FACTORS INFLUENCING QUALITY OF MATERNAL CARE IN GHANA

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Ghana

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Factors Influencing Quality of Maternal Care in Ghana

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

By

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Abstract

Background: There is global call for sustained quality maternal health care as enshrined in Millennium Development Goals and the Sustainable Development Goals. There have also been several attempts by the global community to make motherhood safe and fulfilling. Ghana like many Sub-Saharan African countries has been confronted with persistent high maternal mortality ratio. Factors that drive maternal deaths range from financial to socio-cultural and economic access to services and quality of care.

Objective: The study aimed to analyze the factors influencing the quality of maternal care and service delivery in Ghana, in order to make recommendations to policy makers to institute measures that will contribute towards reducing maternal mortality in Ghana.

Methodology: Desk study and literature reviews were undertaken, guided by the Donabedian model of structure, process and outcome components of quality.

Findings: The structural component factors influencing quality include lack of sufficient number of skilled attendants, equipment and supplies, weak referral system and financial constraints. Under the process component, apart from the linked effects derived from, the main influencing factors are poor attitude of staff, insufficient and low quality of interpersonal communication between staff and the pregnant women while non-adherence to Standard Operating Procedures lead to poor emergency obstetric care.

Recommendations: The Ministry of Health (MoH) is to equip the health facilities with the required equipment and human resources, to regular supportive supervision and orient existing staff on behavioral interviewing and empathy training. There is an urgent need for research on interventions to address quality on maternal health care.

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Ghana

Key words: 'Quality of care', 'maternal health care', 'maternal mortality', 'Ghana'

Word Count: 12,282

Glossary

Ante Natal Care: 'A point of contact between the pregnant woman and the health worker and the opportunity for health education, detect pregnancy complications and to develop health plan to ensure delivery at a health facility' (Pell et al, 2013).
Delivery Care/ Intra partum Care: 'Care given to the expectant mother during child birth' (WHO, 2016).
Maternal Care services: This includes the provision of antenatal care, delivery and postnatal care (GMHS, 2007).
Maternal Health: 'The health of women during pregnancy, child birth and postpartum period' (WHO, 2017)
Maternal Mortality: 'The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy or its management, but not from accidental or incidental cause' (WHO, 2017).
Maternal Mortality Ratio (MMR): 'The number of maternal death during a given time per 100,000 live births during the same period' (WHO, 2017).
Emergency Obstetric Care (EmOC) services: includes 'the care given during the management of normal or complicated pregnancy, delivery and post-partum. The services should include the IV infusions, antibiotics, anticoagulants, oxytocin and be able to perform manual removal of the placenta, retained products, vaginal delivery, administer anaesthesia, perform caesarean session and transfuse blood'(WHO, 217).
Post Natal Care: 'The care given for the first 48 hours following delivery' (GMHS, 2007).
Skilled Attendants: refers to 'midwives, doctors, nurses, auxiliary midwives and community officers/nurses who have been trained to provide ante natal care, manage normal birth and to refer obstetric and neonatal complications' (GMHS, 2007).
Quality Of Care: Quality of care is defined as the 'proper performance (according to standard) of interventions that are known to be safe, affordable to the society and impact positively on morbidity, disability and mortality' (GHS, Poku et al 2015).

List of abbreviation

ANC	Ante natal Care
CHAG	Christian Health Association of Ghana
CHPS	Community-Based Health Planning Services
CPD	Continuous Professional Development
HC	Health Centre
HFRA	Health Facility Regulatory Authority
IMPAC	Integrated Management of Pregnancy and Childbirth
IV	Intravenous
PNC	Post Natal Care
PPH	Post-Partum Haemorrhage
NHIA	National Health Insurance Authority
NHIS	National Health Insurance Scheme
GES	Ghana Education Service
GHS	Ghana Health Service
GHN	Ghana Health Nest
GDHS	Ghana Demographics and Health Survey
GMHS	Ghana Maternal Health Survey
GPS	Ghana Paediatric Society
GSS	Ghana Statistical Service
GHWA	Global Health Workforce Alliance
MH	Maternity Homes
MMR	Maternal Mortality Ratio
MMEIG	Maternal Mortality Estimation Inter-Agency Group of the W.H.O
MoF	Ministry of Finance
MoH	Ministry of Health
MICS	Multiple Indicator Cluster Survey
RCH	Reproductive and Child Health
TH	Teaching Hospital
TBA	Traditional Birth Attendant
WHO	World Health Organization

Introduction

One of the major objectives of Ghana's health sector is to make sure the citizens living in Ghana are healthy by providing quality care services to them (GHS, 2014). For the past decade, several efforts have been made by the Government of Ghana in the health sector including Free Maternal Care Services, Safe Motherhood Initiatives and Roll Back Malaria Programmes to improve health outcomes at the facilities, community, and the district level.

One of the key problems in the health sector of Ghana is the high occurrence of maternal deaths. In the year 2015, the maternal mortality ratio in Ghana was 319/100,000 live births (GHS, 2015). Furthermore, in the same year, 303,000 deaths of women were recorded in the world as a result of pregnancy and childbirth problems of which a large number resulted from developing countries including Ghana. (WHO, 2016).

I have gained ample experience working with private, public, and non-governmental health organizations as a Clinical Services Manager since 2009. During these engagements, I had the opportunity to combine the provision of technical services, monitoring and supervision of subordinates, and administering clinical services to patients and recording outcomes. During this period, efforts to reduce maternal mortality among others have not yielded much positive results and these are of public health importance. Some of these deaths could have been avoided provided standards of quality health care were adhered to during pregnancy, labour, and child birth. Many women go home without having the privilege of holding their babies; some of the women get complications which could have been prevented while others end up losing their lives. The incidence of morbidity and mortality of women has potential psychological, economic and social effects on the children, family and the society at large. Psychologically, it creates depression and grief. Social effects due to loss of mothers on the children include decline in school attendance, basic hygiene for kids, inadequate nutrition and social isolation since mothers are the ones who mostly provide such care. Lack of adequate and proper nutrition may make the children susceptible to infections which may have a negative externality on the population. It may also have economic consequences as a result of decrease human capital can adversely affect the wellbeing of the family and the Nation.

Against this back drop, I decided to study factors influencing the quality of care in Ante natal care (ANC), during delivery and after childbirth resulting in high maternal mortality and then make appropriate recommendations for stakeholders' considerations.

CHAPTER ONE

This chapter describes the background of Ghana including the health system, health situation, socio-cultural and economic status of the country.

1.0 Background of the Study

Ghana is a lower-middle income West African country. It shares borders with Burkina Faso to the north, Cote D'Ivoire to the west, Togo to east and the Gulf of Guinea and Atlantic Ocean to the south. The country covers a total land area of 239,460 square kilometers (GSS, 2016). The population of Ghana is approximately 28,956,587 with a growth rate of about 2.4%. The population is youthful with 40% below 15 years and 5% above 65 years. About 51.3% are females and 48.7% are males (MoF, 2017; GSS, 2014). Ghana is divided into 10 administrative regions and 216 districts. The gross domestic product (GDP) of Ghana was $38.62 billion in 2014. The per capita GDP was $1,426 in 2013 (GSS, 2014). About 71.2% of the population is Christian, 17.6% is Muslim and 5.2% is traditionalist (GSS, 2012).

1.1 Health Situation in Ghana

Ghana has a life expectancy at birth of 63 years for males and 68 years for females (UNAID 2014). The total fertility rate (TFR) is 4.2 children per woman and crude birth rate is 28.2 per 1000 population in the urban areas and 33.1 per 1000 in rural areas. The crude death rate is 8.3 per 1000 population (WHO, 2015). The under 5 mortality rate is 60 per 1000 live births and neonatal mortality rate was 32 per 1,000 live births in 2013. The neonatal mortality accounts for 48% of deaths below age five. The Maternal Mortality ratio is 319 per 100,000 live births accounting for 14% of female deaths and the second highest cause of female deaths in Ghana (MoH, 2015; Aseweh Abor et al., 2011). Contraceptive prevalence for women aged 15-49 years is 35% and unmet need for contraception is 25% (GDHS, 2014). The met need for Emergency Obstetric and Neonatal Care is 34% (MoH, 2011).

1.2 Health Care System in Ghana

The public health sector in Ghana consists of the Ministry of Health (MoH) with a number of agencies including the Ghana Health Service (GHS, 2011). The duties of the MoH are to enact and formulate policies, mobilize and provide resources for the health sector. It also monitors and evaluates activities within the sector (Act 525, of 1992 Constitution; GSS 2016, MoH, 2011). GHS is in charge of service delivery at three levels, namely; primary, secondary, and tertiary (GHS, 2014). Other agencies under the Ministry of Health are the Ghana Pharmacy Council, Ghana Medical Dental Council, Nursing and Midwifery Council of Ghana, The Health Insurance Authority (NHIA), and Health Facilities Regulatory Agency (HFRA), Teaching Hospitals, Food and Drug Board Authority and other regulatory bodies (GSS, 2002). The GHS comprises of the following offices and the departments; 11 directorates including the Office of the Director General, Health Administration and Support Services, Internal Audit, Family Health and Finance. It also has a health directorate in each regional capital (GHS, 2011). There are 153 district hospitals, 62% of which are under the GHS and the rest are owned by Christian Health Association of Ghana (CHAG). There exists an average of one hospital in 42% of the districts in Ghana. Currently, healthcare services are provided by the public sector mainly through the GHS, CHAG, and Private non-for-profit Organizations and traditional medicine centres (GHS, 2002). Ghana has 13 Emergency Obstetric and Neonatal Care facilities per 500,000 populations (MoH, 2011).

