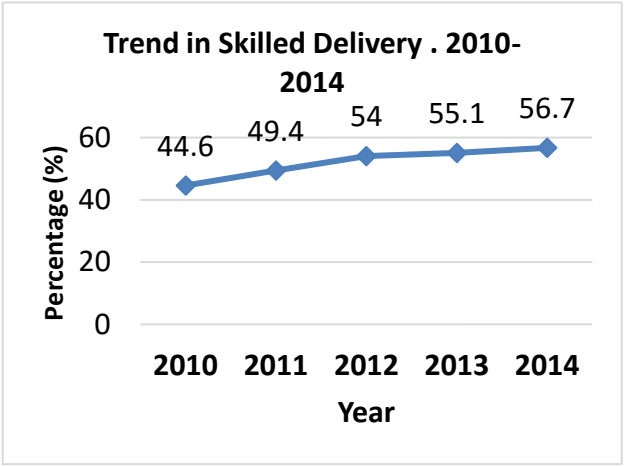


Source: Ghana Maternal Health Survey 2007 (27)

Contraceptive prevalence for women between 15-49 years is 35% and the unmet need for contraception is 25%. (4) According to a national survey by MOH, met need for Emergency Obstetric and Neonatal Care (EmONC) is 34%. (28) Ghana has 13 Basic Emergency Obstetric and Neonatal Care (BEmONC) facilities and 76 Comprehensive Emergency Obstetric and Neonatal Care (CEmONC) facilities per 500,000 population. (28) In Ghana, 76.1% pregnant women made at least 4 ANC and 56.7% in 2014. (11) Family Planning coverage increased from 24.7% in 2013 to 29.1% in 2014 (11)

Figure 4: Trend of ANC Visit from 2010-2014 & Figure 5: Trend of Skilled Delivery 2010-2014





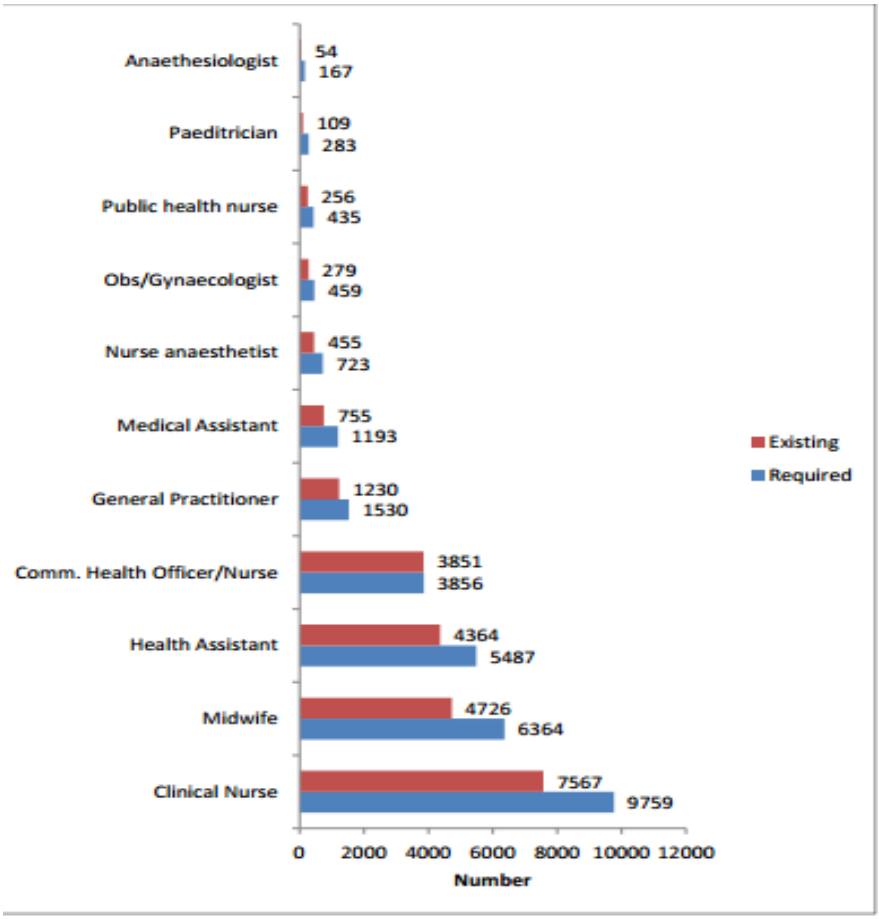
Source: GHS Report 2014 (11)

1.3 Health System in Ghana

The Ministry of Health (MOH) is responsible for policy making and determining priorities of the health sector. (29) The Ghana Health Service (GHS) is responsible for service delivery. (30) The GHS is the largest

organisation of government health facilities organized around primary health care system comprising of five levels; Community-Based Health Planning and Services (CHPS), Sub-District Health Centres, District Hospitals, Regional Hospitals and Tertiary/ Teaching hospitals. (30) The health system is decentralized and decision making on management of healthcare is given to the Regional and District levels from the National level. (31) Ghana's healthcare is provided by the government, faith Based institutions and private health facilities (30). Healthcare coverage is inadequate and varies geographically. Urban communities have access to quality healthcare facilities than rural areas. (32) Ghana suffers from shortage of health service workforce (Doctors, Midwives and Nurses). The midwife patient ratio was 1: 1,374 in 2014. (11) The workforce population density is below 2.3 per 1000 population. (33)

Figure 6: National Targets for Selected Cadres of Health Workers.



Source: MOH&GHS 2011 (34)

1.4 Health Financing in Ghana

Major sources of financing the health sector are from the GOG health expenditure-25.1%, National Health Insurance Fund (NHIF)-29.0%, Internally Generated Funds-26.3% and external funds from development partners (19.6%). (35) Total Health Expenditure as a percentage of GDP was 5.4% in 2013 (35) and out-of-pocket payments as a percentage of

total health expenditure stood at 26.8% in 2014. (22) Ghana has a National Health Insurance Scheme (NHIS) with 34% of population as active members of the country's population as at 2012. (36)

1.5.1 Background of Kintampo North Municipality and South Districts

The background data of these two districts would be combined and presented as one. These two districts are called Kintampo Districts because it used to be one district until 2003 when it was split. (37)The data reported would be for both districts. The population of Kintampo North Municipality and South District is about 176,480 (49.6% Males and 50.4% females). (37) Approximately 43 % of population is under 15 years and only a few elderly persons (6.6%) depicting a broad based population pyramid. (37) About 46.2% of the population in Kintampo North Municipality and 92.1% South District live in rural areas. (37) Approximately 75% are Christians and the rest constitute Muslims and traditional believers.

1.5.2 Geography

The two districts are located within the Forest–Savannah, transitional ecological zone in the middle belt of Ghana with rural settlements. (38,39) The total surface area is 7,162 sq. kilometres. (38,39) The districts are very close to the northern part of Ghana and has most characteristics of the North in-terms of health status and economic status. They represent 18.1% of Brong Ahafo Region. The area is composed of multi-ethnic groups, made up predominantly of the Mos and the Akans. (38,39)

1.5.3 Educational Attainment and Economic Activities

Educational level is low in the two districts especially among the adult population. Majority of the females than the males have never been to school (55.2% and 48.6%). (40) The two districts record the highest incidence of poverty in the region. (16) Approximately 63.8% of the people are farmers, labourers or domestic workers. They engage in cultivating maize, yam and animal rearing. (40) About 91% of the population are poor; some earn less than a dollar per day and 9.9% are considered rich. (40)

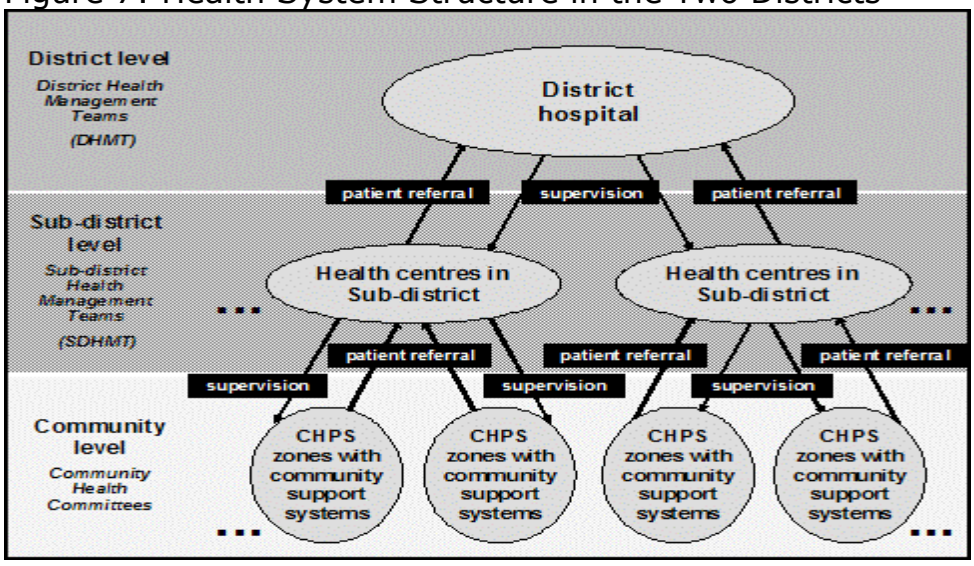
1.5.4 Health Situation

Like any rural setting, the health indicators in the two districts are high. The MMR is 377/100,000 for the two districts. (41) The infant mortality ratio is 39/1000 live births and crude death rate of 7.8/1000 person years in the two districts. (40) The total fertility rate in the two districts is 3.9-4.5 children per woman and crude birth rate is 27.8-29.2 per 1000 population which is higher than that of the region. (38,39) Causes of mortalities and morbidities are maternal related, upper respiratory tract infections, anaemia, worm infestation, pneumonia, sepsis, haemorrhage and others. (38,39)

1.5.5 Health System

There are 2 district government hospitals; 4 health centres, 25 CHPS compounds, 3 private clinics and 2 private maternity homes. The two government district hospitals are the first referral point for other facilities. (40) The health workers are inadequate. For instance in the Kintampo North Municipality, there are 4 doctors for the whole population compared to the national ratio of 1: 10,032. (11) The CHPS initiative is to improve coverage of maternal healthcare services and access to quality healthcare service at the community level. (42) Community Health Officers (CHOs) are provided with essential equipment and assigned to communities where they live and conduct doorstep services and primary healthcare services. (43) Health seeking is likely to be higher as health service are available in most communities. However, there is the tendency of low quality of services as most of the communities are in the rural areas, very remote and hard to reach. They are not well equipped and propensity of health workers migrating is high.

Figure 7: Health System Structure in the Two Districts



Source: MOH 2012 (30)

1.5.6 ANC Services and Health Facility Delivery

In 2011, 40% of pregnant women made at least four ANC visits in the two districts which is far below the national coverage of 75.2% in the same year. (11,40) For at least one visit, about 96.7% of women in the Kintampo North and 67.4% in the South went for ANC. (40) Supervised delivery in a health facility is low at approximately 54.2% and 27.6% in the Kintampo North and South Districts respectively. (40) The difference in the two districts is because the north is more developed than the south. The Ghana Statistical Service (GSS) reports that the current number of facilities in the Kintampo Districts are fairly adequate however they lack staff, drugs and equipment. (38,39) The current doctor patient ratio in the Kintampo North and South Districts (1:45,423) is much lower than the national ratios (1:10,032). The nurse patient ratio is 1:4,781. (38,39)

2. Chapter 2: Problem Statement, Justification and Methodology

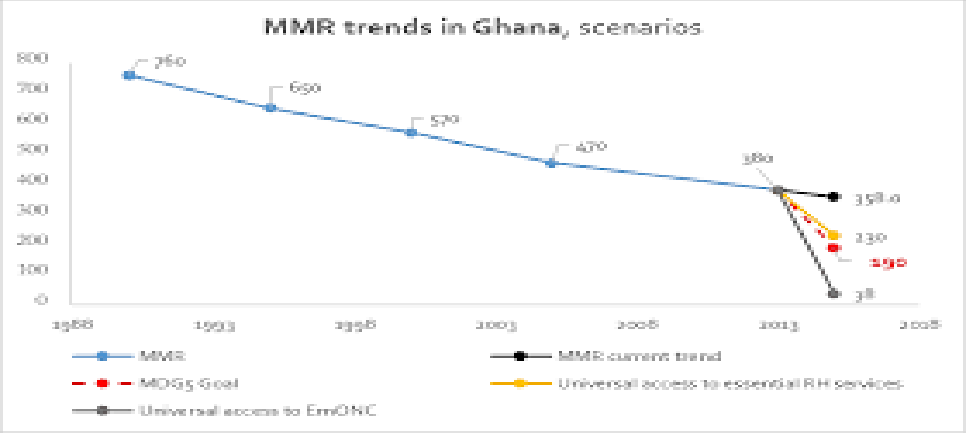
2.1 Problem Statement

According to WHO, "Maternal health is the health of a women during pregnancy, childbirth and postpartum period." (44) Maternal healthcare encompasses community preventive care and treatment for a woman during pregnancy and child birth. (44) This includes provision of Antenatal, Delivery, Postnatal, Nutrition and Family Planning services. (45) Even though motherhood is a positive and fulfilling experience, for some women motherhood is associated with suffering, ill-health and death. (44)

Maternal deaths are due to complex interaction of factors related to quality, economic, financial, socio- cultural and service access. (46,47) In previous years, much has been done to improve accessibility of services in Ghana. (11) The government has put in-place measures to improve access to maternal healthcare service by increasing the number of CHIPS compounds from 354 in 2013 to 368 in 2014 across the country. (11) The free maternal healthcare policy was introduced in 2003 to reduce financial barriers in accessing health service. (11) Despite these changes, institutional deliveries only increased slightly by 1.4 % from 44.6% to 56.7% over the last 5 years. (11)

Although access to healthcare is important, studies report that poor quality of care is one of the barriers to health service utilization in low-income countries. (46,47) Also, ensuring that care provided is of internationally accepted quality standards is important. (48) This aspects had largely been neglected until recently. (48) Studies indicate that the quality of maternal healthcare has declined during the period of free maternal healthcare due to the lack of resources. (49,50) A study conducted by Afulani (2015) in Ghana on maternal services reveals that low quality of care contribute to Ghana's high maternal mortality rates especially in low level health facilities. (51) A synthesis report by the MOH attributes the slow pace of decline in maternal mortality as shown in figure 7 to the poor quality of maternal healthcare services. (12)

Figure 8: Trends of Maternal Mortality from 1990-2013 (52)



Source: MOH & United Nations Population Fund 2014.

