

The Effects of Individual and Community-Level Factors on Maternal Health Outcomes in Ghana

By

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Abstract

The utilization of maternal health care services is imperative to reducing the number of perinatal deaths and postnatal complications amongst pregnant women. Data from the 2014 Ghana Demographic and Health Survey was used to conduct a quantitative study to understand the effects of individual and community-level factors on the uptake of maternal health care services. In addition, policy documents on maternal and child health care in Ghana with respect to antenatal, facility-based delivery, and postnatal care were reviewed to better understand government policies to improve maternal care. The quantitative study used a sample of 4,141 women nested within 427 clusters across Ghana. Multilevel logistic regression models were employed to examine the effects of individual and community-level factors on antenatal, facility-based delivery, and postnatal care. All the quantitative analyses were conducted with sample-weighted data. The quantitative analysis revealed both individual and community-level factors as significant predictors of maternal health outcomes in Ghana. For instance, wealthier women and those with higher education were significantly more likely to utilize antenatal and delivery services in both the rural and urban areas. Distance to health facilities was negatively associated with women's use of maternal health services. The policy documents analyses indicated equity gaps in rural-urban health infrastructure and lack of financial resources to ensure equitable delivery of maternal health care services in Ghana. Policy makers must consider both individual and community-level factors, and women's rights with regard to employment opportunities in addressing barriers to maternal health care in Ghana.

Keywords: Ghana, Maternal Health Outcomes, Individual and Community-Level Factors, Quantitative and Policy Documents Analyses.

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Table of Contents

Abstract	ii
Acknowledgements	iii
Table of Content	v-vii
List of Tables	viii
List of Figures	ix
List of Acronyms/Abbreviations	x-xii
Chapter 1: Introduction	1
1.1 Background & Rationale	1
1.2 Objective of the study	4
1.3 Research Questions	5
1.4 The significance of the study	5
1.5 Research Setting	6
1.6 Thesis Organization	11
Chapter 2	12
2.0 Literature Review	12
2.1 The global trend of inequities in maternal healthcare	12
2.2 Childbirth and post-natal complications among women globally	16
2.3 Maternal health care in Ghana	18
2.4 Living conditions and socio-cultural outcomes in women's decision-making process	22
2.5 Community-level factors and support systems needed to improve maternal health services	26
2.5.1 Systemic/Social factors and maternal health outcomes	26
2.5.2 Health Systems Failure	28
2.5.3 Community and Individual-level factors	30
2.6 Conceptual Framework	33
3.1 Introduction	36

3.2 Quantitative Study Design	36
3.3 Data and Sampling	37
3.4 Questionnaires.....	40
3.5 Measures	42
3.5.1 Dependent Variables	42
3.5.2 Independent Variables.....	44
3.5.3 Community-level factors.....	46
3.6 Analytical Technique	47
3.7 Method for document analysis.....	48
3.8 Ethical Considerations	49
4.0 Introduction.....	50
4.1 Descriptive Characteristics of Individual Women Extracted from the GDHS Database.....	50
4.2 Characteristics of Clusters/Communities.....	55
4.3 Bivariate Analysis	55
4.4 Multivariate Analysis.....	60
Chapter 5: Policy Documents Analyses.....	65
5.0 Introduction.....	65
5.1 Review and description of policy documents	65
5.2 Description of the Five-year Health Sector Program of Work (5YPOW)	67
5.3 Description of the Free Maternal Health Care in Ghana.....	69
5.4 Document Analysis	71
5.4.1 Meeting Objectives of MDGs 4&5	72
5.4.2 Maternal Healthcare under the National Health Insurance Scheme	73
5.4.3 Challenges facing MDG 4&5 indicator targets.....	73
5.4.4 Evaluation of the Free Maternal Healthcare Initiative	74
Table 4: Documents analysis display table on maternal and child health care in Ghana (2004-2014)...	77

Chapter 6: Discussion of Results, Conclusions, and Recommendations	81
6.1 Introduction.....	81
6.2 Limitations of the study	99
6.3 Conclusions.....	101
6.4 Recommendations for policy makers and future research	102
References.....	107