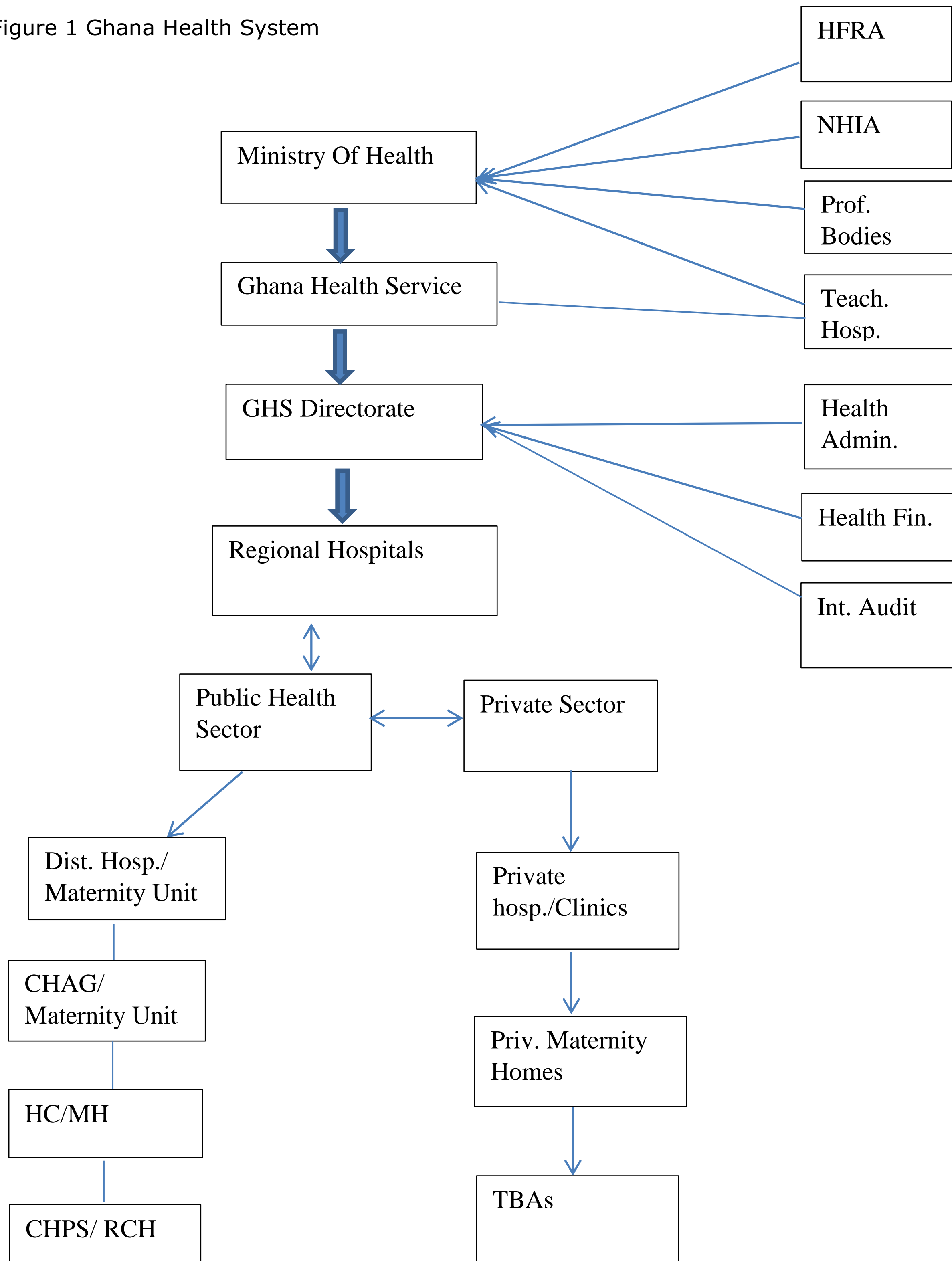
1.2.1 Health Financing

In recent past, Fee for Service was a system which was used in Ghana when accessing health care. The system which was commonly known as 'Cash-and-Carry' prevented many people to get less expensive health services. The poor who forms part of the majority of the population were unable to pay for their medical bills after discharge from the health facilities (Varatharajan et al 2010: WHO 2010). In order to ensure wider coverage of services and to enable the most vulnerable including the aged, pregnant women, to have access to affordable health care, the National Health Insurance Scheme (NHIS) was then set up in 2004 to protect the less privilege from impoverishment (NHIA 2012; Varatharajan et al 2010; WHO 2010).

1.2.2 Human Resource for Health

In Ghana, doctor-patient ratio stands at one doctor to 15,259 persons; one midwife to 6000 persons and one nurse to 1,400 persons (GHS, 2014). The Government of Ghana is committed to the expansion of the training and educational institutions in order to increase the capacity of staff (WHO/GHWA, 2008, Saleh, 2013). There are ongoing creation of Community-Based Health Planning Services (CHPS) to improve the health of mothers and their babies at the community level (Saleh, 2013; WHO/GHWA2008). In-Service training and Continuous Professional Development Programmes (CPD) are organized by some private and Non-governmental organizations under the supervision and regulation of the Ghana Medical and Dental Council, Pharmacy Council, Nursing and Midwifery Council of Ghana to further train the existing health professionals to upgrade their knowledge and skills (GHS, 2016; Sale, 2013).

Figure 1 Ghana Health System



Source: MoH (2017).

1.2.3 Ante Natal Care Service

Provision of ante natal care is an important milestone in the life of the pregnant woman and the un-born child. The objective of ante natal care is to improve maternal health, detect early signs of dangers of pregnancy and refer them to the appropriate level of care and make sure pregnant women seek skilled delivery (WHO, 2001, Carroli et al 2001). The WHO recommends a minimum of 8 visits or contacts with skilled attendant and this is an important determining factor for safe delivery (WHO, 2016, Simkhada et al 2007, Carroli et al 2001). In Ghana, the services cover screening, vaccination, education or counseling on important information pertaining to the pregnancy. The ANC coverage has decreased from 92.2% in 2012 to 84.3% in 2015. ANC 4+ visits has also slightly decreased (75.3%) in 2015 compared to 76.1% in 2014 (Family Health Division Report (FHDR), 2015). It was identified that 78% of the ANC attendants in 2014 were immunized against neonatal tetanus and 92% of them received iron supplement. The GDHS also indicated that, most of the services were provided by skilled attendants i.e. 22% were doctors, 69% of nurses/midwives and 7% of Community health nurses (GDHS, 2014).

1.2.4 Facility Delivery (Delivery/ Labour Care in Ghana)

This is the care given during labour by skilled attendants in health facilities. On the other hand, place of delivery include other facilities other than health facilities. The coverage of skilled delivery slightly reduced in 2015 (55.7%) compared to 65% in 2014 (FHDR, 2015, GDHS, 2014).

The GDHS (2014) indicated that 65% of deliveries occurred in the public health facilities. Other deliveries were at the private 8.1%, Home 26.6%, other 0.3% (GDHS, 2014). As shown in figure 2.

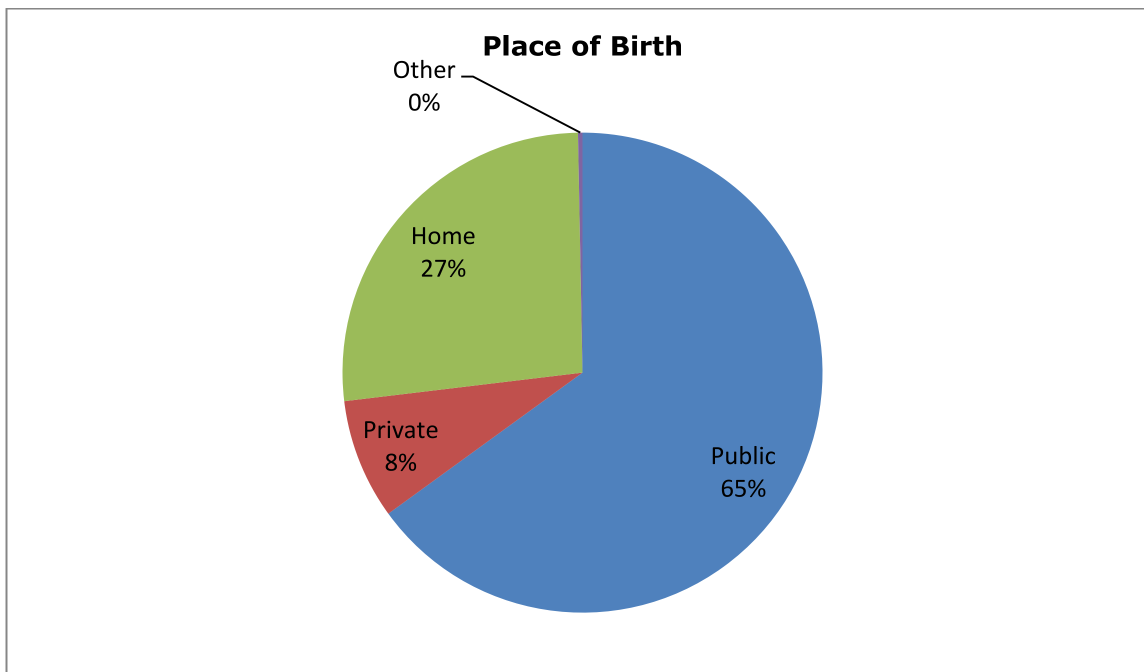


Figure 2: Place of delivery in Ghana (2014) **Source: GDHS (2014)**

1.2.5 Post Natal Care

Postnatal care is the care given to the mother and the baby within 48 hours after delivery. It is required that the mother and the baby should be observed by skilled attendants for any change in their state of health. Postnatal coverage as at 2015 was 66% compared to 73.4% in 2014 (FHDR, 2015). According to the GDHS (2014), a woman delivering at the health facility is more than two times likely to receive postnatal check-up within the first 48 hours than a woman delivering elsewhere. About 72% of mothers were examined after delivery in period of 24 hours while 81% were seen after 72 hours.

1.3 Policies and Programmes on Maternal Health in Ghana

In order to improve maternal health in Ghana, a number of health policies and Programmes have been instituted to address some of the major setbacks. These include MDG Acceleration Framework (MAF), Free Maternal Care Policy, and Project Five Alive among others.

1.3.1 MDG Acceleration Framework (MAF)

The Ghana health sector with other organizations and shareholders brought up Programmes in 2011 with the objective to improve maternal health situation in Ghana. It was realized that the pace in reaching the Millennium Goal 4 and 5 was unattainable. The team recognized that the best possible ways to reduce maternal and infant's deaths were to look at the practices that have achieved positive results in critical areas such as 'family planning, skilled delivery, emergency obstetric and new born' (MAF, 2011). In order to achieve the goal of reducing the mortality, it is important to identify the needed issues at the primary levels.

Measures taken including the improvement of resources and ensuring that there is adequate skilled staff at health facilities to handle pregnancy related cases. Furthermore, health education was to be carried out in the communities to create awareness about the risk factors associated with pregnancy and childbirth and how to seek help on time (MAF, 2011).

1.3.2 Free Maternal Care Policy

The Free Maternal care policy was established through the National Insurance Scheme in 2008 to take away the financial constraints on women who were unable to access healthcare due to poverty resulting in high maternal mortality. The then government declared the year 2008 as a "National Emergency for Maternal Mortality" (NHIA, 2010; MoH, 2009). This health campaign increased the utilization of maternal health services to all pregnant women reduced the occurrence of maternal deaths. The policy package covered all services for maternal health including ante natal care, routine drugs, screening, skilled delivery, caesarean section, emergency obstetric care, postnatal care as well as newborn care within three months (NHIA, 2010).

CHAPTER TWO

2.0 Problem Statement, Objective and Methodology

This chapter talks about the problem statement and justification, study objectives and the methodology.

2.1 Problem Statement

Maternal healthcare to a larger extent involves the provision of antenatal care, delivery care, postnatal care, nutrition and family planning services (WHO, 2007).
There is a global cry for sustained maternal health as enshrined in earlier Millennium Development Goal and the current Sustainable Development Goal (WHO, 2015). There is a deliberate attempt globally to make motherhood safe and fulfilling to all women since most women sees childbirth to be associated with suffering, ill-health and sometimes death (WHO, 2015). Globally, factors that drive the cause of maternal death range from financial to socio-cultural, economic access to service and quality of care (WHO, 2015; D'Oliveira, et. al., 2002).

Over the years, the Ghana government has tried to elevate the suffering of the populace in one way or the other. Thus, there is an overwhelming commitment by government to improve access to maternal healthcare by increasing the number of CHPS compounds nationwide. As at 2016, the number of CHPS compounds have increased from 2,948 in 2014 to 3,175 in 2015 (MoH, 2015). In 2008, the government introduced the free maternal healthcare policy as a measure to reduce financial barrier in accessing maternal health care (GHS, 2014). These changes according to the GHS, led to a slight increase in institutional deliveries from 44.6% in 2013 to 56.7 % in 2014 (GHS, 2014).

Increasing and ensuring access to health delivery is very important to utilization of health services. However, D'Oliveira et. al. (2002) indicated that one of the barriers to service utilization in low income countries is poor quality of care. The quality has to be backed and in accordance with internationally accepted standards (WHO, 2016; Van den Broek & Graham, 2009). With the introduction of the free maternal healthcare in 2008 in Ghana, it was noted that the quality of maternal healthcare declined significantly as a result of increased attendance and inadequate staff and resources to manage the increasing patients numbers (Ansong-Tornui, et. al., 2007, Atinga, et. al., 2014). Meanwhile, Afulani (2015) has revealed that poor quality of care is a contributory factor to Ghana's high maternal mortality especially in low level health facilities.