The concept of quality in healthcare has diverse opinions and schools of thought. (53,54) The Institute of Medicine (IOM) in 1990 defined quality in healthcare as "the extent to which health services provided to individuals and patient populations improve desired health outcomes". (55) According to GHS, quality of healthcare is "the proper performance (according to standards) of interventions that are known to be safe, affordable to society and impact positively on morbidity, disability and mortality". (56)The GHS categorize quality of healthcare in two perspective; technical perspective and client's perspective. (56)

Technical perspective focuses on how services are rendered based on professional standards. These include but not limited to adherence to Standard Operating Procedures (SOPs), availability and use of technology, infrastructure, availability of essential medical equipment to make correct diagnosis and adequate human resource. (56,57) Client's perspective focuses on client satisfaction. It is based on attitude of health staff, respect for patients' rights, promptness of services, and cleanliness of premises. (56)

Research has shown that health system resource constraints influence the quality of care in maternal healthcare. (58,59) Studies conducted by the Ghana Statistical Service on Service Provision Assessment (SPA) survey in 2002 which is the most recent showed that 50% of all the health facilities providing ANC services lack essential supplies for basic antenatal care and medicines for managing complications during pregnancy. (60) In 2007, Basic Essential Obstetric Care (BEOC) was to be provided at the health centre facility level for managing complications during pregnancy, childbirth and post-delivery. (61) However, most health centres still lack intravenous injections for antibiotics, anticonvulsants, forceps, manual vacuum aspiration and skills for removal of retained placenta. (61)

Studies conducted shows that poor quality of care in health facilities is a general health system problem and has led to persisting high rates of maternal deaths across regions in Ghana. (62,63,64) The World Bank Evaluation of Ghana's health facilities in 2013 revealed that most clinics, health centres and maternity homes do not have appropriate standards for emergency obstetric care. (65) Decision made by health professional during care seeking could influence the quality of care especially in maternal healthcare. (60,61) Health workers perception on quality of care and the challenges they face influences the technical perspective and the client satisfaction of services. (66)

In qualitative studies conducted in parts of Ghana it was evident the quality of care influences the utilization of ANC services and skilled birth attendants. (67,68,69,70) In 2008, the MOH reported that the proportion of facility-based maternal deaths increased to 67%. (71) Access to good quality medical care with good hygienic conditions during care seeking can decrease risk of complications or infections that can lead to death. (9,45)

2.2 Justification

Reducing maternal mortality is the principal objective of primary healthcare programs in Ghana. With the current improvement in access to services one would have thought that there would be a drastic reduction in morbidities and mortalities in Ghana, however this is not the case. The indicators in Ghana are higher than other countries with similar total health expenditure and socio-economic status such as Albania or Bolivia. (72,73) It would be difficult for Ghana to attain the sets targets for the SDG of reducing maternal mortality by 50% since 1990 in 2030 if the slow pace in reducing maternal deaths continue. (74)

In Ghana, several policies and interventions to improve quality maternal healthcare has been implemented. (75) For instance, in 2007 and 2009, a safe motherhood task force was implemented with the aim of increasing production of midwives through direct midwifery training. (76) This initiative resulted in 13% increase in national enrolment of midwives. (76) In 2010, midwives received specific training on the use of partograph aimed at reducing prolonged labour, caesarean sections and intrapartum still births. (76)

Irrespective of these policies and interventions, maternal mortality is high especially in the rural areas. Utilizations of maternal healthcare services is also low in rural areas including the Kintampo North Municipality and South District. (40) Studies conducted in central Brong Ahafo Region revealed that the quality of care is poor although the government has put in place all these interventions. (77) For example, in a study conducted by Lohela et al (2016) in 7 districts with the Kintampo Districts inclusive reports that 74% of the facilities provide delivery services. (77) Also health workers, who are not midwives or doctors, were unable to provide sufficient quality of care because they lack the necessary skills. (77) Lohela et al (2016) used clinical vignettes to assess quality of care and noted that the quality of care was poor in these districts. (77) A major short fall of the study was that little information was provided on the factors influencing quality of care, which is an important dimension. (78) The study also fail to explore these factors in each of the districts.

Although the significance of quality maternal healthcare is usually emphasized by researchers for reducing maternal deaths, the factors influencing the quality of care is insufficiently studied. (48) There are several factors influencing quality of care in maternal healthcare delivery. Studies conducted in some parts of Ghana focus on one or two factors. For example Turkson (2009) focus on client satisfaction in the central Region. (64)

About half of maternal deaths occur in health facility therefore it is necessary to improve quality of care. (63) In order to achieve this it is

important to explore the factors influencing quality of care in rural Ghana like Kintampo Districts where ANC coverage and facility deliveries are low with high maternal mortality as indicated in the background. There is no study in the context of Kintampo North Municipality and South District which focus on the technical perspective factors (infrastructure, equipment, material, type of service, staff) and client satisfaction factors that influence the quality of care in maternal healthcare. This thesis identifies this research gap in the context of rural districts in Ghana like Kintampo Districts and would add to the limited information. This thesis will focus on some aspects of ANC, delivery and postnatal services due to the broad nature of maternal healthcare.

2.3 Objectives of Study

2.3.1 Overall Objective

To explore factors influencing quality of care in maternal healthcare services delivery in the Kintampo North Municipality and South Districts in order to inform policy and recommend appropriate interventions to improve the quality of maternal healthcare services in these two districts.

2.3.2 Specific Objectives

1. To assess the type of service, the availability of infrastructure, materials/equipment, staff (health workers) and for the provision of maternal healthcare services in the health facilities in the two districts compared to District Health Management Team (DHMT) standards.

2. To explore health workers perception of quality of care in maternal healthcare service and their challenges in providing quality services in the Kintampo Districts.

3. To assess whether mothers are satisfied with maternal healthcare services they received in the health facilities in the Kintampo Districts.

4. To inform policy and recommend appropriate interventions to improve the quality of maternal healthcare services in the Kintampo Districts.

2.4 Methodology

The thesis employed a literature review of relevant studies of quality of care in maternal healthcare in Ghana and a mixed method of primary study (quantitative and qualitative methods) conducted in Kintampo North Municipality and South Districts. Findings from the literature review will provide background information that justifies the study. The results of the literature review and primary study are linked and discussed in Chapter five.

2.4.1 Literature Review

A systematic search was conducted in PubMed, VU University library, Medline for scientific literature relevant for the study. Grey literature was searched from Google Scholar, WHO, UNICEF, UNFPA and UNDP for literature. Information from reports, books, fact sheets, policy documents, guidelines and protocols were retrieved from institutional websites. Hand search of reference list of relevant publications were searched for additional literature. Boolean strategies like "And", "Or", "Not" were used. Articles were screened for relevant ones by reading the abstracts and those irrelevant for the study were screened out. English is the only language used. Search words are indicated in Table 12 in Annex 2.

2.4.2 Data Collection for Primary Study

2.4.2.1 Study Area Description

The study was conducted in the Kintampo Districts (Kintampo North Municipality and South Districts). (Detailed in Chapter 1: Background) Data for this study was collected in health facilities and among some mothers in the community who have used any of the health facilities for ANC, delivery and postnatal services. There are 35 health facilities: 2 district hospitals, 3 private clinics, 4 health centres, 25 CHPS compounds and 2 private maternity home.

2.4.2.2 Data Collection Design

A cross sectional study design was used for the conduct of the study. It employed both quantitative and qualitative methods. Out of 35 health facilities, 29 health facility were included. All the health facilities were visited, however, the ones that were closed during our period of visit were excluded from the study. Communities in which data was collected are under the Kintampo Health and Demographic Surveillance System (KHDSS) where surveillance is conducted in 6 monthly interval. (40) Data on pregnancies, births, deaths, health and migration are collected during the surveillance. (40)

I was a lead investigator and responsible for training field workers for data collection and supervision of field work. Data collection started in October 2014 and completed in April 2015 by contracted field workers. Community based field workers of the KHDSS were contracted for data collection. They were trained for a week on consenting, the questionnaires for health facilities inventory, maternal satisfaction interviews and how to conduct the interviews. They visited health facilities in districts for the inventory to be taken and the in-depth interviews to be conducted. They also visited the mothers in their homes for mother satisfaction interviews. The data collection procedure and protocols were followed according to the proposal. Methods used to answer each objective is indicated on Table 1: Research

Table. Detailed description of sampling, quantitative and qualitative methods in Annex 1.

2.4.2.2.1 Quantitative Method

A structured questionnaire was adapted from the checklist for health facility assessment from the DHMT and the National Health Insurance Authority (NHIA) accreditation for health facilities. (79) The questionnaire was used to take inventory in 29 health facilities visited for data collection to answer objective 1. For the mother satisfaction interviews, a Structured Questionnaire on Patient satisfaction was adapted from PSQ-18 (80) for collection of data from mothers on their level of satisfaction to answer objective 3.

2.4.2.2.2 Qualitative Method

An interview guide was developed by the research team based on results from the quantitative data for the in-depth interviews. 22 in-depth interviews were conducted among Health Facility Administrators (HFA)/Health Facility In- charges (HFI) to answer objective 1 and 2.

2.4.2.2.3 Sample and Sampling

For the health facility inventory for quantitative methods, 29 health facilities were visited because the rest were closed. For the mother satisfaction quantitative methods, 118 mothers were randomly sampled from KHDSS database. For the in-depth interviews for qualitative methods, 22 health facility in charge/administrator were purposively sampled for in-depth interviews.

2.4.2.2.4 Data Analysis

The quantitative data was double entered and verified using Microsoft Access software. STATA 12 statistical software was used for quantitative data analysis. Proportions, frequencies, percentages, tables and cross tabulations were generated for the analysis. The transcribed in-depth interviews were imported into NVIVO 8 software for qualitative data analysis.

Table 1: Research Table

	Specific objectives	Methods		
		Quantitative /Qualitative	Tools	Respondents
1.	To assess the type of service, availability of infrastructure, materials/equipment, staff (health workers) for maternal healthcare services in the health facilities in Kintampo Districts compared to DHMT standards.	Quantitative	Health facility inventory form	Health facility Administrators or Health facility in-charges N=29
		Qualitative	Qualitative Interview guide.	Health facility Administrators or Health facility in-charges N=22
2.	To explore health workers perception of quality maternal healthcare service and their challenges in providing quality services in the Kintampo Districts.	Qualitative N=22	Qualitative Interview guide	Health facility Administrators or Health facility in-charges
3.	To assess whether mothers are satisfied with maternal healthcare services they received in the health facilities in Kintampo District.	Quantitative	Mother satisfaction form	Mother N=118

2.4.2.3 Ethical Issues

Ethical and Scientific approvals was sought from the Kintampo Health Research Centre (KHRC) Institutional Ethics Committee (IEC) and Scientific Review Committee of KHRC prior to the conduct of the study. (Detailed Ethical Issues in annex 1)