List of Tables

Table 1: A univariate distribution of selected dependent and independent variables, GDHS 2014.....	51
Table 2: Bivariate analyses of Antenatal, delivery and postnatal care for Ghanaian women, 2014.....	57
Table 3: Multivariate analyses of Antenatal, delivery and postnatal care for Ghanaian women, 2014.....	63
Table 4: Documents analysis display table on maternal and child health care in Ghana (2004-2014)	77-80

List of Figures

Figure 1: The Map of Ghana.....	7
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Abbreviations/ Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
CHPS	Community-Based Health Planning and Services
DHS	Demographic Health Survey
DANIDA	Danish International Development Agency
EAs	Enumeration Areas
EmOC	Emergency Obstetric Care
EOC	Essential Obstetric Care
5YPOW	Five-Year Program of Work
GDHS	Ghana Demographic Health Survey
GHS	Ghana Health Services
GMHS	Ghana Maternal Health Survey
GSS	Ghana Statistical Service
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and
IMCI	Integrated Management of Childhood Illness

IMR	Infant Mortality Rate
MAF	Millennium Development Acceleration Framework
MTHS	Medium Term Health Strategy
MDG 5	Millennium Development Goal five
MDGs	Millennium Development Goals
MHC	Maternal Health Care
MHC	Maternal Health Channel
MMR	Maternal Mortality Ratio
MOH	Ministry of Health
NAS	National Ambulance Service
NGOs	Non-Governmental Organizations
NHIA	National Health Insurance Authority
NHIS	National Health Insurance Scheme
OR	Odd Ratios
PCA	Principal Component Analysis
PHC	Population and Housing Census
PMMP	Prevention of Maternal Mortality Program

PPME	Policy, Planning, Monitoring and Evaluation
PPH	Post-partum Hemorrhage
STIs	Sexually Transmitted Infections
SBA	Skilled Birth Attendance
SPSS	Statistical Package for the Social Sciences
SSA	sub-Saharan Africa
TBA	Traditional Birth Attendant
TBAs	Traditional Birth Attendants
TFR	Total Fertility Rate
UMR	Under-Five Mortality Rate
UNDP	United Nations Development Program
UN	United Nations
UNFPA	United Nation Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Chapter 1: Introduction

1.1 Background & Rationale

Reproductive health and for that matter, maternal health is considered both a public health and a human rights issue according to the United Nations (UN, 1995). However:

“Maternal deaths in developing countries are often the ultimate tragic outcome of the cumulative denial of women's human rights. Women are dying not because of untreatable diseases. They are dying because societies have yet to make the decision that their lives are worth saving. Maternity is a social function and not a disease. When women are risking death to give life, they are entitled to have their own right to life and health protected. Societal attitudes of looking at women as means and not ends have resulted in the denial of women's rights to essential maternity services” (Fathalla, 2006, p. 409).

Unsurprisingly, research studies have shown that improved obstetric care reduces rates of morbidity and mortality among pregnant mothers and their newborns (Bohren et al., 2014; Amoakoh-Coleman et al., 2015; Ganle et al., 2014, 2015; Abor et al., 2011; Crissman et al., 2013). Mangham-Jefferies et al. (2014) have also observed that the distributions of obstetric services are scarce in poorly resourced countries with high rates of maternal mortality and morbidity. Ghana has been identified as a poorly resourced country in sub-Saharan Africa (SSA) with high rates of maternal mortality and morbidity. Poor utilization of resources as well as inadequate access to antenatal and postnatal care contribute to the high maternal mortality ratio (MMR) in Ghana (Tuncalp et al., 2014; GSS, 2013).

Maternal access to prenatal care is vital to reducing perinatal deaths and postnatal complications among women, especially at the community level. Pregnant women's access and

use of prenatal services offer them opportunities to be examined by skilled attendants for early identification of abnormal signs in pregnancy, and early treatment to avoid complications during labor (Gross et al., 2011; Magadi et al., 2000). However, the scope of literature shows contextual factors as significant predictors of maternal healthcare utilization (Abekah-Nkrumah et al., 2011; Osorio et al., 2014; Gage, 2007). These factors include: household and community-level poverty, geographical distance, poor road networks and the lack of availability of care.