Ghana Health Service (GHS) defines quality of care as 'the proper performance (according to standard) of interventions that are known to be safe, affordable to the society and impact positively on morbidity, disability and mortality' (GHS, Poku et al 2015). The Institute of Medicine also defines quality in healthcare as 'the extent to which health services provided to individuals and patient populations improve desired health outcomes' (GHS, 2007).
Quality of healthcare can be viewed in two perspectives according to the GHS. These are technical and client perspectives. Technical perspective encompasses how services are provided based on established guidelines and protocols as well as professional standards. This also include but not limited to conforming to Standard Operating Procedures (SOPs), infrastructure, availability of staff and the application of modern knowledge and use of available equipment for better health outcome. Client's perspective focuses on client satisfaction derived from behaviour and attitude of health workers, recognition for patient's rights, timely response to patient's needs and clean environment (GHS, 2007, Kasse, et. al., 2006).

Studies have shown that the quality of maternal health care is influenced by constraints in the health system resources. Indeed the Ghana Statistical Service (GSS) revealed that 50% of all health facilities providing Antenatal care services (ANC) lack essential supplies and medicines for managing complications during pregnancies (GSS, 2003). Basic Essential Obstetric Care (BEOC) is to be provided at the health Centre level facilities for managing complications during pregnancy and childbirth and even after delivery but most of these facilities lack them (GHS, 2007; Mensah, 2011).
The Ghana health sector has been confronted with the challenges of inadequate staff, unavailability of drugs, insufficient supplies, inadequate beds, absence of ambulance services all of which have had adverse effect on the maternal health (Poku, et al, 2015).
Measures such as Safe Motherhood Initiative, Project Five Alive, and Free Maternal Health Care policy have been introduced by the Ministry of Health, Ghana Health Service and health sector stakeholders to improve quality of care to reduce the rate of maternal deaths (GHS, 2011).
A study done in some districts and regional hospital in Ghana by Poku et al (2015) shows that some health workers had little commitment towards the provision of care such as low adherence to standard operating procedures, incomplete recording of patient's information, medication errors , poor handing over for continuity of care all of which impacts negatively on quality of care.
Bannerman et. al. (2002) indicate that 'poor quality of healthcare results in loss of patients' lives, revenue, waste of material resources, waste of time, fall in the credibility of the health care system thereby increasing individual and communities apathy towards accessing health services, all of which reduces the effectiveness and efficiency in health care delivery'.
In Ghana, the Maternal Mortality Ratio (MMR) was 319 per 100, 000 live births in 2015 (MoH, 2015).
It is against this background that this study is under taken to determine the factors that influence quality of maternal care in Ghana since quality care under hygienic conditions decrease the risk of complications that can lead to death.

2.2 Justification for the Study

Evidence has shown that, ANC service coverage is improving in Ghana. As stated by GDHS, 84% accessed ANC services in 2014. However the MMR for 2015 documented 319 / 100 000 live births which are higher than MDG target (of reducing maternal mortality ratio by three quarter). Figure 3 illustrates the trend of maternal mortality in Ghana since 2000 in a five-year interval. The data shows a slight downward trend in Ghana but when this is compared to global targets of 70/100,000 live births, it still shows that more needs to be done to reduce the rate of maternal deaths in Ghana. It is a known fact that the health sector alone cannot address the problems of maternal mortality because of the underlying factors as stated above.

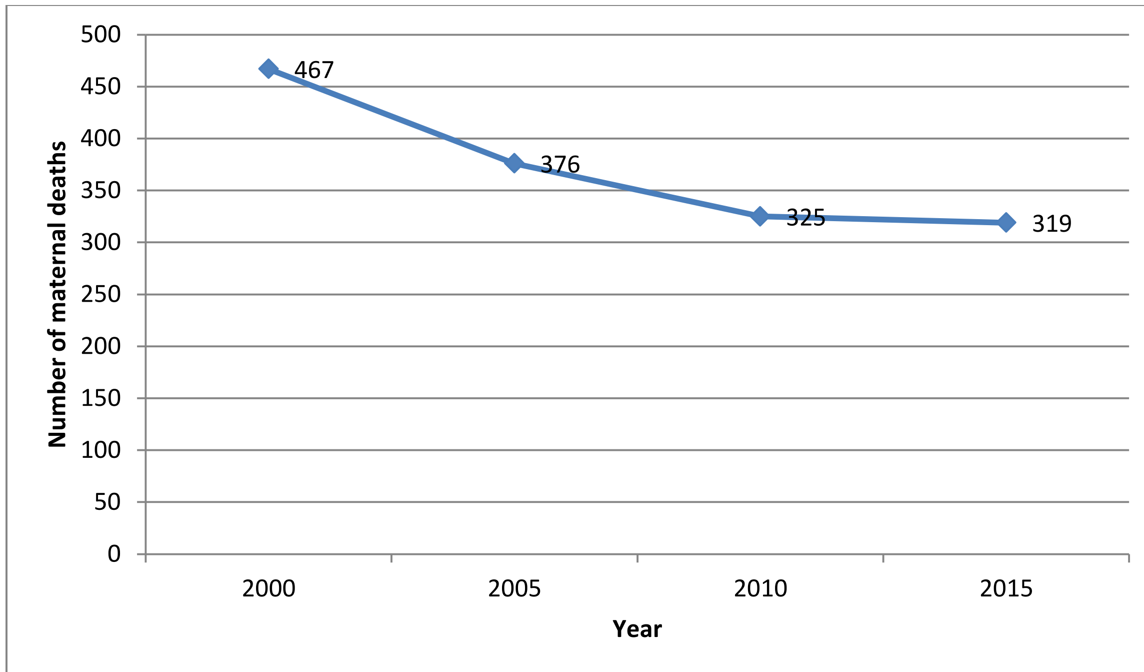


Figure 3: Trend of Maternal Mortality in Ghana from 2000 to 2015 Source: MoH (2015)

Assessing maternal care situation in Ghana will reveal the key factors influencing the quality of maternal health care and provide the basis for prioritization and institutionalization of policies and interventions to address these issues. Evidence shows that MMR is still an issue in lower-middle income countries such as Ghana. However, there is a gap in knowledge relating to quality of maternal care that contributes this menace. This study provides a valued insight for stakeholders in the health sector (government, NGOs, doctors, nurses, laboratory staff and patients). Evaluation of the key factors influencing maternal health will also enable the government channel resources to vital issues in maternal health care. This study will add to existing literature by providing contextual information on maternal health in Ghana.

2.3 Objectives of the Study

2.3.1 Main objective

The main objective of the study is to analyse the factors influencing quality of maternal care and service delivery in Ghana so as to recommend relevant policies and programmes to reduce maternal mortality in Ghana.

2.3.2 Specific Objectives:

1. To identify the factors affecting quality of maternal care in Ghana.
2. To identify effective interventions for improving quality of maternal care in Ghana and elsewhere.
3. To assess effective interventions for addressing the barriers to quality of maternal care in Ghana and elsewhere.
4. To make recommendations to policy makers and other relevant stakeholders on effective interventions to improve relevant policies and Programmes in Ghana.

2.4 Methodology

In order to achieve the objectives of this qualitative, explorative study, a desk study and literature review was done; journal articles on maternal health care in Ghana and quality health care were sought using key terms in table 1 below. The literature search included peer reviewed journals, grey literature and regional, national and international reports that were relevant in unearthing issues on quality of health care, especially maternal care. Equally used were unpublished reports, presentations and articles. Literatures used were those in English published between the period 2000 and 2017.

2.4.1 Search Strategy

Literature was accessed from various sources with several keywords used to search according to the objectives of the study. Journals and search engines such as Google scholar, Emerald Insight, Pub Med, VU library were utilized. Websites of Ghana Health Service, Ministry of Health, Ghana, Ministry of Finance, National Health Insurance Authority, WHO and UNDP were searched to retrieve information. Combinations of words were used for the search to limit the needed articles.
Combinations of search term were done and they are provided in the table below.

Table 1: Key words and Search Strategy

Type of Study	Source	Key words
Published Peer review	VU Library Google scholar PubMed Scientific direct	'Quality of Care in Ghana', 'Factors affecting Maternal health', 'Quality and Maternal Health', 'Maternal Mortality Ratio in Ghana', 'Improving maternal health care', staff attitude
Grey literature Reports	WHO MOH Reports GHS Reports NHIA Reports Survey Reports MMIEG Report	Maternal Mortality, Quality care and maternal health in Ghana, 'Free Maternal Policy in Ghana', Maternal health improvement initiatives in Ghana, 'Skilled attendants and Ghana', 'Antenatal care, Delivery and Postnatal care and Ghana', 'Obstetric care in Ghana'.

Please refer to the annex for the search tree

2.6 Conceptual Framework

The conceptual model for this study was adapted from the Donabedian Model which is being used to assess the quality of activities for maternal health care delivery. The model constitutes the structure, process, and the outcome and was used to analyze the findings on factors influencing the quality of maternal services (Ayanian and Markel, 2016; Moore et al , 2015). The model was adapted to suit quality of maternal care. Specific modifications include issues on antenatal care, delivery care and post-natal care. This is because the original model does not specifically deal with maternal health. Nevertheless, it allows for an extensive analysis of factors affecting maternal health. Base on this study, the structure is considered as the set-up of the health facilities, equipment, laboratory, delivery rooms, procedure rooms, dispensary, amenities, examination beds, ward beds, furniture where

health services is provided as well as the health staff who provide the care (Ayanian and Markel, 2016; Moore et al, 2015; Kobayashi et al ,2011).
The Process relates to activities that are carried out in providing care based on standard operating procedures and other accepted operational manuals. It is the actual quality of care given which is basically focused on the interaction between the health staff and the pregnant women (Ayanian and Markel, 2016; Moore et al, 2015; Kobayashi et al, 2011).
The outcome is the end result of the care given. It could be the preferred or wanted effect of satisfaction (Moore et al 2015; Kobayashi et al 2011). These components of quality which consists of the structure-process-outcome, has effect on each other hence interrelated (Ayanian, and Markel, 2016).

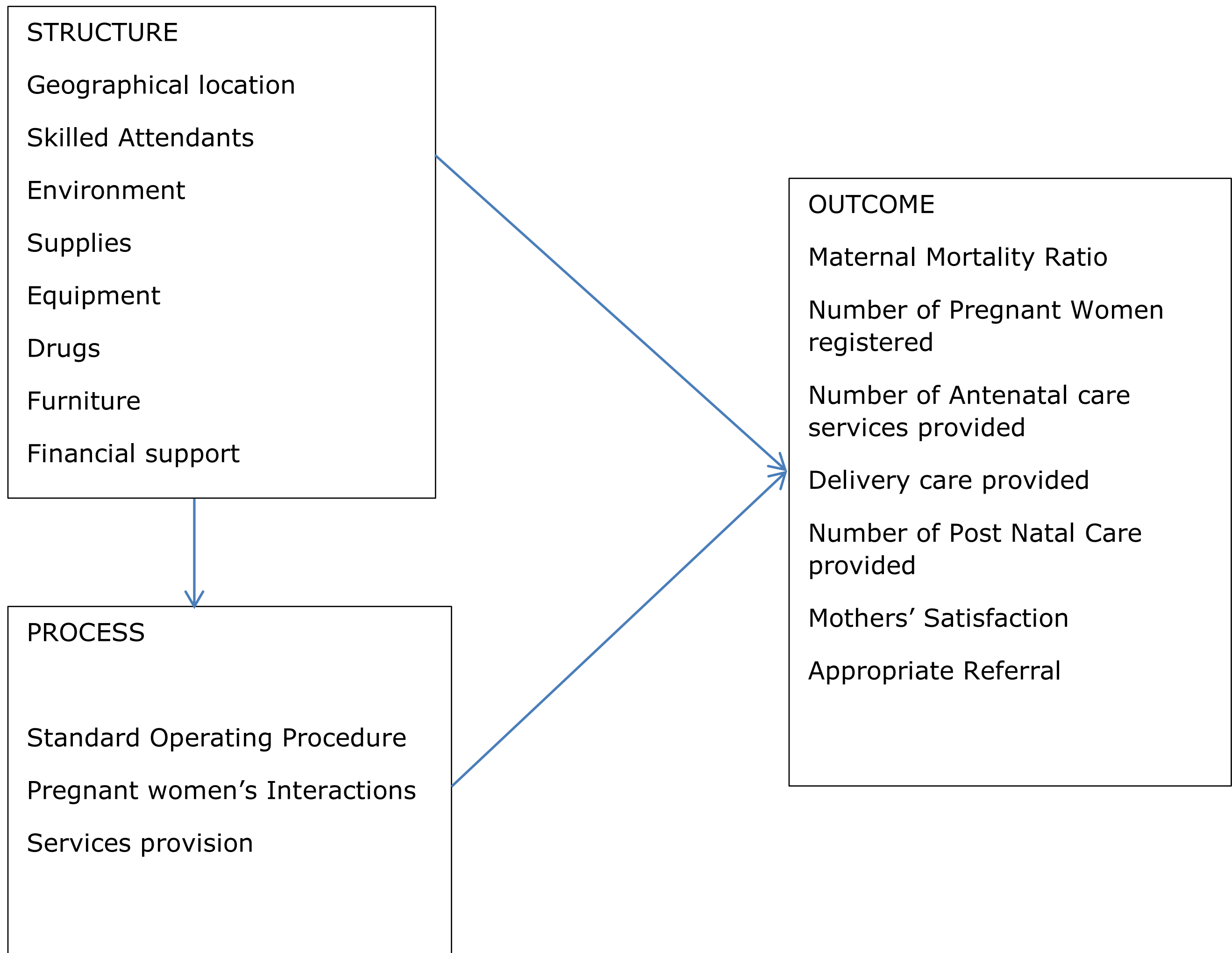


Figure 4: Conceptual Framework of Quality of Care Adapted from Moore et al., 2015 (Donabedian's Model).