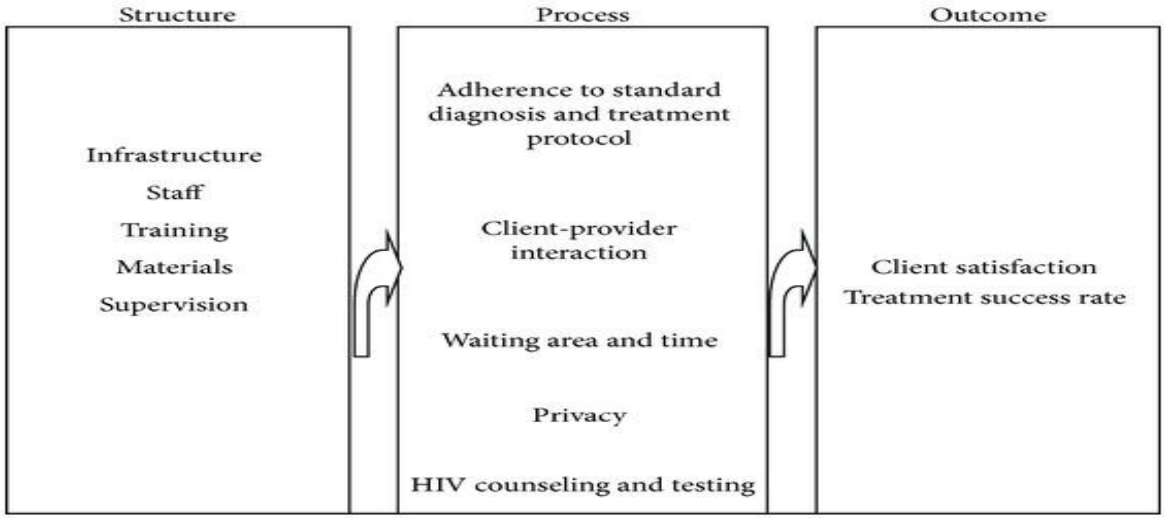
2.4.3 Conceptual Framework

To better analyse the factors influencing quality of care of maternal healthcare services in rural Ghana, there was the need to identify a suitable conceptual framework that best fit the context. Different frameworks explore similar factors of quality of care but with slight variations depending on the purpose and context of the research. Hulton's framework outlines the factors into "experience of care" and "provision of care". (81)

Donabedian framework establishes similar ideology but groups the "provision of care" into two, clearly distinguishing between the "structural factors" and the "process factors". (18) The "experience of care" is also categorized as "outcome factors". (18) For the purpose of this thesis and in the context of rural Ghana, Donabedian framework is selected as it distinguishes between the structure, the process and the outcome. (18) This framework was chosen because it specifically illustrates how the factors interact to influence the quality of care. The framework explains the inter-relational nature of these factors and argues that the structural factors, process and outcome are dependent and largely influence one another. (18) The "structure" is the conduit through which healthcare is delivered and received. The actual care given is the "process" and the consequences of the interaction between individuals and a healthcare system is the "outcome". (18)

The conceptual framework is linked to the objectives of the thesis. The first objective is linked to the "structure", the second to the "process" and the third to the "outcome". Detailed explanation of the factors on conceptual framework in Annex 3.

Figure 9: Donabedian Conceptual Framework.



Source: Donabedian 1988 (18)

3. Chapter 3: Literature Review

This chapter is review of relevant literature on the quality of care in maternal healthcare in Ghana. It is based on the thesis objectives and guided by the Conceptual Framework.

3.1 Objective 1: Type of Service, Availability of Infrastructure, Materials, Equipment and Staff (Health Workers)

This section presents review of literature on the influence of the type of service provided, availability of infrastructure/material/equipment, staff, training, and supervision on the delivery of quality of care in maternal healthcare in Ghana. It is linked to the structure factors of the Donabedian Framework. (18) The infrastructure/material/equipment factors are combined and reviewed first. Staff, trainings and supervision are also combined and reviewed second.

3.1.1 Infrastructure/Materials/Equipment

Infrastructure/materials/equipment for maternal healthcare are important factors influencing quality of care in rural Ghana and studies conducted buttress this fact. (82,83,84). In a qualitative study conducted in the Ashanti Region by Ganle et al (2015), it was evident that availability of essential resources were key to improving quality of care. (85) A participant said in the interview of the study "Sometimes, pregnant women will go to the hospital and there is no medicine……." (85) A survey in northern Ghana conducted by Duysburgh et al (2014) indicated that materials like vacuum extractor/obstetric forceps were unavailable in primary health facilities in rural areas. (59) This implies that those health facilities were unable to provide adequate care. Also they will not be able to provide assisted vaginal delivery and thus limited quality of care. Moreover, the required standards for basic emergency obstetric care was not met in the facilities. (59,86) A health facility assessment conducted in some districts in Brong Ahafo Region by Nesbitt revealed that only 3-13% of the facilities offering delivery care met requirements for highest quality category. (82) In the same study 63% of health facilities were categorized as sub-standard for EmOC because they lacked the necessary infrastructure/materials. (82) The availability these resources influences the type of services provided in the health facilities. (59) If the required services are unavailable in the health facilities mothers can't access quality of care.

In summary, the literature shows that in most of the health facilities in Ghana are not equipped with adequate infrastructure/materials/equipment to provide quality of care in maternal health services especially in rural areas.

3.1.2 Staff, Training and Supervision

Generally, health worker shortage is a problem for maternal healthcare in Ghana. (34) GHS reports that rural areas lack the minimum number of skilled staff needed to enhance service delivery and quality of care. (11) Studies has shown that staff/health workers are crucial in the provision of quality of care especially in maternal healthcare. (58,82,83) A study conducted in Brong Ahafo Region revealed that most health facilities employed two health professionals for conducting deliveries. (82) In the same study, 39% of facilities had three health professionals and four facilities had none for conducting deliveries. (82) According to Oiyemhonlan et al (2013) in their study conducted in Kintampo, shortage of physicians and midwives compelled a level of multi-tasking which affected the "process" of maternal health care. (83) Other studies in northern Ghana reported that aspects of needed care are omitted due to workload and shortage of staff resulting in incomplete medical examination. (84) This revealed that quality of care provided is limited. (82) ANC, delivery and postnatal services is more effective and efficient when provided by a skilled professional using appropriate equipment and infrastructure. (26) Most of these complications that cause maternal death are preventable and treatable with access to quality of service from a skilled health professional. (59,87)

In terms of training, a study conducted by Amu et al (2016) in Ghana noted that, lack of preparation of the staff on duty and inefficiency of the staff also inhibits the care provided thus influencing the quality of care. (58) Staffs should be well trained and prepared to handle maternal health cases. (58) Nesbitt noted that only one health professional is trained to manage obstetric complications in 92% of facilities in the districts in central Ghana. (82) Research conducted in the northern region of Ghana revealed that in-service training organised by GHS were ineffective and did not address the scope of maternal healthcare. (84) The same study reported that these training took over a year to be organised and this affected the quality of maternal health services in the region. This is because most of the midwife lack current practices, knowledge in related topics and infection prevention among others. (84)This influences the actual care that is given (process) and reduces quality. In addition, treatment success rate is reduced thereby leading to more mortality. (85,88)

In terms of supervision, a study conducted by Agyapong et al 2004 revealed that effective supervision was ranked low by staff and considered as a workplace obstacle influencing quality of care. (89) Banchani et al (2014) noted that supportive supervision mechanism was necessary in the provision of quality care. (84)

In conclusion, the literature shows that there is a staff shortage for maternal healthcare, especially midwifes. Also in-service training for midwifes was inadequate and supervision was limited.

3.2 Objective 2: Health Workers Perception of Quality of Care and their Challenges

Perception is defined as "a psychological process of regarding, understanding and interpreting an event". (90) What health workers perceive as quality guides them on how to deliver quality health service in a particular situation. (90) This section focus on health workers perceptions of quality of care and the challenges they face in providing quality of care. Though there are several perceptions of health workers on quality of care the review of relevant literature will be guided by the "process" factors on the Donabedian framework. This section shows the interrelationship between the "process" and the "outcome" as indicated by Donabedian.

3.2.1 Adherence to Standard Diagnosis and Treatment Protocol

Standard diagnosis and treatment protocol are set to ensure uniformity and assure quality provision of care. (66) Health workers who perceive quality of care as adhering to standard diagnosis and treatment protocol may be likely to provide quality maternal healthcare than otherwise. (66) This is because they are more likely adhere to standard diagnosis and treatment protocol. (66) Findings from a study in Greater Accra indicated that during ANC visits and delivery it is important to adhere to standard diagnosis and treatment protocol to be able to identify and distinguish pregnant women who require standard care, from those with specific risk factors who require special attention. (66) In the same study, the level of adherence of ANC protocol was 48.1% which is low. (66) In Ghana these protocol includes but are not limited to history taking, measuring of the weight and blood pressure, abdominal examination, Urine and haemoglobin tests. (91) Non-adherence to standard diagnoses and treatment protocol could lead to serious consequences and reduces treatment success rate for the mother during ANC and delivery.

In conclusion, the literature shows that adherence to protocol was low during ANC even though it ensures quality of care.

3.2.2 Client-Provider Interaction

Quality of care is provided with good client-provider interaction during care seeking. (92) These results in clients' satisfaction of services. (9,87) Health workers who perceive quality of care as good client-provider interaction may be more likely to provide quality of care than those who do not. Client-provider interactions is linked providing information and communication. (59) According to Oiyemhonlan et al (2013), the challenges health workers face include language barriers when communicating with patients. (83) Avortri et al (2011) indicated that clients value the provision of information about their condition and treatment. (9) Those who don't receive information were 9.4 times likely to be dissatisfied than those given the information. (9) Clients are judgmental on provision of information and poor communication from health workers about their health. (93) Clients

are satisfied with care if they are treated in friendly, humanely and culturally sensitive manner. (92) Client-provider interaction is important in maternal healthcare because it is considered as psychodynamic and therapeutic thereby increasing satisfaction with quality of care. (92) It is necessary for health workers to use decent languages when providing care. (92)

The literature shows that, good communication and providing information is important in improving client-provider interaction. This increases clients' satisfaction.

3.2.3 Waiting Area and Time

Waiting area and physical space in the health facility is an important factor of providing quality of care. (83) Health workers who perceive quality of care as attractive waiting area and less waiting time may be likely to provide quality of care than otherwise.

Turkson (2009) indicated that clean waiting areas are highly valued by clients. (64) An attractive, clean and well-layout physical environment of health facilities is an important measure of service quality. It can significantly improve the patient's mood and satisfaction. A neatly arranged physical environment of facilities is a signal to patients that the health facility recognises their psychological, social and medical needs and seeks to fulfil them. (94) Banchani et al (2014) in their study conducted in the northern region of Ghana, indicated that in-patient wards are too small and pregnant women queue to deliver their baby and some of them end up on the bare floor. (84) A crowded waiting area may facilitate easy transmission of environmental and infectious pathogens across mothers. It is also an occupational hazard and mentally distressing to midwives. (83) It influences clients' satisfaction and treatment success rates.

In terms of waiting time, Studies conducted in various parts of Ghana showed that waiting time and delays encountered at the health facilities influences the satisfaction of care (95,96). Long waiting time after arrival at the health facility and duration of examination is associated with low satisfaction and affect quality of service. (95) It has been established that a persistent source of patient dissatisfaction is waiting time especially at the Out Patient Department. (97)

In summary the literature shows that, the time that patients expend at health facilities during medical and administrative procedures and the waiting area contribute to satisfaction with the quality of service.

3.2.4 Privacy

Mothers/clients attach importance to privacy during consultation when determining quality of care. (92)Health workers who perceive providing privacy during consultation and treatment as quality of care may provide

quality of care than those who do not. A study conducted by Turkson in a rural district of Ghana noted that there was a high level of privacy in the consulting rooms, however, initial screening of patients was done in the open. (64) Providing cubicles or screens will assure patients of respect for confidentiality and this will make them reveal important medical history and information to healthcare providers. (64) According to Atinga et al (2013) women required that providers provide privacy through the provision of private rooms and enough isolation to divulge information about their conditions. (92) This is important because women with deep seated cultural backgrounds may find it inappropriate divulging information in an open environment or in the presence of unknown people. (92) Therefore maximum privacy during consultations with expectant mothers should be establish. (92) Consultation rooms that is meant for least two health workers should be partitioned into single occupancy consulting rooms so that, women are inclined to reveal basic facts relating their conditions. (92)

In conclusion the literature review shows that, there is the need to give clients enough isolation to disclose information about their health condition in order to improve quality of care.

3.2.5 HIV Counselling and Testing

In a study conducted in rural districts in Ghana reports that, 89 % of mothers were screened and tested for HIV during ANC. (59)Providing HIV counselling and testing improves the quality of care especially in ANC, delivery and postnatal as it helps prevent further transmission to the baby. (59) Health workers who perceive HIV counselling and testing as quality of care are more likely to provide quality of care than otherwise. (98) This is because they would provide HIV counselling and testing which will improve quality of care.

3.3 Objective 3: Clients/Mothers Satisfaction of Services

Due to the limited data on studies on client satisfaction in Ghana, relevant studies conducted that were similar to the Ghana context were added to this section of the literature review.

Satisfaction is a state of contentment with an action or service determined by client’s expectation and experiences. (9) Clients/mothers' satisfaction of services is a major determinant of outcome and assessment of quality of care which is rare in rural areas in developing countries. (9,99) Studies conducted testify that healthcare quality from clients’ perspective provides authentic and distinctive information about the quality of care. (99,97,100) Clients judge quality of care by assessing factors such as responsiveness, attentiveness, courtesy and perceived competence. (101)

Understanding how clients/mothers perceive care is important as perceived quality is a key determinant of service utilization. (102,103) The level of

client satisfaction can influence service utilization. (104) Clients/ mothers who perceive the quality of service in a health facility as good are likely to increase utilization. (105,106) Research has shown that mother's satisfaction influence their personal health, well-being and outcome of healthcare. (9,99)

In a study conducted by Turkson 2009 in central region of Ghana, 90% of mothers were satisfied with the services provided. (64) However in the same study, 74% were physically examined, 43% were told what was wrong with them and 46% were given advice about their illness in maternal health care services. (64)

In summary the literature review shows that usually overall satisfaction is judged high but when individual variables are assessed it is relatively low.