Most studies that examine utilization of maternal healthcare services in SSA have focused largely on individual-level explanations to the neglect of contextual and community-level explanations. Notable exceptions are studies by Babalola & Fatusi (2009); Yebo et al. (2014); and Magadi et al. (2000) in which they examine community-level factors in SSA. These studies examined the effect of distance, residence, and the availability of health facilities and human resources on the uptake of (antenatal care) ANC. The dearth of such studies could possibly be due to the lack of aggregate-level data that provides direct measures of community-level factors in the sub-region.

There is evidence that Ghana's MMR has declined from 740/100,000 live births in 1990 to 319/100,000 live births in 2015 (WHO 2015). While this reduction is significant, experts and policy makers have bemoaned the slow pace at which the declines have occurred and have subsequently attributed this to lack of maternal health interventions at the community level. It is not surprising that policy documents regarding reproductive health care in Ghana have been silent on the relevance of community-level interventions to maternal health utilization. To date, the Ministry of Health (MOH) in Ghana has focused on restructuring and increasing the training of middle level health workers to oversee the growing number of Community-Based Planning

and Service (CHPS) compounds (facilities) to provide health care services to the populace in the hard-to-reach areas in the country (MOH, 2011, 2013, 2014). Although, the construction of CHPS compounds and zones are vital community-level interventions for the provision of maternal health care services, the problems with long distance travels, poor road networks, household poverty and lack of transportation could prevent pregnant women from accessing health care in CHPS.

Although, there are several studies on the effects of individual factors on maternal health service utilization in Ghana, very little attention has been paid to community-level characteristics and its impact on maternal health outcomes (see e.g., Abor et al., 2011; Doku et al., 2012; Gyimah et al., 2006). The lack of understanding surrounding community-level factors can hamper the efforts made in training health personnel and deploying them to remote areas in Ghana. The few scholarly articles that have explored the impact of community-level factors on maternal health services utilization have focused on a handful of communities; usually consisting of small sample sizes using qualitative research practices (see e.g., Moyer et al., 2012; Moyer et al., 2013a; Dako-Gyeke et al., 2013; Ganle, 2014). The results of these studies, therefore, lack generalizability, making it difficult to apply it in predicting the wellbeing of most pregnant women in Ghana.

This research study examines the influence of:

- 1.) Community-level factors (place of residence, distance to health facility, poor road networks, and community poverty) as well as;

- 2.) Individual-level factors (age, marital status, parity, religion, ethnicity, educational status of women and that of their partners' and household wealth index) on maternal health outcomes in Ghana.
- 3.) Review policy documents on maternal and child health care in Ghana with respect to ANC, facility-based delivery and postnatal care will be done to better understand government policies to improve maternal care
- 4.) Influence of policies on individual and community-level factors on maternal health care services among pregnant women in Ghana.

The study utilizes the GDHS 2014 data set, in addition to a comprehensive review of policy documents on maternal and child health care in Ghana with respect to ANC, facility-based delivery, and postnatal care. Utilizing the most recent GDHS data provides the opportunity to examine the impacts of community-level determinants beyond individual-level factors on maternal health outcomes in Ghana. It is hoped that the findings of this study will inform policy makers about the need to develop community-level interventions in addressing the maternal health challenges facing the country.

1.2 Objective of the study

The aim of this study is to explore data from the 2014 GDHS to better understand the influences of individual and community-level factors on maternal health outcomes among pregnant women in Ghana in relation to the use of three specific health services: ANC, facility-based delivery or supervised delivery and postnatal care. In addition, review of policy documents on maternal and child health care in Ghana with respect to ANC, facility-based delivery and postnatal care will be done to better understand government policies to improve maternal care;

and the reality of lack resources to improve community-level facilities. By using nationally representative data sets from GDHS 2014, this study provides a new perspective that fills a knowledge gap by providing insight into the effect of community-level factors on maternal health outcomes. This research study contributes to the growing body of literature on maternal health in Ghana.