CHAPTER THREE

3.0 Findings/Results

In this section, the Donabedian model of quality would be used to assess the various stages of maternal care that is ANC, Delivery care, and PNC. In order to assess the quality of maternal care, it is important to know the standards of antenatal care, delivery care and postnatal care.

Tuncalp et. al. (2015) defines quality of care as 'the care during childbirth in health facilities that reflects the availability of physical infrastructure, supplies, management and human resource with the knowledge and skills to deal with pregnancy and childbirth'.

3.1The Standard for Antenatal Care

The World Health Organization (WHO) recommends eight ante natal care visits for pregnant women who have been declared to have normal pregnancy by their skilled attendants. It is required that, ANC should commence in the first trimester and the interval for subsequent visits determined by the skilled attendant for the ensuing trimesters and all information on the pregnant woman should be maintained for continuity of care (WHO, 2016).

The WHO Integrated Management of Pregnancy and Childbirth (IMPAC), recommends level of standard of care that has to be provided for all pregnant women throughout the stages of the pregnancy and child birth. The guidelines requires that pregnant women are to be managed effectively to prevent dangers of malaria, anaemia, congenital defects, sexually transmitted infections (STIs) and tetanus infections (WHO, 2016). Various screenings are to be done to identify if there are risk and then treated accordingly. It also advocates that education should be given to the pregnant women about their well-being, diet, preparing them towards delivery, hygiene, sleeping under Insecticide Treated Net (ITN) and adherence to routine medication (WHO, 2016).

In order to properly identify danger signs and other problems that may affect the pregnancy, it is required of the skilled staff to oversee or conduct the care given to the pregnant women during the ANC visits. Also, the skilled attendant should involve the family of the expectant mother in order to support during this period (WHO, 2016).

3.1.1 WHO Standard of Quality Delivery and Postnatal Care

The WHO has come up with criteria that skilled attendants are to adhere to while attending to pregnant women during and after childbirth in order to ensure quality of care. It is required that every woman and their babies should be given the needed care at the time of childbirth and after delivery. Regular monitoring of the mother and the baby should be carried out for progress for at least 24 hours after delivery. It is recommended that, the woman or the baby should be referred to the next level of care in a situation where complications cannot be handled for appropriate management (WHO, 2016). Again, during labour, the woman deserves the respect, empathy and confidentiality as well as self-esteem and as such, all procedures carried on her should be communicated to and her consent sought. Also, it is expected of the skilled attendant to provide all the necessary care for the expectant mother during labour without any form of human right abuse (WHO, 2014). In addition, it is required of the health facility to ensure that there is hygienic atmosphere including frequent water supply, light, clean area for the mother, baby and the staff for quality delivery of care (WHO, 2016).

Furthermore, the health staff is expected to keep up-to-date information on the mother and the baby and to be able to have regular interactions with the woman and her family. It is required of the health professional to educate the mother on how to care for the baby, initiate and maintain exclusive breastfeeding and its importance, personal hygiene and 'cord care' (WHO, 2013). In addition, it is essential for the health professional to conduct routine examinations on the mother such as vaginal bleeding, uterus, blood pressure, temperature

and encourage the mother to provide feedback on any change in her health status and that of the baby (WHO, 2016; 2013).

3.2 Structure Component of Quality on Antenatal Care

This component describes the infrastructure and its environment (in terms of privacy and serenity), staff strength, equipment, health financing, drugs and basic amenities which are needed for health care delivery (Kelly and Hurst, 2006).

A comprehensive assessment conducted in Ghana by Saleh (2013) indicated that Community-Based Health Planning Services compounds and other health facilities have been established to provide primary care including ante natal care services.

Budget allocated for the running and the maintenance of the health facilities have been concentrated at the administrative level leading to inadequate supplies, examination beds and equipment (Saleh, 2013). This issue of unavailability of resources is worrying e.g. as reported by Pell et al, 2013, pregnant women in the Upper West of Ghana were asked to carry bottles for urine sample during ANC visits, an incident that can affect the outcome of laboratory results.

Again, Pell et al's qualitative research identified that, pregnant women were billed for ANC consultation services even though it is covered by health insurance. (Pell et al, 2013).

However, some laboratory tests such as Full Blood Count and abdominal ultra sound scan are not covered by the health insurance (Pell et al, 2013). Though there is free distribution of Insecticide Treated Net (ITN), there is always shortage in supply (Pell et al, 2013).

GDHS indicated that, there has been an improvement in the number of skilled attendants providing ANC service to pregnant women as compared to other countries. Out of 10 pregnant women, 9 of them are seen by skilled staff. However, this is only in urban settings (GDHS, 2014, Saleh, 2013).

3.3 Process Component of Quality for Antenatal Care

The process component of quality health care is the interaction, actions, interpersonal communication and the relationship between the pregnant woman and the skilled attendants during the ANC visits. Again, it involves the competences and knowledge of the staff in providing the ANC services. This component also considers the cordiality between the skilled attendants which is required for effective counseling (Kobayashi et al 2011).

During the ANC visit, procedures such as monitoring and recording of blood pressure, screening, palpation of the abdomen are conducted to measure the progress of the pregnancy (Pell et al, 2013).

Evidence has shown that, in Ghana, pregnant women who attend ANC services are given vaccination against tetanus**.** Their opinions are also sought through counseling for laboratory test and to be conducted to determine their status on the various STIs such as HIV and Syphilis. The results that tend to be positive are managed to prevent complications and mother-to-child transmission (GDHS, 2014). Nevertheless, Duysburgh et al (2013) has reviewed that some required laboratory test are not often requested. The Ghana Demographic and Health Survey reported that 78% of pregnant women received tetanus immunization and 92% were given ANC routine drugs including Iron supplement and Folic Acid during ANC visits (GDHS, 2014). Focused ante natal care, is a situation where the pregnant women have the opportunity to talk to the skilled attendant on individual basis, to plan towards delivery and also express their worries, is practiced in most of the facilities with ANC services in Ghana (Pell, et al, 2013). It was shown that, 84% of the pregnant women had education on issues such as healthy diet, basic hygiene, related disorders and danger signs of pregnancy (GDHS, 2014). In order to prevent the incidence of malaria in pregnancy, most pregnant women are given ITN for free and are advised to sleep under it, although there is always shortage in supply (Pell et al, 2013). It has been indicated that, 43% of pregnant women were given ITN during ANC and are using it (GDHS, 2014).

A comprehensive assessment done in Ghana by Saleh (2013) showed a poor staff–patient relationship as a result of health workers unprofessional behavior towards patient. A qualitative study done in Ghana, Malawi and Kenya has also shown that pregnant women experience verbal abuse from health staff when they default in seeking ANC services (Pell et al, 2013). Some of the women mentioned that they attend the ANC visit not because of the benefits of ANC; rather they attend because they want to avoid the insult they will get from the staff if they do not attend (Pell et al, 2013). It was also reviewed that, some pregnant women merely attend ANC visit not for its benefits but to avoid the abuse and the embarrassment they will encounter from health workers at the labour ward. In order words, they only visit the facility to get ANC booklet and recordings and as such may not adhere to the counsel received during the session (Pell et al 2013).
The waiting time while seeking ANC services was another factor that was pointed out. The women stated that they stay for longer hours in a queue before being attended to, especially in areas such as the consulting rooms, laboratory and the dispensary (Pell et al 2013). These contribute to the challenges involved in seeking maternal health services and affect the quality of care.
Recent studies have identified that, 16.1% of pregnant women are still lacking counseling on how to know the complications of pregnancy, how to assume proper sleeping position and other basic information on personal hygiene, diet and drugs (GDHS, 2014; Duysburgh et al, 2013).

3.4 Outcome Component of Quality for Antenatal Care

This consists of the aftermath of the care given, whether the aim was achieved. It involves the experiences of the pregnant woman encountered during service delivery and number of pregnant women who sought the ANC services (Sword et al, 2012; Kobayashi et al 2011).
A quantitative study conducted by Kobayashi (2011), indicated that, the Donabedian model could be used to assess the outcome of quality of care experienced by patients with nurses. The study revealed that the patients were satisfied with the experiences with nurses.
Studies has shown that, there has been improvement in the ANC attendants of pregnant women accessing care for ANC visit 1+ from 78% in 2008 to 84.3% in 2015 (FHDR, 2015; GDHS, 2014).
Measures that have been put in place such as free distribution of ITN and malaria prophylaxis helped in reducing the complications such as malaria in pregnancy and reducing the rate of infant and maternal death (Browne et al, 2001).

3.5 Structure component of quality for Delivery care

The structure component for this stage of maternal health care comprises of the facility where the delivery takes place, skilled attendants, equipment required to conduct the deliveries and provide care in order to improve the quality of the service delivery.

3.5.1 Environment, Furniture, Equipment and Supplies

It has been indicated that, 3,175 CHPS compounds have been established in Ghana. However, most of the pregnant women in the communities in the remote areas are unable to access these facilities for assistance skilled delivery. The CHPS compounds usually lack skilled staff and equipment necessary for the provision of delivery care (GHS, 2014; Mensah, R, 2011).
The general environment, availability of place of convenience, beds, furniture, vehicles for emergencies and referral, medical and non-medical supplies, drugs, office supplies as well as availability of water and electricity supply to enable the provision of services and care are inadequate (WHO,2016;Poku et al, 2015;Amooti-Kaguna and Nuwah, 2000). During labour, where to deliver is very important because it contributes to the welfare of the mother and the child especially when pregnancy related problems set in (Baidoo, 2015). Clean and serene environment serve as a therapeutic factor for positive health outcome

aiding in prevention of spread of infection (Ayimbillah, et al, 2011). Ayimbillah et al's exploratory study reviewed that, in Ghana, most of health facilities' environment where care is provided is poor. It was identified that the wall of the buildings in some the health facilities' in the rural-urban had cracks which make providing care unsafe for the staff and the pregnant women. There is always unpleasant smell that makes the environment nauseating to stay (Ayimbillah et al, 2011). Studies identified that pregnant women acquired infections during delivering on the labour ward and infections accounts one of the leading causes of maternal mortality (Acosta et al, 2013).