3.4 Policies and Interventions for Quality Maternal Healthcare

The Government of Ghana has since 1990s embarked on health sector reforms which include accessibility to quality health services. (56) Initially the strategies focused on structural issues and provider's perspective of quality of care, however recently there has been increased efforts to make services clients focused. (107) The GHS has put together a five year policy document (Quality Assurance Strategic Plan 2007-2011) to ensure delivery of patient-centred, safe and quality clinical care. (56) The guiding principles policy include: improve client-focused services; improve patient safety; improve clinical practice and improve management systems and accountability. (56) The strategies include institutionalisation of quality assurance measures that provide information on quality maternal health services for appropriate and timely corrective action. (56) Major interventions are the Development of Reproductive Health Policy, Prevention of Maternal Mortality Network Programme, Safe Motherhood Programme, integration of reproductive health services refocusing of antenatal care and many more. (56) These strategies are decentralised to the Regional and District level for implementation.

4. Chapter 4: Results from Primary Study (Quantitative and Qualitative Data)

This chapter presents results of the primary study conducted in the Kintampo North Municipality and South District. The results will be presented in line with the objectives of the thesis and guided by the conceptual framework.

4.1 Background Characteristics of Respondents

This sections presents the characteristics of the respondents for the primary study in the Kintampo districts.

4.1.1 Background information of respondents for the health facility inventory

Table 2: Background information for respondents of health facility inventory for objective 1.

Respondents	**Number of respondents N=29**	**Sex**		**Age range**	**Duration of work**
		Male	Female		
Administrator	5(17%)	5	-	33-66 years	3-13years
Midwife/Nurse	10(35%)	-	10	28-60 years	3-39 years
Community Health officers(CHO)	12(41%)	3	9	25-28 years	2-4 years
Medical Assistant	2(7%)	2	-	3-9 years	40-43 years

An inventory was conducted in 29 health facilities in the Kintampo districts. Majority of the respondents (41%) were CHOs. This is shows that most of the health facilities in the district are CHPS compounds which are usually managed by CHOs. They are the youngest in terms of age and the least experienced in terms of duration of work.

4.1.2 Background information for respondents of qualitative interviews (in-depth interview)

Table 3: Background information of respondents for objective 2

Sex of Respondents	Age Range	Duration of work	Educational Status	Ethnicity	Occupation
Male: 8(36%)	25-50 years: 7(88%)	3-13 years	Tertiary	Dagarti, Akan, Gonja, Mo Mamprusi Dagomba Frafra Kasena-Nankani	Midwifery, Disease Control officer, Administrator, Filed technician, CHO, Physician Assistant, Nurse
	51 and above: 1(12%)	3 years			
Female: 14(64%)	25-50 years	2-9 years	Tertiary		
	51 and above	9-39 years			

The in-depth interview comprised different cadre of staffs in capacity of health facility in-charges and Administrators. 64% of the respondents are females and 36% are males. The duration of work for females interviewed were higher than males.

4.1.3 Background information of mothers interviewed on satisfaction of services

Table 4: Background information of pregnancy and delivery details of mothers for objective 3.

Background information	Frequency N=118	
Average pregnancy weeks of pregnancy before delivery	35-40 weeks	100(86%)
	30-34 weeks	17(14%)
Kind of Delivery the mother interviewed had	Normal Vaginal Delivery	102(87%)
	Assisted delivery(Forceps, caesarean Section)	15(13%)
Delivery performed by skilled Birth Attendant	Midwife	102(86%)
	Medical Doctor	16(14%)

Majority 86% of mothers interviewed had their babies between 35-40 weeks. 87% of them had normal deliveries and 86% of these deliveries were conducted by a midwife.

4.2 Objective 1: Type of Service, Infrastructure/Material and Staff

The results from the primary data presented in this section will be guided by the "structure" factors on the Donabedian framework. The infrastructure/material/equipment will be combined and presented first followed by staff, training and supervision.

4.2.1 Infrastructure /Materials/Equipment

This section presents results from the primary study in the Kintampo districts on health facility inventory on type of services, laboratory investigations and materials/equipment for maternal healthcare based on DHMT standards.

Types of Services

Services rendered in the various health facilities were sought from respondents. These are basic services health facilities are supposed to provide according to DHMT Standards.

Table 5: Type of Services rendered

Type of Services	Number of health facilities expected to provide the service in the Districts(DHMT STANDARD)	Actual Number of health facilities providing the service in the Districts Frequency N=29 (%)
Antenatal Care (ANC)	29	21(72 %)
Post Natal Care	29	21(72 %)
Delivery Service	29	10(34 %)
Basic Abortion Care	6	4(67 %)
Family Planning	29	25(86 %)
Pharmacy/ Dispensary	29	27(93 %)

By DHMT standards, all health facilities in the districts are supposed to provide these basic maternal healthcare. Among the health facilities visited, 72% of them provide ANC services and postnatal services. Only 34% of the health facilities provide delivery service. Basic abortion care was relatively high 67 % compared with the standards, however the overall standards for the district was low.

The less number of facilities providing ANC and delivery may be one of the reasons why ANC utilization and supervised delivery is low in the districts. This may inhibit access to quality of care in maternal healthcare and could result in deaths. A respondent had this to say:

"If we are able to equip the CHPS compound so they will be able to provide the basic ANC and delivery for pregnant women it will help reduce maternal deaths". HFI

Laboratory Services Provided in the Health Facilities in the Districts

Health facilities in the districts are expected to provide basic laboratory investigations for maternal health care with the exception of CHPS compounds. The type of laboratory services provided in each health facility visited was sought.

Table 6: Laboratory services provided in the districts

Laboratory services	Number of health facilities	Number expected by DHMT STANDARD	Actual Number of health facilities providing the service in the District. Frequency N=29 (%)	Comparing actual laboratory service provided to Number of Health facilities
Haemoglobin	29	12	11(92 %)	38%
White Blood Cells	29	12	4(33 %)	14%
Blood Group	29	12	6(50 %)	21%
Sickling	29	12	5 (42 %)	17%
Malaria test	29	29	23(79%)	79%
Malaria Test Kit	29	29	25(86%)	86%
Blood Glucose	29	12	8 (67 %)	26%
Urine R/E	29	12	8(67 %)	26%
Pregnancy Test	29	29	26(90%)	90%
High Virginal Swap	29	12	2(17 %)	7%
Sputum AFB	29	12	1(8.3 %)	3%

According to the DHMT standards 12 health facilities are expected to provide laboratory services excluding malaria tests and pregnancy test. However less than the expected number of facilities are equipped to provide the laboratory investigations that are required of them as shown on Table 6. Although the standards by the DHMT is low, by standards 92% of the facilities conduct haemoglobin testing. 90% of the facility are able to test for pregnancy which indicate that pregnancies can be detected early enough for further provision of ANC services. 67% of the facilities are able

to conduct Urine R/E and Blood Glucose investigations. 17% of the facilities also conduct high virginal swap investigations.

Access to quality laboratory investigations in the district is low considering that most mothers would have to travel to urban areas to get these investigations done. It is likely that most mothers might not go through any investigation before delivery considering the cumbersome nature of referrals in rural communities. This could result in the risk of infections leading to increase morbidities and complications. An Administrator had this to say in the qualitative interview;

"If we had a laboratory here and a mother comes she wouldn't have to travel again because she can just do the test here." HFA

Availability of Infrastructure/Material/ Equipment in Health Facilities

Basic Infrastructure/Material/Equipment for the provision of maternal health care services were sought from the health facilities visited in the districts. By the DHMT standards, these basic equipment are expected to be available in all the health facilities.

Table 7: Infrastructure/ Material/Equipment

Basic Equipment	Number of health facilities expected to have the basic equipment(DHMT STANDARDS)	Actual number of health facilities having these basic equipment Frequency N=29(%)
Pregnancy Test Kit	29	23(79%)
Thermometer	29	25(86%)
Weighing Scale	29	28(97%)
Scale for Height	29	11(38%)
BP Apparatus	29	29(100%)
Fetoscope	29	22(76%)
Tape Measure	29	25(86%)
Delivery Forceps	29	11(38%)

From table 7 above, the health facilities didn't have the equipment according to DHMT standards. 79% of the facilities have pregnancy test kits. It is interesting to know that all the health facilities have BP apparatus. The BP apparatus will enhance the monitoring of Blood pressure during pregnancy to reduce risk of pregnancy induced hypertension or eclampsia. Only 38 % of the health facilities have delivery forceps to provide basic EmoC services. This is limited since most maternal deaths are as a result of complications. The quality of care provided in this regard is low. A respondent said;

"I think if the logistics and equipment are available, it will help us do the work". HFA

In conclusion, the DHMT standard is relatively low. Only few health facilities (34%) provide delivery services and most of the laboratory in the two districts were unable to provide appropriate laboratory investigations for maternal health care (i.e. haemoglobin, urine R/E, high vaginal swap (to detect infection) and blood glucose). The data also shows that equipment for basic emergency obstetrics is lacking.

4.2.2 Staff, Training and Supervision

This section presents results from the primary study in the Kintampo districts on health facility inventory on staff for maternal health care based on DHMT standards. Also results from in-depth interviews of Health workers on their perceptions of quality healthcare and their challenges in relation to training and supervision are included.

Staff Available in the Health Facilities in the Districts

An inventory of the cadre of staff available in the health facilities was taken. Based on the DHMT standards not all the health facilities are expected to have certain cadre of staff, however it is obvious that the cadre of staff that should be available for maternal healthcare in the health facilities is lacking in the districts.

Table 8: Cadre of staff in the health facilities

Staff in the health facilities.	Number of Health Facilities	Staff expected in health facilities (DHMT Standards)	Actual staff in the various health facilities Frequency N=29(%)	Comparing Actual staff to total health facilities
CHO	29	29	22(76 %)	76%
Nurse	29	17	16(94 %)	55%
Midwife	29	12	9(75 %)	31%
Medical Assistant	29	12	5(42 %)	17%
Doctors	29	6	5(83 %)	17%
Pharmacist	29	2	2(100 %)	7%
Dispensary Technician	29	29	11(38%)	38%

From the table above 75 % of the health facilities have midwives, 94 % have nurses, and 42 % have medical assistants compared with standards of the DHMT. But comparing with the number of health facilities these are

low. It is interesting to know that the number of health facilities with Doctors is high comparing to standards. Majority of the facilities have CHO which is because most of the health facilities are CHPS compounds. One of them said;

"Our main challenge is staffing, we had only two midwives and one is on retirement leaving only one, there are inadequate staff both at the ANC and at the labour ward". HFA

"Human resource is lack of, like midwifes, we don't have any midwives here, since three years now". HFA

Also most of the deliveries are conducted by Traditional Birth Attendant (TBA) as illustrated in qualitative interview.

"We don't have any midwife here so it's the TBA who does the delivery cases. There is no midwife or doctor who can help the women. We don't know what to do". HFI

Training

In the qualitative data analysis some of the health facility in-charges and administrators said they lacked training on some of the services they provide as illustrate below;

Though we don't have training, still we have to, the community health nurse is conducting the ANC and delivery, though she was not taught, she can't perform like a midwife and there are some training that we need to be given so that it would keep us updated". HFI

Supervision

In the qualitative data analysis majority of the health facility in-charges and administrators said supervision was lacking as illustrate below;

".....Supervision is also lacking. Supervision keeps the workers alert all the time." HFA

In summary, the percentage of midwifes is relatively high based on the DHMT standard (75%) but low looking at all 29 facilities in the districts its low (31%). Training in the district is limited forcing staff to provide services they are not capable off and supervision is also inadequate.

4.3 Objective 2: To Explore Health Workers Perception of Quality Maternal Healthcare Service and Their Challenges

This section presents results from the qualitative data analysis (In-depth interview) among health facility in-charge/administrator in the Kintampo districts and will be guided by "process" factors on the conceptual framework.

4.3.1 Perception of Health Workers on Quality of Care

This section presents the qualitative analysis of the perceptions of health workers on quality of care that was sought during the in-depth interview.