1.3 Research Questions

This research aims to address the following questions:

- 1) In what ways do individual and community-level factors determine the uptake of maternal health services (ANC, facility-based delivery, and postnatal care) aimed at improving maternal health outcomes in Ghana?
- 2) What policies exist for safe pregnancy and child delivery in Ghana?
- 3) How do these policies address or influence the effects of individual and community level factors on maternal health care services among pregnant women in Ghana?

1.4 The significance of the study

This study is valuable to healthcare providers in reproductive and child health, research and policy-making. In terms of practice, the study suggests strategies that will assist health professionals to improve the uptake of maternal health care services among pregnant mothers to avoid pregnancy and child birth-related complications. The result of this study might help shape experts' knowledge on the challenges confronting pregnant women in their quest for quality maternal health care services in all regions in Ghana. Quality maternal health care is important to both the mother and the unborn child. Therefore, all impediments associated with the provision

and usage of such services by women must be overcome to ensure healthy pregnancy outcomes, especially among the urban slums and rural areas. In addition, research results from the study may also inform policy makers and donor agencies on the causes of the regional differences in maternal and infant health in Ghana, particularly in the peri-urban and rural Ghana. This will be done through presentations to policy makers in the MOH-Ghana, and various donor agencies. Also, copies of the research findings will be given to the policy makers and donor agencies for their perusal. This will help to promote evidence-based policy-making to address the challenges women face while pregnant, specifically the inadequacy of medical professionals and community health facilities to care for pregnant women.

Finally, this study contributes to knowledge in maternal and child health care; and serves as a reference document for future research on reproductive health in Ghana.

1.5 Research Setting

Ghana is located on the West African coast of the continent of Africa with a total land area of 238,537 square kilometres (see Fig. 1 for details). Ghana is surrounded by three French-speaking countries; Togo on the east, Burkina Faso on the north and northwest, and Côte d'Ivoire on the west. The Gulf of Guinea lies to the south and stretches across the 560-kilometre coastline. The highest mountain in Ghana is Mt. Afadjato, 884 metres above sea level, and it is situated in the Akuapem-Togo ranges, particularly, on the western part of the Volta River. Ghana has three ecological zones; they include “the low, sandy coastal plains, with quite a few rivers and streams; the middle and western parts of the country, characterised by a heavy canopy of semi-deciduous rainforests, with many streams and rivers; and a northern savannah, which is drained by the Black and White Volta Rivers. The Volta Lake, created by the hydroelectric dam

in the East, is one of the largest artificial lakes in the world” (GSS, 2015, p.1). See figure 1 below for details.

Figure 1. Map of Ghana



Source: Atlas Ghana (2012)

Ghana gained independence from British colonial rule on the 6th of March in 1957, and became a republic on the 1st of July in 1960 with Accra as its administrative and political capital. It was formerly called the Gold Coast with Cape Coast as its capital. Ghana operates a multi-party

democracy with an executive president who is elected for a term of four years with a maximum of two terms. Ghana elects its members of parliament every four years with support of the judiciary, and the media (GSS, 2015). Ghana has ten (10) administrative regions. These are Western, Central, Greater Accra, Volta, Eastern, Ashanti, Brong Ahafo, Northern, Upper East, and Upper West. The regional capitals of the various regions in Ghana are Sekondi-Takoradi, Cape Coast, Accra, Ho, Koforidua, Kumasi, Sunyani, Tamale, Bolgatanga and Wa, respectively. Ghana's population was projected at 27 million in 2014 (GSS 2013a). About 50 percent of the Ghana's population are found in the following regions; Ashanti, Eastern, and Greater Accra. The Upper East is the least populated region among the ten, which accounts for only 2 percent of the total population of Ghana. These regions are further divided into 216 districts to safeguard fair distribution of resource and effective administrative work at the local level or district level (GSS, 2013b; GSS, 2015).