It has been identified that, the means of transport for transferring pregnant women from one health facility to another for management of labour complications is one of the challenges faced by the health facilities at the community and the district level (Atuoye et al, 2015; Senah K., 2003). Absence of ambulance services in these health facilities deter most of the pregnant women to seek care in higher level when they are been referred. A qualitative study conducted by Atuoye et al (2015) in the Upper West of Ghana reported that, 70% of the expectant women who were referred could not afford the private transport services and thereby some of them lost their lives.

However, 68% health centres and district hospitals that are designated to conduct deliveries lack the requisite standard for obstetric care (Acosta et al, 2013; Saleh, 2013). Poku et al's retrospective study indicated that laboratory services lack in the various health facilities and even those that have laboratory are not well equipped (Poku et al 2015). Absence of blood for transfusion is most often causing more of the maternal deaths (Poku et al, 2015). It was identified that in 2011, about 50 % maternal deaths in the national capital of Ghana was due to unavailability of blood (Poku et al, 2015). It was also stated that, most of the maternal mortalities that occur in Ghana are as a result of unavailability of Intensive Care Units (ICU) to respond to emergency situations when complications occur. And the facilities that have ICU lacks instruments, drugs, oxygen and other equipment to function well (Poku et al, 2015; Mensah R, 2011). Evidence has shown that, drugs are essential in provision of care. Nevertheless, the cost prevents most people to purchase drug of good quality either on individual basis or at the facility level, thereby most often buy poor quality drugs (GPS, 2016; Saleh, 2013). It has been noted that in Ghana, the procurement of drugs are acquired from the central medical stores which is at upper level and causes drugs stock out most of the time at the facilities and makes patients and relatives to buy drugs from outside for treatment which also causes delay in providing care (Nesbitt et al 2013; Saleh ,2013).

3.5.3 Skilled Attendants

Human resource for health is a very important aspect of health system. Skilled attendant play an essential role in improving the health delivery and efficiency. As identified, earlier the health staff-patient ratio in Ghana is worrying as it is below per WHO aim, one skilled staff to 600 persons. There is one doctor to 15,259 persons while one midwife to 6,000 persons and one nurse to 1,400 persons in Ghana (WHO, 2015; GHS, 2014). The inadequate skilled staff can be attributed to the impact of retiring staff. Health workers are not replaced when retiring (WHO/ GHWA, 2008). The Government of Ghana and the health ministry with other stakeholders came up with some initiatives including CHPS programme, expansion of training and educational institutions and then provided them with prerequisite resources to train adequate staff to assist the needed care for the population (Saleh, 2013; WHO/ GHWA, 2008). However, most of the skilled staff after training remains in the urban areas (Saleh, 2013).

Evidence has shown that, most maternal mortalities take place during labour and childbirth which makes the care to be given at this stage very crucial (WHO, 2016; GDHS, 2014). As mentioned earlier, the GDHS had it that, 65% deliveries were conducted in public health

facilities by skilled attendants, 8.1% in the private health facilities while 26.6% delivered at home. Baidoo's study reported that some pregnant women are unwilling to deliver at the health facilities in spite of the complications such as severe bleeding following child birth, retained placenta among others. This is due to insufficient staff to monitor pregnant women in labour (Baidoo, 2015). It was reported that pregnant women are not given the needed attention during labour due to unavailability of staff and eventually make them losing their lives in the process (Baidoo, 2015; Gerein et al, 2001).
Due to high patient-staff ratio at the facilities gives the skilled attendants overload of work thereby making them unable to provide the necessary care (Poku et al, 2015). In addition, it has been reviewed that some of the health staff lack the skill in managing obstetric emergencies. Inadequate staff necessitates some unskilled personnel to deliver pregnant women even at the health facilities (Gerein et al, 2006).

3.6 Process Component of Quality for Delivery Care

This consists of the actions and procedures during labour according to laid down guidelines. It also involves the interpersonal relationship between the pregnant woman and the skilled attendant (Moore et al, 2015). During labour and child birth, women require patience, dignity, attention, and politeness from skilled attendants (WHO, 2016; Saleh, 2015; Turkson, 2009). Nevertheless, a retrospective study conducted in Ghana by Poku et al (2015) shown that some of the skilled staff had low adherence to SOPs and guidelines such as infection prevention control measures and improper documentation of cases and inappropriate drug administration documentation (Poku et al, 2015). It has been reported that staff attending to women in labour transfer infection from one to another due to lack of hands washing and non-adherence to aseptic techniques (Acosta et al, 2013).
It has also been pointed out that, there is low response to maternal emergency cases leading to maternal deaths. Timely response to emergencies is lacking in most of the health facilities in Ghana (Poku et al 2015; Duysburgh, 2013). It was documented that 12.1% of the deaths would have been prevented if not for the bureaucratic attitudinal and hierarchical style on the part of senior and junior clinicians in attending to maternal emergency too slowly as reported by Poku et al, (2015). Sika et al's cross sectional study done in Ghana identified that, women in labour were not given the required support and had no privacy (Sika et.al, 2011). A qualitative study which was done by Baidoo(2015) to ascertain on where to deliver also revealed that, some of the expectant mothers receive slaps both in the face and on the thigh during the process of labour (Baidoo, 2015). It was identified that, some pregnant women prefer to deliver at home, where there would be no abuse from health workers. Others also stated that they would prefer Traditional Birth Attendants (TBAs) who are more matured, tolerant to care and deliver their babies (Baidoo, 2015).

A qualitative study by d'Ambruoso et al (2005) in Ghana stated that, staff attitude discourages some pregnant women to deliver at the health facilities even though they know they would be properly managed in case of complications.
The Patient's Charter of the GHS states that 'the patient has the right to full information on his or her diagnosis/ condition and management and potential risk except in an emergency situation where the patient is not able to decide for him or herself' (GHS, 2015). Moreover, Turkson's study reviewed that most patients including pregnant women are not communicated to about their condition, progress of the labour and the outcome (Turkson, 2009). No explanation is given before and after procedure conducted with a patient (Duysburgh et al, 2013; Turkson, 2009). Also, some studies indicated that, most health staff attending to women in labour does not use the partograph (Nesbitt et al, 2013; d'Ambruoso et al, 2005). It has also been recognized that, there is inadequate examination carried on the woman and the unborn child during labour (d'Ambruoso et al, 2005). It was also reported that, some of the procedures such as suturing of episiotomy was done without anaesthetizing the site which subject the women to undue pain (d'Ambruoso et al 2005).

3.7 Outcome Component of Quality for Delivery Care

This involves the result of the care given, the aim of seeking healthcare was achieved (Moore, et al 2015). It also comprises of successful delivery of baby without complications and the number of adequate and timely referrals made and maternal mortality cases recorded (Poku et al, 2015). It has been indicated that, 65% deliveries in 2014 were conducted by skilled attendants. Still births stood at 1.8% in 2013 and 2014 (GDHS, 2014; GHS, 2014).

Sika et. al. (2011) has indicated most of women after child birth were dissatisfied with the care received during delivery. It has also been reported that 70% of pregnant women or their families were not happy about how the referral took place since some were unable to make it to another higher level of care due to absence of ambulance services in the community health facilities leading to maternal deaths (Atuoye et al, 2015).

3.8 Structure Component of Quality for Post Natal Care

Baidoo's study identified that, most public health facilities in the central part of Ghana encounter the challenge of getting beds for mothers and their babies after delivery. It was reported that, some mothers are asked to evacuate their beds for another mothers within the crucial period of observation. Also, more than two or more babies were put in the same cot (Baidoo, 2015). According to Nesbitt et al (2013), some of the health facilities in the Brong Ahafo region of Ghana were assessed and indicated that, there were no sink, water and soap available. The review also identified that, some of the facilities lack essential drugs for the management of infection during postnatal period (Nesbitt et al, 2013). Again, it was shown that all the health facilities that were evaluated had inadequate equipment to handle neonatal resuscitation. It was also indicated that 95% of the health facilities lack adequate skilled staff to provide appropriate care for ill neonates. It was identified that, there was only one skilled staff trained to take care of sick babies during emergencies (Nesbitt et al, 2013).

3.9 Process Component of Quality for Post Natal Care

This is the care given to the mother and the new born after delivery according to standard procedures and protocols. This period is important because both mother and baby need optimum attention and care because complications can occur which can lead to death if they are left overlooked or left unattended (Nesbitt, 2013; WHO, 2013).

Nesbitt et al recognized that, mothers are taught by health staff on how to care for their babies during postnatal period including exclusive breastfeeding. It was also stated that in most of the health facilities, mothers are educated on how to provide warmth for their babies who are born prematurely (Nesbitt et al, 2013). Nonetheless, it was also indicated that, repetitive procedures such as monitoring of babies' vital signs such temperature, respiration, pulse were done in some of the health facilities after delivery while other facilities do not. Blood pressure of mothers was also checked and recorded in some of the facilities (Nesbitt et al, 2013). It was identified that fewer than recommended examination were done on the new babies by health staff to ascertain conditions such as jaundice, pale skin or breast feeding difficulty pertaining to babies during early postnatal period (GPS, 2016). Baidoo's study reported that mothers are given only limited information about signs such as excessive bleeding per vagina, headache and dizziness to look out for immediately after delivery and the women were unable to talk to the health staff due to the attitude of the staff (Baidoo, 2015).

GDHS reported that, during the postnatal period, 72% of mothers were examined within 24 hours by skilled attendants. However, 20% of the babies assessed within 24 hours while 70% of the babies had no examination done on them (GDHS, 2014). A cross sectional study by Nutor et al, in some regions in Ghana has identified that, some of the health staff had not had the enough training on management of cord care and are unable to educate mothers more about it. It was cited that, some of the mothers have inadequate information

on how to care for the umbilical cord of their new born leading to infections (Nutor et al, 2016). It has been established that, some of the health staff at the community level do periodic home visits to check up on mother and their babies and offer advice where necessary but however faces financial challenges in commuting to the various places (Kirkwood et al, 2013).

3.10 Outcome component of Quality for Postnatal Care

In Ghana, it has been reported that, in a year, the death of 57,000 children below five years is recorded, out of these, 40% happened within the first few days of the postnatal period. The deaths of the new-borns were attributed to pneumonia, infections, tetanus and asphyxia. These could be as a result of failure related to the structure and the process in postnatal care (GDHS, 2014; GPS, 2016). In assessing outcome of postnatal care, the quality of the postnatal care is also measured in terms of the health status of the new born as well as the mother (GPS, 2016; Nesbitt et al, 2013). According to Nesbitt et. al. (2013), the unavailability of essential drugs to manage complications after delivery compromises a successful postnatal period.

It has shown that, out of 101 maternal deaths documented in 2007, 29 were within the postpartum period. Eighty-two per cent of mothers had complications such as postpartum haemorrhage or blurred visualisation among others (GMHS, 2007). Similarly a qualitative study conducted in the Central Region of Ghana indicated that mothers who were forced to evacuate their beds just after delivery instead of after the normal duration of 24 hours were not satisfied with this experience (Baidoo, 2015).

CHAPTER FOUR

4.0 Interventions

This chapter describes the evidenced based interventions that have been proven elsewhere.

4.1 Interventions to Improve Maternal Quality of Care

In this particular section, the attention to priority areas to be focused such as improving staff strength, upgrading facilities and provision of equipment and supplies.

4.1.1 Improve skilled attendants

In order to improve better work output for positive outcome, the training and evenly distribution of skilled attendants should be considered (Escribano-Ferrer et al, 2016). Availability of skilled attendants in all the levels of care will improve the care to be given when needed. This can be achieved by emulating the strategy of task shifting.