Adherence Standard Diagnosis and Treatment Protocol

When respondents were asked about what they perceived as quality healthcare, most of them perceived quality maternal healthcare as providing care based on scientific findings, adherence to standard diagnosis and treatment protocol. This illustrated in the quote below;

"Quality means to be able to do things right, to serve clients in a good manner and should be of standard procedures." HFA

"I will take into account giving health care based on scientific findings like if we are having ANC, we have to make sure we check your blood, palpitation and all that goes into ANC." HFI

Client-Provider Interaction

Among most health facility in-charges and administrators interviewed, they were of the view that quality of maternal healthcare is serving mothers in a good manner. This is illustrated in the quote below;

"Quality healthcare services is the facility giving their best to a patient. If you attend the hospital and you get the trust that you need. Let's start from consultation, even before you take your card, you are taken through a good process and the way the doctor will receive you feel like telling the doctor everything". HFI

Poor attitudes of midwives towards the women and vice versa also contribute to the poor quality of maternal healthcare services as shown in the following responses;

"The attitude of us (the nurses) which is not our fault. People think is our responsibility to work so at any time when they bring any health issue they expect you to work. Attitude of nurses is one and also our clients also don't have patience for us. At times you won't feel like rendering services to a patient". HFI

Waiting Area and Time
Some few administrators responded that quality healthcare includes neat environment and getting rid of undue delay and reducing waiting time at the facility. One of them said;

"……..Undue delay is not quality. When the environment is neat, your sickness can go down and a dirty environment can increase your sickness." HFA

HIV Counselling and Testing
Some of the respondents added that, conducting risk assessments, prevention of mother to child transmission of HIV (PMCT), giving iron supplementation were perceived as providing quality of service. The respondent said;

"We are in maternity so we make sure that every woman that comes here goes through some series of test, we do PMCT thus preventing HIV from mother to child." HFI

Some few health facility administrators perceived that quality of care is influenced by treatment success rate. The health facility administrators stressed on checking abnormalities, no reoccurrence of disease or infections and fighting against maternal deaths as quality. One respondents said;

"Those who access health care should be satisfied with the kind of care they receive and there shouldn't be re occurrence of diseases or infections." HFA

In conclusion, the results from the qualitative analysis show that health workers had good perceptions and understanding of quality of care based on the Donabedian framework however none of the respondents mentioned privacy in their perceptions.

4.3.2 Challenges Health Workers Face in Providing Quality of Care
When respondents were asked about the challenges they face for providing quality of care majority of them said that human resource constraints infrastructure, untrained staff for delivery, financial constraints and lack of ambulance for referral were factors that inhibit quality of service. One respondent said;

"Yea, the major one is experienced midwives, drugs and the second one is that all materials should be available. If someone comes with bleeding and you don't have normal saline to inject, she may die on the road before getting to the big hospital". HFI

Both the health facility in-charges and administrators added that language barrier, lack of accommodation for staff and small facility space also influences the delivery of quality service. Their views are illustrated in the following quotations;

"……The maternity ward is a very small area, the labour room is too small ... One would have to deliver before you bring the next one so all these are impairing the quality service." HFA

In Summary, most of the challenges they face focus on the structural factors that influence quality of care on the Donabedian framework. Also they were unable to provide quality of care due to health system resources constraints.

4.4 Objective 3: To Assess Whether Mothers are Satisfied with Maternal Healthcare Services

The results from the primary data presented in this section will be guided by the "outcome" factors on the Donabedian framework. The clients' satisfaction will be represented as mothers' satisfaction. Data on treatment success rate was not collected however the analysis will link some variables to that.

4.4.1 Level of Satisfaction of Mothers Interviewed

Level of satisfaction on ANC, delivery and postnatal services provided were sought from mothers. Mothers were said to be satisfied or not satisfied on a given variable if the question about that variable in the quantitative instrument in annex 3 was answered correctly.

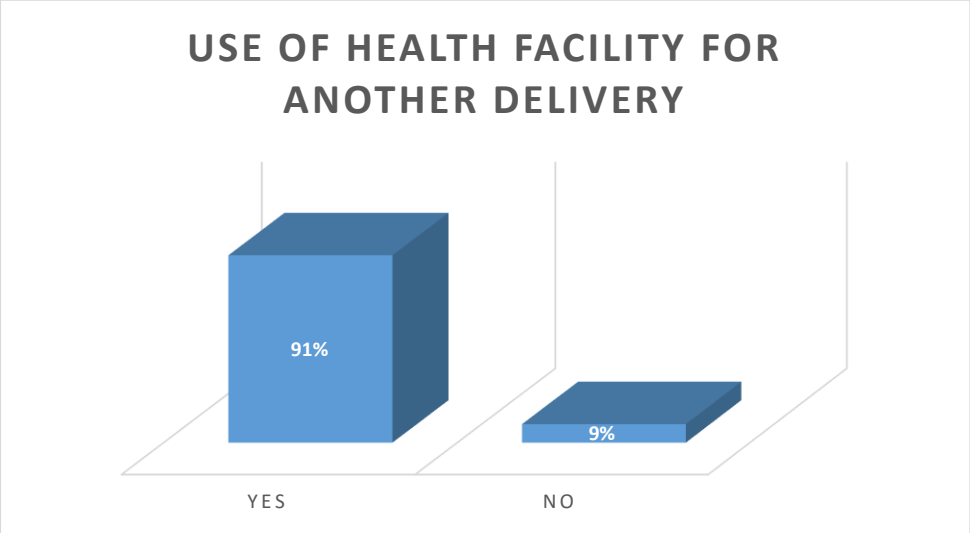
Table 9: level of satisfaction

Variables Frequency N=118	**Satisfied**		**Not satisfied**	
	n	%	n	%
Satisfaction with all arrangements of maternal healthcare	105 (89%)		13 (11%)	
Satisfaction with the care you received in the antenatal period before the birth of your baby	110 (93%)		8 (7%)	
Satisfaction with what was done to help relieve the pain during labour	101 (87%)		17(13%)	
Satisfaction with overall care you received during labour and delivery	106(90%)		12(10%)	
Satisfaction with the care received in the hospital after birth	111(94%)		7(6%)	
Satisfaction with overall care received after leaving the hospital	111(94%)		7(6%)	

It is interesting to know most mothers were satisfied with maternal healthcare service variables in the table above. The highest level of satisfaction was on the care the mother received after birth and the care they received after they left the hospital (94%).

Most mothers (91%) said they would like to use those health facilities for another delivery. This is illustrated in figure 8 below. However, it is likely that the remaining mothers that were not satisfied with the service may not utilize these services anymore.

Figure 10: Use of facility for another delivery



In summary, the high mother satisfaction (94%) reflects a good quality of care provided. However this requires further research as this results is among those who used the health facility. Those who deliver at home and do not utilize the services may have different perspective.

4.4.2 Mother Satisfaction on Care Received

Mother's level of satisfaction was sought on care received from health workers during the provision of service. Mothers responded 'yes or no' on various variables.

Table 10: Mother satisfaction on care received

Variable	N (%) Yes	N (%) No
Doctors and midwives looking after you explained enough about what was happening	73(62%)	45(38%)
Felt that the Doctors/Midwifes spend enough time during labour and delivery with mother	100(85%)	18(15%)
Had enough help with your own needs from hospital staff	85(72%)	33(28%)
Doctors/Midwifes respected your description of your pain, level of discomfort and nearness of delivery during labour	92(78%)	25(22%)
Had enough explanation on what test and procedures would you need e.g. scans blood test	100(85%)	18(15%)
Had enough explanation on Recognizing possible complications of pregnancy	75(64%)	43(36%)
Had enough explanation on Antenatal care	96(81%)	22(19%)
Had enough explanation on what stage of Labour to decide to go to hospital	82(70%)	36(30%)
Had enough explanation on how to recognize the first signs of Labour	79(67%)	39(33%)
Had enough explanation on what to take to hospital when during delivery	102(86%)	16(14%)
Had enough explanation on Complications in Labour and things that might have to be done if something goes wrong	55(47%)	63(53%)

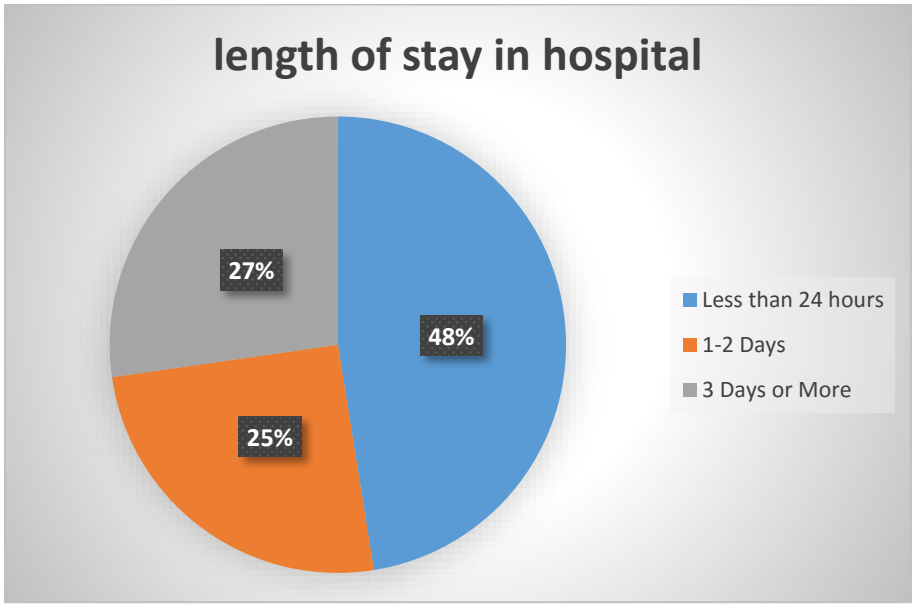
From the table above, majority of mothers were satisfied with care received with few exceptions. 62% of mothers said the doctors and midwives explain enough about what was happening. 81 % of mothers had enough explanation on antenatal care.

Fewer mothers (64%) said they had enough explanation on recognizing possible complications of pregnancy. 30% did not have enough explanation on what stage of labour to decide to go to hospital. With high rates of mortality in rural areas, majority (53%) did not have enough explanation on complications in labour and things that might have to be done if something goes wrong. This could be the reason why some women decide to choose home delivery because they are not aware of the complications in labour. Even though most mothers interviewed were satisfied with the services provided them, majority of them lack adequate knowledge on some complications which might cause mortalities. This may be a reason

for the high mortality rates as complications are the major cause of mortalities.

When mothers were asked how long they stayed in the health facility after delivery, majority (48%) of them stayed less than 24 hours after delivery. This illustrated on figure 11 below. This may result in poor quality and reduce the treatment success rate as some complications set in after delivery. Although this is against the WHO standards of length of time a mother should stay at the facility after deliver for further observations and check-ups. This may be due to lack of adequate beds/infrastructure to keep the mothers in the facility.

Figure 11: Length of stay at the facility after delivery



In conclusion, majority of mothers (53%) lack adequate knowledge on complication that might occur during Labour and majority of the mothers (48%) stayed in the hospital less than 24 hours.

4.4.3 Mothers Experience about Check-Ups during Pregnancy

This section presents mothers experience during pregnancy check-up on various variables as shown in the table below.

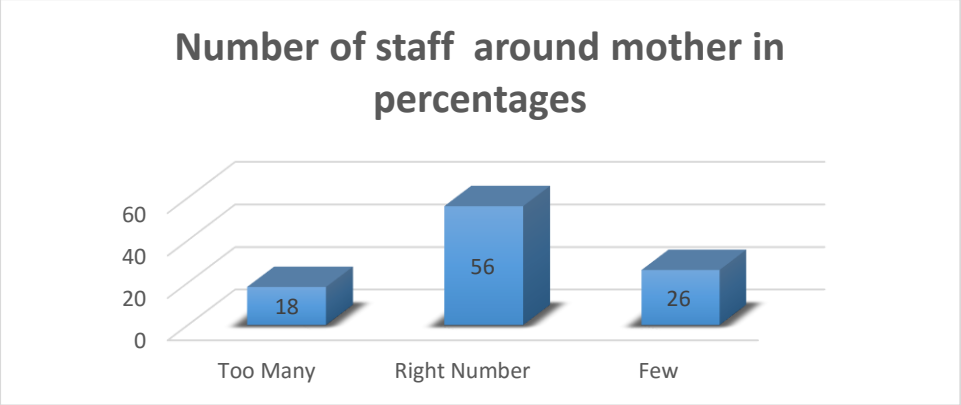
Table 11: Experience about check-ups

Variable N (%)	Agree n (%)	Disagree n (%)
At my check-ups I did not have to wait too long to see the Doctor /midwife		
118(100%)	83(70%)	35(30%)
At my check-ups I had enough time talking to either the Doctors or midwives		
118(100%)	89(75%)	29(25%)
I felt that my preferences and wishes would be followed as far as possible during my Labour and delivery		
118(100%)	**83(70%)**	**35(30%)**

When mothers were asked whether they waited too long to see a doctor, 30% agreed while 70% disagreed. It could be that mothers are used to waiting such that they feel it is normal to wait or otherwise. Those who felt they had waited too long for the Doctor /midwife may be hesitant to come for check-up again. 30 % of mothers felt that their preferences and wishes were not followed. There is a high tendency that those who felt their wishes were not me might not utilize the services of the health facility anymore as they will perceive the service as low quality.

Mothers were asked about their feeling about of the number of staff around her during delivery, 56% said the right number and 26% said they were few. This is seen in figure 12 below.

Figure 12: Mothers feeling about number of staff around her.



In summary, the primary study on mother satisfaction show that majority (94%) of mothers were satisfied with the overall services they received,

however when individual variables were assessed it was relatively low which could affect the treatment success rate.

4.5. Critical Review of Primary Data Collected.

The review was based on the criteria from Designing and conducting health systems research book, volume I. (108)

Relevance: The study was relevant because maternal healthcare plays a critical role in the healthcare of Ghana. It is evident the quality of care in maternal healthcare services are poor. It contributes to the high number of maternal deaths.

Avoidance of Duplication: This is the first time a study like this has being conducted in the study area on factors influencing quality of care in maternal healthcare.

Urgency of Data Needed: The data is important because it will serve as an evidence base for appropriate intervention to be implement in the districts.