Ghana is made up of numerous ethnic groups, with the Akans being the majority group (48 percent) which results in power relations. This is followed by the Mole-Dagbani (17 percent), Ewe (14 percent), Ga-Dangme (7 percent), and others (GSS, 2015). Ghana is predominantly a Christian country with about 71.2 percent of the population being followers of the various Christian denominations in the country. Islam is the second most recognized religion in Ghana forming about 17.6% of the population, with a small percentage of the Ghanaian population being traditionalist (5.2 %) or not affiliated to any religion (5.3%). The majority of Christians are found in southern Ghana whereas Moslems are dominant in the three Northern regions. The Northern regions and most Moslem communities are associated with low socioeconomic status compared to the regions in Southern Ghana, and Christians in general.

Nonetheless, most rural and urban slum areas in Southern Ghana are associated with abject poverty and poor provision of maternal health care services (GSS, 2012, 2015).

Approximately 45 percent of the active work force in Ghana is employed in the agriculture industry, and 41 percent are in the services industry. Majority of the self-employed people living in rural areas are involved in agriculture; while those living in urban areas are wage earners (GSS, 2014, 2015). Cocoa is the primary export commodity in Ghana, which is followed closely with gold and timber. These commodities are supported by the export of non-traditional commodities such as pineapples, bananas, yams, and cashew nuts. Ghana in 2010 started extracting crude oil in larger quantities, making Ghana one of the fastest growing middle-income economies in sub-Saharan Africa (Kastning, 2011; GSS, 2015; Cooke et al., 2016).

The economy of Ghana has grown steadily by about 7% annually since 2005 with a relatively high per capita income. However, this increase in economic growth has not translated into higher income for everyone; high levels of inequalities continue to exist, with high poverty levels in the rural and peri-urban areas compared to the urban centers (GSS, 2014; Cooke et al., 2016). According to the 6th Ghana Living Standards Survey, 29.5% men are engaged in wage employment in contrast to women (11.7%). A large number of women are engaged in household tasks without receiving any remuneration for it (GSS, 2014). This is not surprising since a higher proportion of men (18.60%) are enrolled in tertiary educational institutions compared to women (12.42%). Moreover, there is a significant gap in school enrolment between rural and urban Ghana in all levels of education (GSS, 2010). Significant improvements have been seen in the lives of individuals living in the bottom 10% since 2006 compared to other decades, but the high inequality rate in Ghana continuous to hamper poverty reduction in Ghana (Cooke et al., 2016).

The MOH Ghana is responsible for the health of the citizenry in Ghana through the formulation of health policies, setting standards for the delivery of health care in the country. The MOH also provides strategic direction for health delivery services and mobilizes both human and financial resources for health care delivery in the entire country. The MOH monitors and evaluates the health service delivery by the GHS, the teaching hospitals, other health agencies, development partners and the private sector. The GHS is an autonomous executive agency directorate responsible for the implementation of national policies under the control of MOH through its governing council (the Ghana Health Service Council). The GHS has eleven (11) directorates. Some of which are Office of the Director General, Family Health, Finance, Health Administration and Support Services, Human Resources, Institutional Care, Internal Audit. Others include Policy, Planning, Monitoring and Evaluation; Public Health, Research and Development; Supplies, and Stores and Drugs Management (GHS Web, 2015).

The GHS has 10 regional health directorates located in the ten administrative regions, which ensures decentralization of health care delivery in Ghana. Therefore, the health services structure in Ghana is integrated as one that goes down the hierarchy from the national level to the sub-district level and vice versa. The regional health directorates house its office in the ten-regional capitals and the district health directorates are housed in district capitals of the 216 districts. The GHS is structured through the afore-mentioned levels to develop appropriate strategies and set technical guidelines to achieve the Ghana national policy goals or objectives.

The mandate of the GHS is as follows: to ensure proper management and administration of resources within the health sector, to promote healthy living and good health habits for all Ghanaian; to create effective and efficient mechanisms for disease surveillance, prevention and

control in Ghana, and to determine health service charges for Ghanaians with the approval of the Minister of Health. Other roles of the GHS include the delivery of in-service training and continuing health education in Ghana and the performance of any additional functions applicable to the promotion, protection and restoration of health in Ghana.