A cluster-randomized trial was done in the Ashanti Region of Ghana by Ogedegbe et al (2014) on task shifting the duties of skilled attendants such as blood pressure monitoring, counseling were given to less skilled staff. Community health workers were chosen and were taking through training activities including accurate measurement of blood pressure, weight and counseling of patients. They were to refer the patients whom they encountered to be having abnormal recordings to highly skilled personnel for further assessment. It was recognized that, the burden of workload on the skilled staff were lessened while patients that were cared for decreased blood pressure recordings (Ogedegbe et al, 2014).
Furthermore, a retrospective study done in Senegal by De Brouwere et al, (2014) indicated that, in Senegal's programme of task shifting, the responsibilities of specialists to perform obstetric procedures shifted to non-specialists.
It was also identified that, the health workers who had no skills in specialized areas were trained in the health facilities in the districts of Senegal on how to provide basic and comprehensive obstetric care. This strategy helped improved the maternal health outcome in Senegal. It was recorded that the rate of maternal deaths dropped drastically during the intervention period. The occurrences of still birth declined and the frequency of referral to the regional level for comprehensive obstetric service also reduced. Again, the community leaders were excited about the programme and its quality of saving the lives of their women and also preventing them from spending on transportation due to referral because indirect cost such as expenses on food and accommodation while away were avoided (De Brouwere et al, 2009). Similarly, Gessessew et al, 2011, did a retrospective study in Ethiopia. It was shown that, training and induction Programmes were done for non-clinicians on how to provide basic services on obstetrics and sent them to the required areas of need. The obstetric services at the designated areas were increased and improved the maternal health (Gessessew et al, 2011).
It has been reported that science and mathematics should be encouraged and promoted at the basic educational level to enable more people to be trained and fill the health professional training institutions (GES, 2016).
Orientation of existing staff on how to handle obstetric cases and emergencies as well as adhering to SOPs will help reduce the incidence of maternal morbidity and mortality (Escribano-Ferrer et al, 2016). A review by Escribano-Ferrer et al (2016) mentioned that, supervision of activities, regular monitoring and evaluation, staff involvements and encouraging staff to be more accountable helps improve health services. The review also stated that, frequent visits and support by line managers to assess the health services, meetings with staff to express their issues and concerns relating to their jobs will allow them to come up with ways to address it. To address unprofessional staff attitude of some staff, Reiss (2015) indicated that, staff to be trained and oriented to exhibit empathy and

compassion towards patients. This will in effect will serve as a diversion therapy in relieving pain and fear for better health outcome and improve satisfaction on the side of the patient and the skilled attendants. Ogedegbe et al, 2014 study, shown that, the community health workers that were trained on behavioral interviewing were able to counsel patients on lifestyle and adherence to medications and yielded improvement in the patients' health outcome.

4.1.2 Improve the quality of Emergency Obstetric Care

Adapting emergency obstetric care strategy is one of the interventions confirmed to reduce maternal mortality. A retrospective study done in Mali in 2009, established that after the implementation of the EmOC strategy, a significant decline in maternal mortality ratio occurred (Fournier et. al, 2009). Measures that were taken included upgrading the communication and transport system among the community and the districts health facilities which helped resolving the difficulty in getting to the health facilities as well avoiding interruption and delay in the course of providing emergency services (Fournier et. al, 2009). A cluster-randomized controlled trial conducted in Mali and Senegal in 2013, also reported that there were positive results in the maternal health outcome after policies and interventions were put in place such as reorienting the existing staff and trained them on management of emergencies, providing the needed equipment and supplies (Dumont et. al, 2013).

A review on maternal deaths by Poku et al, (2015) suggested that there should be Intensive Care Units at the districts level and equipped them with essential drugs, equipment as well as adequate clinical expertise to manage emergencies. It was also stated that, the increased number of deaths documented were due to absence of blood to be transfused for the expectant mothers (Poku et al, 2015). The review advocated that, a well-functioning laboratory should be established at the community and the districts health centers to cater for all laboratory investigations and improve quality of care (Poku et al, 2015). De Brouwere et al, (2009), shown that Senegal's various districts health facilities were provided with necessary equipment to provide obstetric services including transfusion and operating theatre thereby improving the quality of care to the women and reduced maternal mortality. One of the challenges identified was the means in referring pregnant women. According to Fournier et al (2009) the government in the Mali instituted a system which aided in bringing down the death of expectant mothers thus making ensure all pregnant women are transported free to the health facilities for treatment (Fournier et al, 2009). Adding this policy to the free maternal health care in Ghana can help reduce the money spent on transportation during referral thereby reducing catastrophic expenditure. There can be collaboration between the health facilities, community as well as the transport owners to transport the pregnant owners to the health facilities for prompt care (Fournier et al 2009; d'Ambruoso et al, 2005; Senah, 2003).

Evidence has shown that regular documentation and periodic clinical audit of maternal cases helps to identify the cause of death**.** Though the clinic audit is in existence in Ghana but it is hardly practiced. It is therefore important to revise the policy and make good use of auditing. All health professionals working in maternal health units are to be encouraged to write all incidents relating to maternal death (Poku et. al, 2015).

CHAPTER FIVE

5.0 Discussion of study findings

The discussion of the thesis will be organised along the Donabedian framework that was used in the thesis alongside the interventions to establish how they influence the quality of maternal healthcare based on the findings of the literature reviewed. Antenatal care, delivery and postnatal care will be discussed vis-à-vis the structure, process and outcome models of the framework.

5.1 Structural factors and quality of maternal are

The findings of the study have revealed that standards should not and cannot be compromised in the struggle for quality of maternal health care. At all levels of care standards must be adhered to and this suggest that standards must be applied to the structure component of the Donabedian framework which stipulates that the structure comprises the infrastructure, personnel, equipment/supplies, drugs and finances. On quality of antenatal care, the literature revealed that the nature of the infrastructure and its environment, staff strength, drugs and basic amenities, equipment and finances are essential in ensuring quality of antenatal care. The infrastructure plays an important role in quality of maternal care especially in lower-middle income countries like Ghana. This is because the pregnant woman may be attracted to a facility by mere beauty of the premises and location. Again, the structure must be user friendly so that all manner of person especially pregnant mothers will not struggle in accessing care. It is indeed refreshing that the government of Ghana is constructing CHPS compounds to improve access. The question one needs to ask is whether these structures are designed to address the needs of pregnant women who utilize these facilities for ANC or whether they are located or sighted to benefit pregnant women. This will in one way or the other, influence the utilization of such facilities. Another significant element of the structure component is the personnel or staffs who are supposed to offer quality services to these expectant mothers who eventually visit the facility. The literature revealed that the human resource capacity in Ghana is woefully inadequate as they do not meet WHO standards. This suggests that, even if the physical structure has all it takes but lacks the requisite staff in numbers and quality in terms of training and skills, quality of maternal care will still be a mirage. It is therefore incumbent for stakeholders to consider the human resource aspect of the structure in ensuring quality. This will consist of the right cadre and number to avert unnecessary workload that influence or compromise on quality. It also indicated that there is indeed an improvement in the number of skilled attendants who provide ANC but majority of the staff are located in the urban parts of the country leaving the rural poor. Financial access is also an element of that needs to be considered in this component. Majority of the people in Ghana, especially the rural area are poor and may not access the best of facilities with the required staff. It was noted with the concern that pregnant women were billed for ANC consultation though this was covered by the NHIS. This will greatly affect access to health delivery which will compromise quality of maternal care. The government has introduced free maternal care but it is shrouded in a lot of problems as some pregnant women still pay for ANC. This will serve as a barrier to those pregnant mothers who cannot afford the cost of ANC which will deprive them of the services needed including counselling and detection of danger signs which might lead to mortalities. Availability of essential drugs and other supplies also play an important role in determining the quality of ANC and maternal care. Women who are able to visit the facility with the required staff without financial barrier but are not able to acquire the essential drugs and other supplies needed will not receive the kind of quality they are supposed to acquire. For instance a woman who visits ANC and does not receive an

ITN is still at risk of getting malaria which might compromise the quality of maternal care. Again there are certain services that are required to be carried out on pregnant women during ANC visit but if the equipment and resources needed are unavailable, quality is missed. (Link these with interventions and end with an expected outcome)
There is an almost the same influence of the structure elements discussed above on delivery and postnatal care. The infrastructure, staff, finance, drugs, supplies, equipment and materials that influence positive or negative outcomes in ANC will all play similar roles in influencing positive or negative outcomes in delivery and postnatal care. It has indicated that CHPS compounds lack skilled staff and equipment necessary for the provision of delivery care. Similarly, the study revealed that apart from pregnant women having difficulties in accessing the health care facilities for ANC because of access in terms of geography and finances, the same structural incompetence also influence service delivery. Subsequently, the literature suggests that the structure has a direct bearing on all three components of maternal care thus ANC, delivery and postnatal care and need not to be treated separately. In terms of postnatal, there exists some structural inefficiency that compromise quality of maternal health care. It was observed that there are not sufficient cots for babies as two or more babies may share one cot. This put the babies at risk in cases of some certain diseases. Again, mothers were asked to evacuate their beds few hours after delivery which suggests inadequate number of beds. This prevents mothers to be adequately catered for according to standards, in a bid to detect any complications that may arise after delivery. It was also indicated that facilities lack some basic things and essential drugs needed for mothers after delivery and this also put stress on health provider in providing the needed care. The unavailability of such essential drugs exposes these postnatal mothers to risk which all compromise the quality of maternal health care.

5.2 Process factors and quality of maternal Health care

There is a direct relationship between the structure and process components of the Donabedian model. The elements of the process component comprises SOPs, interaction with pregnant women and services provided during ANC, delivery and postnatal. Basic processes that need to be adhered to during ANC include monitoring and recording of blood pressure, screening, palpation as well as other examinations. These procedures are supposed to be conducted by skilled attendants who are motivated to offer these services in an atmosphere that put the expectant mother at ease. If the process fails to recognise and conduct these activities, danger signs may not be detected at an early stage for appropriate management which may complicate matters during delivery and postnatal care. In the performance of these activities, SOPs must be adhered to in order not to compromise on standards to avert the quality of care given to mothers. During ANC, there are some basic laboratory tests that need to be carried out as well, all in a bid to detect possible problems that might affect the quality of maternal care. Other medications and supplements are also supplied as part of the procedural component such as iron, and folic acid. When the quality of care process component fails to offer these services, the health of the pregnant women is compromised. In Ghana, there is evidence to suggest that not all facilities are able to ensure the provision of these basic supplies or even at some points, not all required laboratory investigations are carried out. In the provision of these services, the quality of the interaction between clients and staff is of essence. Staff attitude towards pregnant women is one of the most relevant considerations as this determines the understanding, sense of urgency and level of satisfaction of pregnant women. Research has shown that many pregnant women suffer abuse from health providers who behave unprofessionally towards pregnant women during ANC and delivery. Such attitudes from health professionals have the tendency to prevent the expectant mothers from visiting the health facility for ANC and as a result, compromise on the quality of care. Not being able to attend regular ANC as a result of maltreatment from health professionals deprive them of probable counselling on how to conduct themselves during the pregnancy especially in terms of nutrition, personal

hygiene and birth preparedness. In terms of delivery, there is an overlap as far as skilled attendants, staff attitude towards pregnant women are concerned. During delivery, expectant mothers are expected to be attended to by highly skilled professionals who will apply laid down protocols and guidelines to ensure safe delivery. At such moments, it takes a very cordial relationship between mother and the staff to ensure satisfaction. It is required of the skilled attendants to be patient and treat the woman with respect and dignity. When standards and protocols are not adhered to, quality of maternal healthcare is compromised. Indeed it has been identified that some skilled staff does not comply with standards and guidelines in the discharge of their duties which is detrimental to the care of the pregnant woman. Again, there is the risk of infection transmission from providers to the pregnant woman if protocols are not adhered to delivery. Practices such as proper handwashing are essential in preventing infections among providers and between patients and providers especially during deliver. Just like it has been reported that poor staff attitude prevents expectant mothers from ANC attendance, similar attitude may possibly drive the pregnant women to deliver at facilities without skilled attendants including Traditional Birth Attendants (TBAs) and even home deliveries which may compromise quality and lead to maternal mortalities. In Ghana, there are many studies that suggest that pregnant women prefer to deliver with TBAs than skilled health attendants because of the treatment meted out to them by health professionals when they visit the health facility for deliveries. Postnatal care similarly requires some procedural attention just like ANC and deliveries. Indeed without adequate postnatal care, there are potential mortalities of both mother and baby. Immediately after delivery, the mother is supposed to be observed critically within the first 24 hours for possible complications and also provided with basic drugs that may be required. It is also at this period that mothers initiate exclusive breastfeeding. The care of the umbilical cord is all expected to be done during the postnatal phase of the care giving. All these processes are supposed to be conducted by highly skilled staffs who are motivated to offer their services in an environment that supplies their basic requirements and supplies for them to offer their best. When these services are not provided to complete the process from ANC, the quality of care that is required will not be achieved. In the context of Ghana, some facilities are not able to provide the best postnatal services as required because they may be constrained by some logistical problems or properly skilled staff is not available to offer such services.