Political Acceptability: The data collection is politically acceptable because GOG is committed to improving the quality maternal healthcare.

Feasibility: Though there was inadequate funds to do a detailed research on quality of care, the resources available were invested in the little work that was done. The money, human resources, logistics and necessary support was available.

Ethical Acceptability: All respondents were consented before taking part of the study. The results of the study would be share dissemination appropriately.

Sample Representatives: The study didn't distinguish between public and private health facilities which is important in the quality of care as people perceive private facilities as providing client perspective of quality and public facilities as providing technical quality. The study didn't differentiate between the health facility levels so the assessment was done for all health facilities holistically in the Kintampo districts. The fact that people by pass small health facility to higher levels of care which is an important problem in many countries. Because all these were not catered for there is a serious bias in the study results. Now at the course, the importance of differences in levels- in relation to access, quality/availability of staff and equipment-infrastructure, costs and distance has been learned. Also some of the facilities were closed during the period of the data collection and their data was excluded.

The sample for the mothers interviewed was not representative for age, educational background, and socio economic as shown in the background

information of the mothers. The number of mothers for all age group should have been equally represented of how many of them are in the population. Also the kind of delivery mothers had wasn't not equally represented. Majority of the mothers sampled had normal virginal delivery while a few had Caesarean section (CS) and assisted deliveries, however satisfaction of delivery services might differ from women with normal delivery and CS. The generalization of the study is not possible.

The conduct of Data collection: The study design (cross sectional study design) was appropriate for the objective of the study. A set of instruments was adapted from the NHIS health facility assessment form and PSQ-18 for data collection to suit the context. However the qualitative interview guide was developed by the research team which could be biased.

The questionnaire should have been translated into the local language (Twi) after ethical clearance, by at least two people, and back translated into English by a different person. This was to ensure that nearest in meaning of the original questionnaire is achieved. If they are not good enough then a third person should have been asked for another translation. All these were not done due to lack of experience and knowledge which now acquired during ICHD training. Field workers interpreted the questions from English to "Twi" by themselves. Even though field workers were trained, this create some sort of interviewer and respondent bias. The way the questions were asked influenced the responses to those questions. All objectives the study were achieved but some were not very "SMART".

5. Chapter 5: Discussion, Conclusion and Recommendations

The discussion of this thesis is according to the objectives of the thesis, the Donabedian framework and literature review.

5.1 Discussion

This thesis explicitly identify factors influencing quality of care in provision of maternal healthcare in rural districts of Ghana like the Kintampo districts. Addressing these factors could improve the quality of care in maternal healthcare services in the two districts.

Usefulness of Conceptual Framework to the Thesis: The framework used for the thesis was very helpful in answering the thesis objectives by presenting the factors the thesis sought to research into. It helped in the analysis by presenting the interaction between factors. It guided the analysis on how the "structure" factors influenced the "process" and how these interrelate to influence the "outcome" factors. This was revealed in results of the thesis and will be discussed in this sections below.

5.1.1 Type of Service, Availability of Infrastructure/Material, Staff (Health Workers)

The literature review in this thesis shows that most of the health facilities in Ghana are not equipped to provide quality maternal healthcare services. (82,83,84) Particularly, there is a lack of infrastructure/materials, staff, training and supervision especially in rural areas. This was also found in the primary study in Kintampo districts. Furthermore, appropriate laboratory investigations and equipment for basic emergency obstetrics are lacking.

Overall, the DHMT standard is relatively low. Although 72% of the health facilities provide ANC and postnatal services, it is amazing that only 34% of these facilities provide delivery services in the districts compared with the DHMT standard. This is very inadequate. The type of service provided in health facilities is a key factor influencing the quality of care in maternal health. This is because mothers are unable to access quality healthcare if the services are unavailable in the health facilities. The literature review showed that, lack of skilled delivery services within communities in Ghana and some countries in sub-Saharan Africa resulted in women not having access to quality of care. (59,85,88) This could be a reason why ANC and delivery by skilled birth attendant is low in the Kintampo districts which may lead to more mortalities. The standards of the DHMT could be reviewed so that most of the health facilities are resourced to provide these services.

The primary study showed that only 38% of health facilities in the districts had delivery forceps for conducting basic obstetrics. Also, some health facilities lacked basic equipment and infrastructure for the provision of quality maternal healthcare which is consistent with other studies in Ghana. (59,82,83,84) Studies conducted in Gambia and Kenya found that health system inadequacies including lack of blood for transfusion, shortage of essential medicines resulted in perceived poor quality of care. (109,110) The qualitative data in the Kintampo districts revealed that most deliveries are conducted by TBAs because there are no midwives to conduct the delivery in the health facilities. In a study conducted in Kenya, it was evident that most women go to unskilled professionals like TBAs for delivery and other services because the health facilities are not equipped with the necessary resources and referrals are cumbersome. (88) Lack of adequate resources to provide care inhibits quality of care and health facility utilization. (88) This may lead to poor maternal health outcomes thus resulting into persistent increase in maternal deaths.

The overall DHMT standards for basic laboratory services are low for districts of over 170 000 population. Comparing with DHMT standards, 67% of the health facilities were able to perform blood glucose and urine R/E investigations. Only 2(17%) were able to provide high vaginal swap investigations compare to DHMT standard of 12 health facilities. A quality assessment study conducted in the Builsa and Kasena Nankana District in Ghana noted that laboratory examinations conducted during ANC is low (scored 0.65-0.45 out of 1). (59) Laboratory examinations is an important factor that influence the quality of care. In order to prevent complications that might occur during pregnancy or delivery, it is crucial to conduct these investigations so that appropriate measures can be implemented. Ambulatory laboratory services could be provided so that samples of pregnant women in communities without electricity are collected for important investigations to be done.

The results of the primary study showed that, only 9(75%) health facilities in the Kintampo districts had midwives for the provision of ANC and delivery services. By standard 12 health facilities are expected to have midwives which is much lower considering issues of maternal health. It is very important to have more midwives even though other cadre of staffs are equally important. The primary study showed that most of these services are provided by CHOs who are not trained in this regard. This is consistent with the study conducted by Lohela et al (2016). (77) Even though shortage of staff in health service workforce is a problem in Ghana, the number of health facilities with midwives is limited considering the high rate of maternal mortalities in the rural areas. More midwives could be trained and distributed to rural areas.

Although availability of infrastructure and staff might not guarantee quality of service delivery and utilization by all mothers, better treatment rate can

be attained compared to otherwise. (85) Before improving quality of care, it is imperative to improve the capacity levels of health facilities and staff. (85) Timely treatment with adequate and essential resources can make a difference between life and death. (111) These deaths correlate with the poor identification and management of obstetric emergencies (112). Also, Trust in the health system would be lost and utilization rates would decrease if the quality is poor. (48)

Based on the results of the thesis, there is a need to improve service provision at the maternity unit in terms of equipment and trained staff. (83) An intervention in Zambia to address similar health system inadequacies was that the Zambian Ministry of Health in collaboration with international cooperation purchased necessary equipment to equip health facilities with the needed infrastructure to improve the quality of care. (113) In addition, an increase in direct midwifery entry programme made it possible to train, recruit, and distribute midwives at a rapid rate. (113) Also, a results-based financing project targeting maternal healthcare was implemented. (114)

5.1.2 Health Workers Perception of Quality of Care and Their Challenges

Findings from the literature review in this thesis shows that adherence to protocol was low during ANC. (66) It was found that good Client-provider interaction, privacy, attractive waiting area and less waiting time improves satisfaction of quality of care. (92,95,96) This was also found in the qualitative analysis of the primary study in Kintampo districts. Health workers had good understanding of quality of care. They perceived quality of care as serving clients in a good manner according to standard procedures and adhering to protocol. They also indicated that undue delay and dirty environment in the health facility is not regarded as quality however privacy was not mentioned. Health workers should be encouraged to adhere to SOPs and improve their code of conducts.

It was evident that good client-provider interactions is important in providing quality of care. The results of the study is consistent with other studies conducted in Ghana. (9,87,92,95,96)

Even though health workers had good perceptions about quality of care they were unable to provide quality care due to health system resources constraints. Analysis of the qualitative study revealed that the challenges health workers face in providing quality of care include availability of equipment’s, logistics, materials, staffing and adequate training. This shows that the structural factors of health care influences the actual of care delivery (process) and these interrelate to influence client/patient satisfaction and treatment success rate.

5.1.3 Clients/Mothers Satisfaction of Services

Results from the literature review of the thesis and primary study in Kintampo districts indicated that clients/mother's satisfaction is an important factor influencing quality of care in maternal health care delivery especially in rural areas. Donabedian framework categorized this as an outcome. (18) The results from the primary study showed that overall satisfaction is judged high but when individual variables are assessed it is relatively low which could affect the treatment success rate. This is consistent with other studies conducted in Ghana. (9,59,99)

It is fascinating to know that 94% of mothers were satisfied with overall services and would like to use the facility again which indicates a high quality of care. However most of the mothers (48%) left the facility before 24 hours after delivery and 30% waited too long at the health facility during ANC check-ups. Only 64% of mothers had enough explanation on recognizing possible complications of pregnancy. Majority of the mothers (53%) did not have enough explanation on complications in Labour. It is obvious that the mothers lacked understanding of an obstetric emergency and do not readily seek healthcare services for obstetric complications. (83) Some women are not well informed about their pregnancies and thus are unable to recognize the onset of emergencies. Their ignorance regarding the specific consequences of obstetric complications in the absence of prompt intervention could lead to death. (83) Health workers should focus on providing more information when providing care as this could lead to an increase in mortalities.

Although level of satisfaction was high, it is questionable to say the quality of care is good because clients/mothers may lack adequate knowledge on technical quality and other variables were relatively low. A study in Bangkok by Tangcharoensathien noted that some health workers disapprove the essence of clients/mother's perspectives. (115) They belief that clients/mothers lack the knowledge to assess technical perspective. (115) Although this disapproval by some health workers is acknowledged, there is still a growing recognition and insistence that services should be geared towards the desires and values of clients/mothers. (115) Clients/mothers should be educated on technical aspects of quality of care so that they are empowered to provide good assessment of quality of care.

In the qualitative analysis it was evident that health workers perceived quality of care as checking abnormalities, no reoccurrence of disease or infections and fighting against maternal deaths. This could be linked to treatment success rate. If diseases and infections reoccur after treatment and more deaths are recorded, it can be said that the care provided is of low quality.

Findings from literature review shows that several factors play a critical role in client satisfaction. (59,64,83,99,97) These include the attitudes of nurses

toward clients/mothers, less waiting time, (95,96) ability communicate with patients (59,9,99) and the availability of equipment. (82) Providing explanation before giving treatment to patients, providing information about their medication, and cleanliness of the environment are key to client satisfaction (97). The interrelations between these factors exhibit how the "process" factors influence the "outcome" and overall quality of care.

5.2 Conclusions

It can be drawn from the findings that factors influencing quality of care in maternal healthcare in rural communities like the Kintampo districts are multifactorial and interrelated. Several factors are from different aspects and perspectives interrelate to influence the quality of care.

In summary, findings from the literature review and the primary study shows that most of the health facilities in Ghana lack adequate infrastructure/materials/equipment and staff especially midwives. Also training for midwives and supervision was limited to provide quality of care in maternal health services especially in rural areas. The DHMT standard is relatively low. Only few health facilities (34%) provide delivery services and most of the health facilities in the two districts were unable to provide appropriate laboratory investigations for maternal healthcare. Equipment for basic emergency obstetrics is also unavailable. It was evident that client-provider interaction, waiting area and time, privacy contribute to satisfaction with the quality of service. Adherence to protocol was low during ANC even though it ensures quality of care. The health workers had good perceptions and understanding of quality of care based on the Donabedian framework however they were unable to provide quality of care due to health system resources constraints. Majority of mothers (94%) are satisfied with the services provided at the health facilities however and most of the mothers (53%) did not have enough explanation on complications in labour.

The results serve as a justification for further research into quality of care in the districts based on the health facility levels, private and public health facilities and comparisons between rural and urban areas. Also assessing client's satisfaction by comparing private health facilities to public health facilities and perception of those who don't use health facility on quality of care.

5.3 Recommendations

The results of the study will be shared with the GHS, DHMT, health facilities and other stakeholders in the districts. This opportunity will be used to inform policy and recommend appropriate interventions to them. The recommendations are categorised into three. These are GHS/DHMT and Policy Makers, Health Facilities/Services Providers and Research and Intervention.

5.3.1 Recommendations for GHS/DHMT and Policy Makers

- **Review of DHMT Standards:** The standards for the DHMT should be reviewed so that more facilities are provided with the health system resources needed for providing maternal healthcare services in the districts especially for ANC, Delivery, Postnatal and Laboratory investigations.

- **Equitable Distribution of Resources:** GHS should change the practice of focusing on health facilities and resources in urban areas to ensure equity in services distribution. Policy makers should develop a comprehensive need-based and resource allocation formula that can gradually redistribute resources towards rural areas. GHS should scaling up maternal healthcare services at the district level, health centers and CHPs. Health facilities should be adequately equipped with essential equipment/infrastructure for the provision of maternal healthcare. GHS should invest in the developing more healthcare facilities with accommodation for staff in rural areas. Health centers and CHPs compounds should be equipped with Basic Emergency Obstetric Care as proposed in 2007 by the MOH. Stakeholders should be engaged on providing necessary infrastructure for health facilities. Medical consumables and logistics like motor bicycles, tricycles and ambulance should be provided so that health workers in rural communities can refer or transport patients during emergencies.

- **Human Resource and Training:** GHS should train and deploy the required human resources, especially midwives. The midwives should be recruited from the rural areas, trained and redistributed to those areas because people who have lived in rural areas are more likely to stay. Investment in CHOs should not be at the expense of funds for skilled attendants (Midwives). Efforts should be made to retain existing staff and international brain drain should be discouraged by improving working conditions and offering appropriate incentives for good quality of care. The DHMT should educate health workers on GHS Patient's Charter and Public Relations. The Patient's Charter should be enforced and health workers should be encourage to share information in a responsible manner. Regular customer-relations training should be organized to maintain good inter-personal skills. Also, competencies and skills of midwifes and other health professional should be improved by providing in-service training regularly at least twice a year.

- **Monitoring and Evaluation:** Supervisions should be done regularly especially in the remote communities. Health facility assessments should be conducted annually. A simple assessment tools and techniques that could be used evaluate quality of care at the health facilities should be developed. The development of such tools will enable health care providers to identify maternal healthcare facilities that deliver sub-standard or sub-optimal care.

- **Community Engagement:** Health education should be organized to educate clients on technical perspectives of quality of care. It can be done in out-patient departments, media (radio stations, televisions) and during community meetings.

5.3.2 Recommendations for Health Facilities and Service Providers

- **Ethics and Code of Conduct:** Health professionals should be trained and educated on healthcare ethics, good code of conduct and communication skills. Enforcement of good and ethical codes of conducts in delivery wards and improvements in provider–client communication should be taken seriously. Health workers who treated clients with disrespect, insensitivity and less dignity should be penalized. Health facilities and service providers should entreat health workers to provide enough explanation on complications during pregnancy, delivery and postnatal services. Screens or cubicles should be provided at the outpatient department to improve privacy.

- **SOPs:** Adherence to Protocols and standard operating procedures should enforced and also be made available at all health facilities.

- **Reducing Waiting Time:** Patient data should be computerized and networked to reduce waiting time and undue delay. Also booking of appointment should be implemented so that undue delays would be reduced if not eliminated.

- **Attractive Environment:** Training programs should be organized for staff on hygienic practices and safety measures in health facilities. Physical environment of health facilities should be made attractive and neat.

5.3.3 Recommendations for Research and Interventions.

- The GHS/DHMT should embark on research activities in quality of care and ensure that appropriate intervention are in place to improve quality maternal healthcare. Research is especially needed on how to

train, deploy, and retain large numbers of skilled birth attendants in rural areas.

- In my capacity as a Research Fellow when I return to my country and institution, I recommend this to myself. I will conduct further research on Quality of Care in maternal healthcare to compare care provided in private health facilities to public health facilities. Also mothers who prefer home deliveries will be interview on how they perceive quality of care in the health facilities. This will be conducted using cross sectional study design. Both qualitative and quantitative methods will be used. The mode of sampling will be purposive sampling for health facilities and mothers will be randomly sampled. This research is feasible because maternal health is a core research area of the KHRC and proposal will be written for funding.

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7.0 Annexes

7.1 Annex I Methodology for Primary Study

A cross sectional study design was used for the data collection for the primary study. This is because it is used to collect data at a specific point in time and to describe people's ideas on a given situation. (116) It is also less costly and doesn't require a lot of time. Also it is able to contain multiple variables at the time of data collection. (116) Cross sectional study design is therefore an appropriate design based on the aim of the study. The disadvantage is that it is unable to analyse causalities. (116) However, the qualitative data collected give some indication of potential causalities.

7.1.1 Quantitative Method

A seven paged structured questionnaire was adapted from the checklist for health facility assessment from the DHMT and the National Health Insurance Authority (NHIA) accreditation for health facilities. (79) The questionnaire was pretested for the data collection in the health facilities. The tools were closed ended questions and the data was collected by the trained community based field workers contracted. This structured questionnaire was used to take an inventory of infrastructure, equipment and the type of services in health facilities within the Kintampo districts for the delivery of maternal healthcare. Health facility administrators or in charges were interviewed with the structured questionnaire to elicit response to the type of services, the cadre of staff and infrastructure available. The health facilities were visited in the afternoons when the in charges and Administrators were less busy.

Based on the response elicited by the health workers interviewed, mothers who had visited the health facilities in the district for these services were randomly sampled from the KHDSS database and interviewed on whether they were satisfied with the kind of services they received. This interview sought whether mothers are satisfied with the services provided in the health facilities which they sought care in. The issues selected for mother satisfaction were based on ANC, Delivery and Postnatal services. The elements included in the mother satisfaction are overall satisfaction of service provided, explanation of what was happening, explanation on complications, enough staff around mother, waiting time, client provider interaction. These were assessed using satisfied/dissatisfied, agree/disagree, yes/no. The mother's interview was conducted with a six paged structured questionnaire. The questionnaire was adapted from Patient satisfaction questionnaire (PSQ-18) (80) to suit the context of rural

Ghana. This was pretested with some mothers. The interviews were conducted in the compounds of the mothers. Each quantitative interview took about 45mins to 1 hour.

Management and analysis for quantitative data: Almost all questions were answered (about 99.5%). All the forms were checked for completeness. The forms were given unique form and batch numbers .They were double entered into a password protected database Microsoft FoxPro and verified using Microsoft Access software. STATA 12 statistical software was used for quantitative data analysis. Descriptive analysis was performed for the data analysis. Proportions, frequencies, percentages, tables and cross tabulations were derived for analysis and were used to explain variables.

7.1.2 Qualitative Methods

Twenty–two in-depth interviews were conducted with health facility administrators and health workers in-charge of the health facilities. Interview guide was developed by the research team based on results from the quantitative data. The qualitative study explored the perception of Health workers who are Administrators/in-charge of the health facilities on maternal healthcare services, perceptions about quality of service and the challenges they face in the delivery of quality of maternal healthcare in the districts. These health workers composed of Hospital Administrators, Midwifes, Nurses and Community health nurses. The idea was to conduct the interviews in all the health facility, however the interview was stopped by Principal investigators when saturation was attained. The point of saturation was decided on the bases that emergent themes had recurred sufficiently and there were no new themes likely to emerge. Some of the qualitative data are used to get deeper in understanding of the quantitative data for objective 1. The qualitative interviews took 30 to 45 mins.

Qualitative data management and analysis: The In-depth interviews were conducted by a moderator, and note taker. Qualitative data processing was done concurrently with the interviews and at the end of each in-depth interview (IDI) there was debrief on the notes and observations which were incorporated into the interview guides. IDI were tape recorded and transcribed verbatim into the English language. The notes taken were used to complement the transcripts. The transcripts were coded under themes generated during and after the IDI. The data was imported into NVIVO 8 qualitative data analysis software for analysis. Data coding continued until all themes were exhausted.

7.1.3 Sample and Sampling

The study was conducted in health facilities and communities in the Kintampo districts. Health facility administrators or in charges at the health facility during the visit served as respondents for the structured

questionnaire for inventory taken. All the health facility were sampled for the data collection however the facilities that were closed were excluded. Out of 35 health facilities, 29 were included in the study. The closure of these facilities were due to lack human resource to manage the facility, migration of the staff to urban areas and non-equipped facilities. Mothers who have utilized the services in any of the facilities were randomly sampled from the KHDSS data base and interviewed. Purposive sampling was used to select 22 health workers for the In-depth interview in the health facility. The criteria for selections was that the health workers should be in capacity of managing the health facility.

Sample size estimation: The sample size for the study was estimated based on these assumptions:

- All health facilities in the Kintampo Districts were included in the study except those closed.
- In a study on client satisfaction conducted in districts in the central region, 90% of clients were satisfied with the service they received in the health facilities. For this study mothers satisfaction was assumed to be 95% with 75% as the worst acceptable level of satisfaction.
- Using Rao soft software ® the estimated sample size for the mother satisfaction was 95 mothers with 95% confidence interval
- With an assumed 15% non-response rate due to the fact that some of the mothers might not be met the total sample size was estimated to be 110 mothers. Some of the field workers interviewed more mothers therefore the total number interviewed to 118 mothers.

7.1.4 Ethical Issues

Permission and written informed consent was sought from health administrators, health workers of the various health facilities as well as from the mothers who were interviewed. Anonymized form of identification was used for study participants and they were kept confidential. In order to guarantee the confidentiality of the study information, completed data and forms were kept under lock and key within KHRC. It was accessible to only the investigators and was not used for any purpose other than the outlined protocol.

7.2 Annex 2 Search Table

Table 12: Search Table

Source	Search words used by objectives and conceptual framework			
	Objective 1	Objective 2	Objective 3	Objective 4
PubMed Google Scholar VU e-Library Medline	"factors influencing quality of care, Ghana" "infrastructure, Materials, equipment, and/or quality of services", "infrastructure, quality of care, maternal health Ghana", "Staff quality of care Ghana" "Supervision quality of care Ghana" "Training quality of care Ghana"	"Health worker perception, Maternal health and quality of service Ghana" perception of health workers on quality, "Challenges of Health workers and quality of service Ghana" "Adherence to protocol, quality of care Ghana", "client-provider interaction ,quality of care Ghana", "Waiting time, Waiting area, quality of care Ghana". "Privacy, Ghana" "HIV	"Mother Satisfaction and quality, Ghana", satisfaction of service, Client Satisfaction and quality of service.	"Government policy, maternal health, quality of care Ghana, "intervention maternal health quality of care Ghana"

		counselling and testing quality of care, Ghana"		
Websites- Ministry of Health, Ghana Health Service Ghana Statistical Service	"Quality of care, maternal health, Ghana"			"Intervention, quality of care, Ghana" "Policy, Quality of care, Ghana"

7.3 Annex 3 Conceptual Framework

A lot of frameworks explore similar factors that influence quality of care but with slight variations depending on the purpose and context of the research. Hulton's framework outlines the factors into "experience of care" and "provision of care". The "experience of care" includes human and physical resources, cognition, respect, dignity and equity, emotional support that influence the quality of care. (81) The "provision of care" includes human physical resources, referral system, maternity information systems, use of appropriate technologies and internationally recognized good practices. (81)

Donabedian framework establishes similar factors but groups the provision of care into two clearly distinguishing between the structural factors and the process factors. The experience of care is also categorized as outcome factors. For the purpose of this thesis and in the context of rural Ghana is Donabedian framework more applicable as it distinguishes between the structural, the process and the outcome.

Structure: The structure is the conduit through which healthcare is delivered and received. The structural factors comprises of the infrastructure, staff, training, material and supervision. The structural factors determines the likelihood of an individual to receive high quality of care or a low quality of care. (18) Structural factors in a health facility can have a direct impact on processes and outcomes. For instance, in the context of rural Ghana, if the necessary equipment or skills are available to undertake an effective examination, the quality of care will be higher than if they were unavailable. Also, if a patient is able to access care on time then the quality of care would improve compared to if care was delayed. In rural Ghana, the quality of maternal healthcare services provided would depend on the infrastructure, staff, training, material and supervision. The structural factors play an important role in delivering quality of care for mothers. This is because mothers would utilize services more if the

structural factors in the health facility in place and they are satisfied with the kind of services delivered. This will improve the outcome and treatment rate as well as decreasing morbidities and mortalities.

Process: The process involves the interactions between patients and the health care structure. (18) It involves the delivery and the receiver of care which is related to the health facilities in rural Ghana. The maternal health care services is focused on the delivery and the receiver of care. The mothers seek care in the health facilities from health care workers by inter-personal interactions. The process of care is based on adherence to standard diagnosis and protocol, client-provider interaction, waiting time, privacy and HIV counselling and testing (Prevention of mother to child transmission). Better quality of care is provided if the care is based on a standard diagnosis and protocol, good client-provider interaction and less waiting time of patient compared to otherwise. During ANC, delivery and postnatal services, mothers require explanation and discussion on the symptoms they have. Mothers should also be involved in decisions about their health. The delivery of maternal health care services in Ghana especially in the rural districts should be based on adherence to standard diagnosis and protocol, client provider interactions, waiting time and privacy. This would influence the quality of care provided.

Outcome: The outcome are the consequences of care and it involves client satisfaction and the treatment success rate. (18) For instance a mother may die during delivery either because of unavailable of oxytocin to stop the bleeding (structure) or because drugs were not administered properly (process). The structure as well as the process will influence the outcome either positively or negatively. They also have direct and indirect influence on the outcome. This study would focus on the satisfaction of mothers on the maternal health care services they receive in the health facilities. The level of satisfaction can influence the care seeking behaviours of mothers and their willingness to seek care at the time of need. Also the utilization of maternal health services will improve. This would lead to reduction of morbidities and mortalities.

Other Conceptual Framework on Quality of care

Hulton's framework
Figure 13: Hulton's Framework *(81)*

Source: Hulton 2007

7.4 Annex 4 Data Collection Tools

7.4.1 Quantitative Tool for Health Facility Inventory

KINTAMPO HEALTH RESEARCH CENTRE (SMALL GRANT) GIS FOR MATERNAL HEALTH CARE DELIVERY SERVICES 01/03/2014	GISMATERNAL HEALTH CARE FORM NO.