5.3 Outcome factors and quality of maternal health care

The last component of the Donabedian model is outcome. As has already been discussed, all the components of the model relate to each other and the end result of the interaction between the structure and process is an outcome. The outcome may be positive or negative. In a situation where outcome is positive, the woman may be satisfied after experiencing the structure and going through the process because she has been completely treated, was respected, did not wait unnecessarily at the facility and as such, is willing to come back to the facility when pregnant again. An improved ANC attendance is indicative of a positive outcome. Deliveries conducted by skilled personnel and the rate of successful deliveries indicate positive outcome. In Ghana, it is believed that once staff attitude improves and there are supplies and drugs for pregnant women as well as safe delivery, reduction in complications and proper treatment of complications when they occur, pregnant mothers will be happy to utilize the health facility to reduce maternal mortality. Again, the quality of maternal care can also be measured by postnatal health of both mother and baby. If mothers do not experience postpartum haemorrhage, death of neonates and other complications after delivery, they will be satisfied.

Linking this to the interventions enumerated, improving the knowledge and skills of attendants to ANC, delivery and postnatal becomes relevant in addressing the gap that exists in improving quality of maternal healthcare. Literature suggest that even if there is a better environment that attracts pregnant women, the staff who interact with these women

must possess the requisite skills that will contribute to desired outcomes. This can be achieved through effective training to produce qualified staff that will be able to render the desired services. The training of such staff requires intensive capital investment. It is therefore necessary that the interest of students right from the lowest level of our educational sector is boosted so that by the time the students leave secondary school, the interest to join a health training institution would have been high. Whilst addressing the need to instil interest, we must not lose focus of the need to also ensure regular on the job training as well as refresher courses for the existing ones to keep them abreast with modern trends of maternal care to maximise quality. Such trainings will address technical competence as well as attitude of staff in handling patients at large and also equip managers with the appropriate skills to carry out regular monitoring and supervision of activities and personnel. Again, improving the quality of emergency obstetric care will help manage pregnancy complications and reduce maternal death. The success of such an intervention depends on both the structure and process factors which include the availability of the infrastructure, the availability of highly skilled professionals who will be able to discharge their duties without abusing the expectant mothers but rather have a professional relationship. This will inevitably contribute to reduction in maternal mortalities. Emergency obstetric care should not only occur in the facilities but it should start from the communities through the arrangements of a readily available means of transportation that will convey pregnant women from one facility to another in case of emergencies. Such facilities need to be provided with the required basic materials to handle such emergency cases without compromising on standards to raise and uphold the quality of maternal health care.

5.4 Usefulness of the conceptual framework

The Donabedian framework used for analysis of the factors influencing quality in maternal health care delivery in Ghana was very helpful. The framework allowed the subjects to be studied extensively in order to answer the objectives that were set out in the thesis. It guided the researcher to establish how the structure, the process and outcome are all related and also through that, identified possible barriers to ensuring quality of maternal health care in Ghana.

5.5 Scope and Limitations of the Study

It would have been appropriate to conduct a data collection from both patients and health staff to assess the challenges they encountered in the course of receiving and providing care, through interviews and observation. This study did not focus on the aspect of family planning. There were limited studies that talk about the interventions in Ghana as most of the studies were from other part of the continents. All literature reviews were in English language. There is a possibility of missed relevant information from other languages.

CHAPTER SIX

6.0 Conclusion and Recommendations

6.1 Conclusion

There is the need for the government and policy makers to consider the health care system in general and prioritize interventions to improve the quality of care of maternal health services to reduce the incidence of maternal ill health and deaths.

From all indications, the Government of Ghana together with the private and Non-for-Profit health organizations have been striving to improve the quality of maternal health care in Ghana. However, maternal mortality results show that the outcomes of these efforts are still behind the Sustainable Development Goal (SDGs) target.
A comparative review of literature on Maternal Health Care in Ghana vis-à-vis the Donabedian model on health quality and the WHO recommended framework on maternal health care (IMPAC) revealed a number of barriers and facilitating factors towards maternal health care. These factors have to be adequately addressed in order to improve the quality of maternal health care thereby reducing the maternal mortality ratio.

Structural factors influencing quality of care
The structure component indicated that, health facilities are unfortunately under resourced, lacking drugs, supplies, beds, health equipment and instruments as a result of centralization of funds at the regional level. The health facilities in districts and the rural areas lack the needed funds when disbursements are not done appropriately. Also Lack of ambulance services in the health facilities at both the communities and some of the districts for referrals also make the situating disturbing. This means that pregnant women have to commute long distances to access health facilities for skilled delivery in the districts and the regional capitals for appropriate care by which delay in reaching the health facilities can result in complications and death. Evidence has shown that providing skilled staff, supplies and equipment, especially in handling obstetric emergency issues and other needed resources at health facilities will help improve the quality of care. However, the literature shows that most facilities in Ghana that has been designated for EmOC centers lack the essential resources needed to handle emergency obstetric cases.
The ratio of skilled attendant to patient is further exacerbated in the rural areas. This is because qualified health care providers often avoid being posted to the rural areas because of deplorable living conditions. It has however proven that training of staff and shifting some of the responsibilities of higher level staff to lower staff to provide basic healthcare to reduce work load on skilled attendants and re-orientating the existing staff helps to improve quality of care.

Process factors influencing quality of care
Interpersonal relationship between skilled staff and pregnant women has been indicated to be poor. The general attitude and manner in which some of the health workers communicate information to the pregnant woman discourages pregnant women to utilize health services. It was identified that some of health workers lack the right temperament in handling patients and providing the right information. Some health staff also lacks empathy towards pregnant women and patients in general which compromises the quality of care. Behavioral interviewing has shown to be appropriate strategy to address unprofessional attitude of health staff.

It has also been identified that, some health staff have low commitment in adhering to SOPs and this has led to increased morbidity and mortality. Studies has indicated the frequent monitoring, supervision and providing support for staff health improve better health output.

6.2 Recommendations

Policy level (for Government)

1. To decentralizing the disbursement of funds to the district and the communities to run various activities
2. To establish a system to incentivize health workers who accept postings to remote areas to serve as motivations

Interventions

Ministry of Health

3. Task shifting: delegating some of the responsibilities of higher level staffs to lower level staff to provide basic care including blood pressure measurement, monitoring and recording, counseling and urine testing in order to reduce workload
4. To equip the designated health facilities for emergency obstetric care with the required skilled staff, equipment and supplies to handle emergency cases.
5. Orientating existing staff on behavioral interviewing and empathy training of health workers in order to address behavioral issues. Also to reinforcing the professional code of conducts.
6. To conduct regular supportive supervision of the activities of the skilled staff relating to the adherence to SOPs.
7. To establish laboratory services in the health centers and district health facilities and furnish them with appropriate equipment to be able to provide needed services as well as storing blood for emergency situations

Communities

1. Communities should be sensitized to form a community ambulatory systems where local taxis will be arranged to convey pregnant women to health facilities during emergencies

Area for further research

There is a need for research on interventions towards maternal health care in Ghana

References

Acosta CD, Knight M. Sepsis and maternal mortality. Current Opinion in Obstetrics and Gynecology. 2013 Apr 1;25(2):109-16.

Adamu, Y.M. and Salihu, H.M., 2002. Barriers to the use of antenatal and obstetric care services in rural Kano, Nigeria. *Journal of obstetrics and gynaecology*, *22*(6), pp.600-603.

Afulani, P.A., 2015. Deconstructing rural/urban and socioeconomic differentials in quality of antenatal care in Ghana. *Annals of Global Health*, *81*(1), p.106.

Ansong-Tornui, J., Armar-Klemesu, M., Arhinful, D., Penfold, S. and Hussein, J., 2007. Hospital based maternity care in Ghana-findings of a confidential enquiry into maternal deaths. *Ghana medical journal*, *41*(3).

Atinga, R.A., Baku, A.A. and Adongo, P.B., 2014. Drivers of prenatal care quality and uptake of supervised delivery services in ghana. *Annals of medical and health sciences research*, *4*(3), pp.264-271.

Ayanian, J.Z. and Markel, H., 2016. Donabedian's Lasting Framework for Health Care Quality. *The New England journal of medicine*, *375*(3), pp.205-207.

Ayimbillah Atinga, R., Abekah-Nkrumah, G. and Ameyaw Domfeh, K., 2011. Managing healthcare quality in Ghana: a necessity of patient satisfaction. *International Journal of Health Care Quality Assurance*, *24*(7), pp.548-563

Amooti-Kaguna B, Nuwaha F. Factors influencing choice of delivery sites in Rakai district of Uganda. Social science & medicine. 2000 Jan 31;50(2):203-13

Arthur, E., 2012. Wealth and antenatal care use: implications for maternal health care utilisation in Ghana. *Health economics review*, *2*(1), p.14.

Atuoye, K.N., Dixon, J., Rishworth, A., Galaa, S.Z., Boamah, S.A. and Luginaah, I., 2015. Can she make it? Transportation barriers to accessing maternal and child health care services in rural Ghana. *BMC health services research*, *15*(1), p.333.

Baidoo, P.N., 2015. *"Why We Deliver Elsewhere": Women's Preferred Places of Delivery and Their Effects* (Doctoral dissertation, University of Ghana.

Bannerman, C., Offei, A., Acquah, S.D. and Tweneboa, N.A., 2002. Health care quality assurance manual. *Accra, Ghana: Ghana Health Service*.

Blencowe, H., Cousens, S., Modell, B. and Lawn, J., 2010. Folic acid to reduce neonatal mortality from neural tube disorders. *International journal of epidemiology*, *39*(suppl_1), pp.i110-i121.

Browne, E.N.L., Maude, G.H. and Binka, F.N., 2001. The impact of insecticide-treated bednets on malaria and anaemia in pregnancy in Kassena-Nankana district, Ghana: a randomized controlled trial. *Tropical Medicine & International Health*, *6*(9), pp.667-676.

Carroli, G., Rooney, C. and Villar, J., 2001. How effective is antenatal care in preventing maternal mortality and serious morbidity? An overview of the evidence. *Paediatric and perinatal Epidemiology*, *15*(s1), pp.1-42.

Carroli, G., Villar, J., Piaggio, G., Khan-Neelofur, D., Gülmezoglu, M., Mugford, M., Lumbiganon, P., Farnot, U., Bersgjø, P. and WHO Antenatal Care Trial Research Group, 2001. WHO systematic review of randomised controlled trials of routine antenatal care. *The Lancet*, *357*(9268), pp.1565-1570

d'Ambruoso, L., Abbey, M. and Hussein, J., 2005. Please understand when I cry out in pain: women's accounts of maternity services during labour and delivery in Ghana. *BMC public health*, *5*(1), p.140.