COMPLETE THIS QUESTIONNAIRE FOR ALL HEALTHCARE FACILTITIES

1.0 BASIC INFORMATION									
1.1Name of the facility_____									FACNAME
1.2 Code of the facility									FACODE
1.3Name of the respondent_____									RESPNAME
1.4 Position of respondent in Facility (choose one)									RESPOS
[01] Administrator [02] Medical Officer [03] Pharmacist [04] Nurse/Midwife [05] CHO									
1.5 Date of visit	d	d	M	M	y	y	y	y	DATEVISIT
1.6 Fieldworker									FW
2.0 HEALTH FACILITY INFORMATION									
Which of the following services does your facility render? (01 = Yes, 02 = No)									
2.1 Out-Patient									OPD
2.2 Laboratory Services									
2.3 Obstetrics and gynaecology									
2.4 Ward Services									
2.5 Drug Services									
Which of the following department does your facility have? (01 = Yes, 02 = No)									
2.6 Out-Patient									OPD
2.7 Laboratory Services									
2.8 Obstetrics and gynaecology									
2.9 Ward Services									
2.10 Drug Services									
Which of the following ward system does your facility have? (01 = Yes, 02 = No)									
2.11 Maternity ward									OPD
2.12 Children's ward									
2.13 Neonatal Intensive care unit									
How many of the following staff does your facility have? (enter 00 for none)									
2.14 Doctors									DOCTORS
2.15 Medical Assistants									MEDASSIST

2.16 Midwives			MIDWIVES
2.17 Nurses			NURSES
2.18 CHOs			CHO
2.19 Ward Assistants			WARDASSIST
2.20 How many beds does your facility have? (enter 00 for none)			BEDNO
2.21 Does your facility have MATERNAL HEALTH CARE unit or department?			MATERNAL HEALTH CAREDEPT
01 Yes 02 No			
2.22 Why does your facility not have MATERNAL HEALTH CARE unit/department?			NOMATERNAL HEALTH CAREDEPT
2.23 Does the laboratory service in your facility able to cater for MATERNAL HEALTH CARE services?			LAB
01 Yes 02 No			
2.24 Why does your laboratory service not able to cater for MATERNAL HEALTH CARE services?			NOLAB

CHECKLIST

TYPE	DESCP	AVAILB	AVAILBNO	STATUS	REMARKS
Type	Description	Availability (Yes/No)	No. available	Status/ condition	Remarks
Obstetrics and gynaecology					
E	PG test strip				
E	Thermometer				
E	Weighing scale				
E	Scale for height				
E	BP apparatus				
E	Fetes cope				
E	Tape measure				
E	other				
	other				
	other				
	other				
Laboratory service					
S	Haematology- HB				
S	Haematology-WBC				

S	blood grouping				
S	Sickling				
S	malaria test				
E	malaria test kits				
S	Biochemistry-Blood Glucose				
S	Biochemistry urine RE,-				
S	Pregnancy test				
S	Urethral smear/RE				
S	HVS				
S	Spittoon AFB				
E	Eye/ear swab				
	CSF				
E	delivery forceps,				
	Episiotomy				
	Other				
	Other				
	Other				
Drug service					
	SP				
	Vaccines				
	other				
	other				
	other				
Ward system					
S	Maternity ward				
S	NICU ward				
S	Children`s ward				
E	Beds				
E	Delivery beds				
	Other				
	Other				
	Other				
Out -patient department					
S	Ante natal care service				
S	Postnatal care service				
S	Delivery service				
S	Basic abortion care				
S	Vaccination				
S	Family planning				
S	Pharmacy/dispensary				
	Other				
	Other				
	Other				
Staff(MATERNAL HEALTH CARE)					
	CHO				
	Nurse				
	Mid wife				
	Medical assistant				
	Doctor				

	Pharmacist				
	Other				
	Other				
	Other				

E =Equipment
S= Service

7.4.2 Quantitative Tool for Mother Satisfaction

SECTION 1: BACKGROUND INFORMATION

1.1 Name of mother …… name

1.2 Perm ID of mother pom p

1.3 Date of Visit dove

1.4Field worker Code Face

SECTION 2: DURING LABOUR AND DELIVERY

2.1 How many weeks were you when your baby was born? babybon

1.20-24wks	3.30-34wks
2.25-30wks	4.35-40wks

2.2 Which kind of delivery did you have?		kiofdel
1.A vaginal Delivery(normal)	3. A planned caesarean delivery	
2.Vaginal(assisted by equipment)	4.An Emergency Caesarean delivery	

2.3 Who was the person who helped you to deliver your baby?		heludel
1. Midwife	3. CHO	
2. Hospital Doctor	4. Health Assistant	
2.4 How satisfied were you with this arrangements?		satarran
1.Very Satisfied	3. somewhat dissatisfied	
2. somewhat Satisfied	4.Very dissatisfied	
2.5 Did the Doctors and midwives looking after you explain enough about what was happening		explen
1. Yes, they explained enough	2.No they did not explain enough	

2.6 During your labour and Delivery, did you feel that the Doctors/Midwifes respected your description of your pain, level of discomfort and nearness of delivery?			resdis
1.Yes, Most of the time	2.Yes, Some of the time	3.No, not really	
2.7 During Your Labour and Delivery, Did you feel that you had			
1.Too many Hospital Staff around	2.The right number of staff		landel
3 Too few hospital staff around			
2.8 During your labour and delivery did you feel that the Doctors/Midwifes spend enough time with you?			lande
1.Yes	2.Not really, they were sometimes too busy	3.No,they were often too busy	

2.9During you Labour and delivery did you feel you had a choice about how free you were to move around during the early stages of labour					earstages
1.Yes, I had a choice	2.No,I did not have much choice				
3. NA,I did not have a labour-had a caesarean section					
2.10. Would you like to have tried another position after birth?					afbirth
1. No, not really	2.Yes, Possible				
3. Yes, definitely	4. I did not know there are other positions for the birth				
2.11 Thinking about what was done to help relieve the pain during labour, were you					painlab
1.Very Satisfied	2.Somewhat satisfied				
3.Somewhat dissatisfied	4.Very dissatisfied				
2.12 Were you left alone by the staff at a stage when it worried you to be alone?					stage
1.No we were not	2 .Yes, we were				
2.13 Would you describe the way the staff looked after you during labour and delivery as					lookedaf
1. Very Kind and understanding	2.fairly kind and understanding				
3. Not very kind and understanding					
2.14.Thinking back now, how satisfied are you, overall, with the care you received during labour and delivery					careyou
2.14.1Very Satisfied	2.14.2 Somewhat satisfied				
2.14.3Somewhat dissatisfied	2.14.4 Very Satisfied				

SECTION 3 AFTER DELIVERY

3.1 In hospital how did you feed the baby?					febaby
1.Breast milk only	2.Bottle Milk	3. Both Bottle and Breast milk			
3.2While you were in the hospital were you given enough advice and help about the following things					
1. Feeding the baby		1.YES	2.No		febab
2.How to handle, settle and look after the baby		1.YES	2.NO		habab
3. Your baby's health and progress and any problems		1.YES	2.NO		babhea
4.Your own health and recovery after the birth		1.YES	2.NO		rebirth
3.3Thinking about the advice that you were given after you had delivered the baby, would you say that……..					debaby
1. I always understood the advice that was given		2. I sometimes understood the advice			
3. I really understood the advice		4. I never understood the advice			
3.4 Did you feel that the doctors/midwifes spend enough time with you?			1.Yes	2.NO	enoutime
3.5 Do you feel that you got enough help with your own needs from hospital staff					hossaf
1.YES	2.NO				
3.6 How long did you stay in the hospital after your baby was born					lonstay
1.Less than 24 Hours	2.1-2days				
3.3-4 days	4.5 days or more				
3.7 Looking back now do you think you were					lookback
1.Happy with the length of stay in the hospital	2. that you went home too soon				
3.that you were kept in the hospital too long					
3.8 Did you have a choice about how long you stayed in the hospital after the birth			1.YES	2.NO	hosaft
3.9 Thinking back now, how satisfied are you, with the care you and your baby received in the hospital after birth?					howsatr
1.Very Satisfied	2.Somewhat satisfied				
3.Somewhat dissatisfied	4.Very Dissatisfied				

3.10 Thinking back now, how satisfied are you, overall, with the care you and your baby received since you left the hospital?		resince
1.Very satisfied	2.Somewhat satisfied	
3.Somewhat Dissatisfied	4.Very Dissatisfied	
3.11 If you were to have another baby, would you return to this hospital?		anobaby
1.Definately would return	2.probably would return	
3.Probably would not return	4.Definately would not return	
3.12 If your family and friends were having a baby and could choose which hospital they went to, would you recommend this one to them		choshos
1.Definately would recommend	2. Probably would recommend	
3.Probably would not recommend	4.Definately would not recommend	

SECTION 4 ANTENATAL CARE

4.1 Thinking back to the beginning of your pregnancy did you have any choice about

4.1.1 Where you could have your check-ups	1.YES	2.No	checkups
4.1.2 The time of antenatal check-ups	1.YES	2.NO	achecks
4.1.3 Who you could have check-ups with	1.YES	2.NO	wcheckup
4.1.4 Whether the person who did your check-up was a man or a woman	1.YES	2.NO	womche
4.1.5 Whether you might have a home birth	1.YES	2.NO	hbirth
4.1.6Which hospital you could have your baby at	1.YES	2.NO	bhos
4.1.7Who would help you deliver your baby	1.YES	2.NO	debaby
4.1.8Whether the person who delivered the baby was a man or woman	1.YES	2.NO	whodel

4.2During your antennal care did you get most of your care from one or two people whom you got to know or did you tend to see different people each time	antecare
1.I got most of my care from one or two people	
2.I tend to see different people each time	
3.I saw different people each time because they were members of a team looking after me	

4.3 Who did you usually see when you went for antenatal care		seecare
1.Midwife	2.Doctor	
3.CHO	4. Health Assistant	

4.4 Looking back now, do you think that the Doctors/Midwifes explained enough about the things listed below before you went into hospital to have your baby

1. What test and procedures would you need e.g. scans blood test.	1.YES	2.NO	testpro
2. Recognising possible complications of pregnancy	1.YES	2.NO	compre
3.Antenatal care	1.YES	2.NO	antcare
4.At what stage of Labour to decide to go to hospital	1.YES	2.NO	labhos
5.How to recognise the first signs of Labour	1.YES	2.NO	recsog
6.What to take into hospital when you went in to have your baby	1.YES	2.NO	intohos
7.Possible problems with Delivery	1.YES	2.NO	pospro
8.Different methods of pain relief available	1.YES	2.NO	difmet
9.What might happen in the delivery room after your baby is born	1.YES	2.NO	hadel
10.English word that staff use during labour and delivery	1.YES	2.NO	Enstaff
11.Complications in Labour and things that might have to be done if something goes wrong	1.YES	2.NO	comlab

12.The word which you and your baby would be in after the birth	1.YES	2.NO	Bawould
13.How you feel for the first few days after birth	1.YES	2.NO	feelfor
14.How many days you would have to stay in hospital	1.YES	2.NO	wouldstay

4.5 Here are some things that women have said about their antenatal care. Thinking about the care you had before you're the birth of your baby ,how much would you agree with the following statements

	Strongly Agree	**Slightly Agree**	**Disagree**	**Neither**	
1.At my check-ups I did not have to wait too long to see the Doctor /midwife	**1**	**2**	**3**	**4**	atcheckup
2. At my check-ups I feel it is important to see the same Doctor or midwife rather than seeing different ones	**1**	**2**	**3**	**4**	samedoctor
3.At my check-ups I had enough time talking to either the Doctors or midwives	**1**	**2**	**3**	**4**	eitherdoctors
4.At my check-ups I was always encouraged to ask questions	**1**	**2**	**3**	**4**	askques
5. I felt that my preferences and wishes would be followed as far as possible during my Labour and delivery	**1**	**2**	**3**	**4**	myprefer

4.6 Thinking back now, how satisfied are you , over all with the care you received in the antenatal period before the birth of your baby	antperiod
1.Very Satisfied	2.Somewhat satisfied
3.Somewhat Dissatisfied	4.Very Dissatisfied
4.7. Can you give me an example of care you received which you thought was very good?	
4.8 Can you give me an example of care you received which you thought was poor?	

END OF FORM. PLEASE CHECK YOUR FORM, AND THANK THE RESPONDENT

7.4.3 Qualitative tool. A Guide for In-depth Interviews

Interview guide for qualitative interview.

1. How will you define as quality of care?
2. How do you perceive quality of care in maternal health care.(Probe for further perceptions on indicators of quality of care)
3. What are the challenges you face in delivering quality services in maternal health care?
4. What are the activities done or being done to improve quality of care in maternal health care?
5. In your opinion what can help improve quality of care in maternal health care delivery
6. What strategies have you put in place currently/in the past to overcome the challenges?
   Probe; Examples
7. In your opinion, what accounts for the non-attendance of maternal health care services in the community, district and country?
8. Can you share any solutions to prevent maternal deaths