De Brouwere, V., Dieng, T., Diadhiou, M., Witter, S. and Denerville, E., 2009. Task shifting for emergency obstetric surgery in district hospitals in Senegal. *Reproductive Health Matters*, *17*(33), pp.32-44.

De Wals, P., Tairou, F., Van Allen, M.I., Uh, S.H., Lowry, R.B., Sibbald, B., Evans, J.A., Van den Hof, M.C., Zimmer, P., Crowley, M. and Fernandez, B., 2007. Reduction in neural-tube defects after folic acid fortification in Canada. *New England Journal of Medicine*, *357*(2), pp.135-142.

Dumont, A., Fournier, P., Abrahamowicz, M., Traoré, M., Haddad, S., Fraser, W.D. and QUARITE research group, 2013. Quality of care, risk management, and technology in obstetrics to reduce hospital-based maternal mortality in Senegal and Mali (QUARITE): a cluster-randomised trial. *The Lancet*, *382*(9887), pp.146-157.

Duysburgh, E., Zhang, W.H., Ye, M., Williams, A., Massawe, S., Sié, A., Williams, J., Mpembeni, R., Loukanova, S. and Temmerman, M., 2013. Quality of antenatal and childbirth care in selected rural health facilities in Burkina Faso, Ghana and Tanzania: similar finding. *Tropical Medicine & International Health*, *18*(5), pp.534-547.

Escribano-Ferrer, B., Cluzeau, F., Cutler, D., Akufo, C. and Chalkidou, K., 2016. Quality of Health Care in Ghana: Mapping of Interventions and the Way Forward. *Ghana Medical Journal*, *50*(4), pp.238-247.

Fournier, P., Dumont, A., Tourigny, C., Dunkley, G. and Dramé, S., 2009. Improved access to comprehensive emergency obstetric care and its effect on institutional maternal mortality in rural Mali. *Bulletin of the World Health Organization*, *87*(1), pp.30-38.

Gage, A.J., 2007. Barriers to the utilization of maternal health care in rural Mali. *Social science & medicine*, *65*(8), pp.1666-1682

Geelhoed, D.W., Visser, L.E., Asare, K., van Leeuwen, J.H.S. and van Roosmalen, J., 2003. Trends in maternal mortality: a 13-year hospital-based study in rural Ghana. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *107*(2), pp.135-139.
Gessessew, A., Ab Barnabas, G., Prata, N. and Weidert, K., 2011. Task shifting and sharing in Tigray, Ethiopia, to achieve comprehensive emergency obstetric care. *International Journal of Gynecology & Obstetrics*, *113*(1), pp.28-31.

Gething, P.W., Johnson, F.A., Frempong-Ainguah, F., Nyarko, P., Baschieri, A., Aboagye, P., Falkingham, J., Matthews, Z. and Atkinson, P.M., 2012. Geographical access to care at birth in Ghana: a barrier to safe motherhood. *BMC public health*, *12*(1), p.991.

Gerein, N., Green, A. and Pearson, S., 2006. The implications of shortages of health professionals for maternal health in sub-Saharan Africa. *Reproductive health matters*, *14*(27), pp.40-50.

Ghana Demographic Health and Health Survey, 2014

Ghana Health Service, Patients' Charter, 2015 [updated]

Ghana Health Service, Annual Report, 2016

Ghana Health Servic, 2014. Annual Report. Accra: Ghana

Ghana Health Service, 2011. Annual Report. Accra: Ghana

Ghana Maternal Health Survey, 2007.

Ghana: WHO Statistical Profile, 2015.

Ghana Statistical Service. Ghana Service Provision Assessment Survey 2002. Survellience Report. Calverton, Maryland: Ministry of Health, Health Research Unit; 2003

Ghana Statistical Service, 2016.Annual Report.

Grepin. K., The Expansion Of Medical Education In Sub-Saharan Africa, 2011

Global Health Workforce Alliance, 2008. Ghana: Implementing National Human Resource

Heiby, J.R., Armbruster, D. and Jacobs, T.A., 2014. Better care for every patient, every time: improving quality in low health systems. *BJOG: An International Journal of Obstetrics & Gynaecology*, *121*(s4), pp.4-7.

Kelley, E. and Hurst, J., 2006. Health care quality indicators project.

Kasse, Y., Jasseh, M., Corrah, T., Donkor, S.A., Antonnio, M., Jallow, A., Adegbola, R.A. and Hill, P.C., 2006. Health seeking behaviour, health system experience and tuberculosis case finding in Gambians with cough. *BMC Public Health*, *6*(1), p.143.

Kirkwood, B.R., Manu, A., ten Asbroek, A.H., Soremekun, S., Weobong, B., Gyan, T., Danso, S., Amenga-Etego, S., Tawiah-Agyemang, C., Owusu-Agyei, S. and Hill, Z., 2013. Effect of the Newhints home-visits intervention on neonatal mortality rate and care practices in Ghana: a cluster randomised controlled trial. *The Lancet*, *381*(9884), pp.2184-2192.

Kobayashi, H., Takemura, Y. and Kanda, K., 2011. Patient perception of nursing service quality; an applied model of Donabedian's structure-process-outcome approach theory. *Scandinavian journal of caring sciences*, *25*(3), pp.419-425.

Loverro, G., Pansini, V., Greco, P., Vimercati, A., Parisi, A.M. and Selvaggi, L., 2001. Indications and outcome for intensive care unit admission during puerperium. *Archives of gynecology and obstetrics*, *265*(4), pp.195-198.

Mensah, R., 2011. Losing lives in the process of giving lives: How is Ghana Dealing with Maternal Mortality. *Feature article at Ghanaweb. com, Saturday*, *23*.

Ministry of Health, 2011. Annual Report Ghana

Ministry of Health,2015. Annual Report. Ghana

Moore, L., Lavoie, A., Bourgeois, G. and Lapointe, J., 2015. Donabedian's structure-process-outcome quality of care model: Validation in an integrated trauma system. *Journal of Trauma and Acute Care Surgery*, *78*(6), pp.1168-1175

Multiple Indicator Cluster Survey, 2011, Ghana

Ness, M.J., Davis, D.M. and Carey, W.A., 2013. Neonatal skin care: a concise review. *International journal of dermatology*, *52*(1), pp.14-22.

Nesbitt, R.C., Lohela, T.J., Manu, A., Vesel, L., Okyere, E., Edmond, K., Owusu-Agyei, S., Kirkwood, B.R. and Gabrysch, S., 2013. Quality along the continuum: a health facility assessment of intrapartum and postnatal care in Ghana. *PLoS One*, *8*(11), p.e81089.

Nutor, J.J., Kayingo, G., Bell, J.F., Joseph, J.G. and Slaughter-Acey, J.C., 2016. Umbilical Cord Care Practices in the Volta Region of Ghana: A Cross Sectional Study.

Ogedegbe, G., Plange-Rhule, J., Gyamfi, J., Chaplin, W., Ntim, M., Apusiga, K., Khurshid, K. and Cooper, R., 2014. A cluster-randomized trial of task shifting and blood pressure control in Ghana: study protocol. *Implementation Science*, *9*(1), p.73.

Orazulike, N., Fiebai, P. and Uzoigwe, S., 2009. O725 The effect of antenatal care on maternal mortality in Port Harcourt, Nigeria. *International Journal of Gynecology & Obstetrics*, *107*, p.S301.

Paediatric Society of Ghana, 2016. *Annual Report*

Pell, C., Meñaca, A., Were, F., Afrah, N.A., Chatio, S., Manda-Taylor, L., Hamel, M.J., Hodgson, A., Tagbor, H., Kalilani, L. and Ouma, P., 2013. Factors affecting antenatal care attendance: results from qualitative studies in Ghana, Kenya and Malawi. *PloS one*, *8*(1), p.e53747.

Poku, Y.A., Antwi, E., Kwakye, K.O., Tetteh, C., Antwi, P. and Detoh, E.K., 2015. Quality of care: a review of maternal deaths in a regional hospital in Ghana. *African journal of reproductive health*, *19*(3), pp.68-76.

Riess, H., 2015. The impact of clinical empathy on patients and clinicians: understanding empathy's side effects. *AJOB Neuroscience*, *6*(3), pp.51-53.

Saleh, K., 2013. *The Health Sector in Ghana: a comprehensive assessment*. World Bank Publications.

Senah, K., 2003. Maternal mortality in Ghana: the other side. *Institute of African Studies Research Review*, *19*(1), pp.47-55.

Sika Avortri, G., Beke, A. and Abekah-Nkrumah, G., 2011. Predictors of satisfaction with child birth services in public hospitals in Ghana. *International journal of health care quality assurance*, *24*(3), pp.223-237.

Simkhada, B., Teijlingen, E.R.V., Porter, M. and Simkhada, P., 2008. Factors affecting the utilization of antenatal care in developing countries: systematic review of the literature. *Journal of advanced nursing*, *61*(3), pp.244-260.

Singh, K., Speizer, I., Handa, S., Boadu, R.O., Atinbire, S., Barker, P.M. and Twum-Danso, N.A., 2013. Impact evaluation of a quality improvement intervention on maternal and child health outcomes in Northern Ghana: early assessment of a national scale-up project. *International journal for quality in health care*, *25*(5), pp.477-487

Sword, W., Heaman, M.I., Brooks, S., Tough, S., Janssen, P.A., Young, D., Kingston, D., Helewa, M.E., Akhtar-Danesh, N. and Hutton, E., 2012. Women's and care providers' perspectives of quality prenatal care: a qualitative descriptive study. *BMC pregnancy and childbirth*, *12*(1), p.29.

The national Community Based Health Planning and Services Policy, 2016,

Twum-Danso, N.A., Akanlu, G.B., Osafo, E., Sodzi-Tettey, S., Boadu, R.O., Atinbire, S., Adondiwo, A., Amenga-Etego, I., Ashagbley, F., Boadu, E.A. and Dasoberi, I., 2012. A nationwide quality improvement project to accelerate Ghana's progress toward Millennium Development Goal Four: design and implementation progress. *International Journal for Quality in Health Care*, *24*(6), pp.601-611.

Tunçalp, Ö., Were, W.M., MacLennan, C., Oladapo, O.T., Gülmezoglu, A.M., Bahl, R., Daelmans, B., Mathai, M., Say, L., Kristensen, F. and Temmerman, M., 2015. Quality of care for pregnant women and newborns—the WHO vision. *BJOG: an international journal of obstetrics & gynaecology*, *122*(8), pp.1045-1049.

Van den Broek, N.R. and Graham, W.J., 2009. Quality of care for maternal and newborn health: the neglected agenda. *BJOG: An International Journal of Obstetrics & Gynaecology*, *116*(s1), pp.18-21.

Varatharajan D, D'Almeida S, Joses K. Obstacles in the Process of Establishing a Sustainable National Health Insurance Scheme: Insights from Ghana [Internet]. Geneva: WHO; 2010

Waldenström, U., Brown, S., McLachlan, H., Forster, D. and Brennecke, S., 2000. Does team midwife care increase satisfaction with antenatal, intrapartum, and postpartum care? A randomized controlled trial. *Birth*, *27*(3), pp.156-167.

World Health Organization, 2007. Intergrated Management of Pregnancy And Childbirth, Standards for maternal and neonatal care.

World Health Organization, 2014. Maternal Mortality Estimation Inter-Agency Group

World Health Organization, 2014. The prevention and elimination of disrespect and abuse during facility-based childbirth: WHO statement.

World Health Organization, 2015. *World health statistics 2015*. World Health Organization.

World Health Organization, 2016. Standard for Improving Quality of Maternal and Newborn In Health Facilities.

Yakoob, M.Y., Ali, M.A., Ali, M.U., Imdad, A., Lawn, J.E., Van Den Broek, N. and Bhutta, Z.A., 2011. The effect of providing skilled birth attendance and emergency obstetric care in preventing stillbirths. *BMC public health*, *11*(3), p.S7.

Appendix 1

SEARCH TREE