The GHS runs a Priority Health Intervention programs to enhance the well-being of Ghanaians which includes disease control, services, surveillance and intersectoral collaboration and action. The disease control department oversees the following programs: HIV/AIDS and STI Prevention and Control, Tuberculosis (TB) and Buluri Ulcer Control, Malaria Control, Guinea worm Eradication, Expanded Program on Immunization (EPI) including Polio Eradication and Measles Elimination, and Non-Communicable Disease Prevention and Control. The service areas include Maternal and Reproductive Health Services, Child and Adolescent Health Services, and Accident and Emergency Services.

The focus of this study is on one of the priority areas listed in the services category which is Maternal and Reproductive Health Care Services in the ten regions of Ghana.

1.6 Thesis Organization

The thesis is organized into six (6) chapters, including this introductory chapter. Chapter two (2) provides the review of related studies and the conceptual framework. This is followed by chapter three (3) which explains the methods employed for the study. Chapter four (4) focuses on the results and chapter five (5) examines policy documents and includes analyses. Chapter six (6) provides discussions of the empirical results of the study, a summary of key findings, as well as policy implications, conclusions and recommendations.

Chapter 2

2.0 Literature Review

The focus of the literature review is to position my research in relation to existing reproductive health literature. The goal is also to probe further into what has not yet been considered or explored. There is a growing body of literature on maternal healthcare, especially in the developing world. Many of these studies have focused on the causes of maternal deaths and factors that affect utilization of maternal healthcare services by women.

This chapter is organized under five main sub-headings. The first section examines global trends of inequities in maternal healthcare in developing countries. The second section focuses on a review of studies on childbirth and post-natal complications amongst women. The third section reviews past studies on the living conditions and socio-cultural aspects in women's decision-making process on maternal health outcomes. The fourth section of the review focuses on community-level factors and support systems needed to improve maternal health outcomes. The final section of this chapter covers the conceptual framework used for the study.

2.1 The global trend of inequities in maternal healthcare

Wide gaps still exist in the accessibility and provision of prenatal, perinatal and postpartum care for mothers and infants in nations worldwide (Duysburgh et al., 2015; WHO, 2014). Even in a high-income country, like the United States, women continue to suffer varying degrees of maternal morbidity during labor and the postpartum period due to socio-economic disparity and lack of access to health care for women in certain communities, and ethnic groups (Callaghan, Creanga & Kuklina, 2012).

In 2013, the global maternal mortality was estimated as 289 000 deaths (WHO, 2015). The global maternal mortality ratio (MMR) of 210 deaths/100,000 live births remain extremely high, with about 99% of these deaths occurring in developing nations and the majority taking place SSA (Srivastava et al., 2015; WHO, 2015 & WHO, UNICEF, 2012). Pregnancy and childbirth are the leading causes of death and disability among women of reproductive age in developing nations with almost half occurring in SSA (Ashford, 2013; Adu-Bonsaffoh et al., 2013; Asamoah et al., 2011 & Alvarez et al., 2009). Although SSA accounts for almost half of the total global maternal deaths, there are no simple solutions to improve the high MMR. Improvements require more holistic approaches and not merely change to health care delivery (Alvarez et al., 2009; Moyer, 2012; WHO, 2015). The reasons for these poor outcomes are a result of weaknesses in the health systems in the region, failing to provide the needed care to expectant mothers, and lack of willingness on the part of governments to support initiatives that benefit the welfare of women (Alvarez et al., 2009; Moyer, 2012). Duysburgh et al. (2013) have also stated the lack of health facilities, skilled workers, and equipment to monitor the progress of pregnancy in rural communities of developing countries of SSA are some of the reasons for high maternal and infant mortality.

Similar to Ghana, previous studies have shown that the use of maternal health care services is very low in India and Bangladesh. This has been attributed to disparities in the provision of health care services, coupled with the low rates of education of women and low socio-economic status of women. These factors prevent women from accessing maternal and reproductive health care services, which have resulted in the high rates of maternal mortality and morbidity in the two countries (Padmanaban et al., 2009; Edmonds et al., 2012; Sanneving et al., 2013; Kumar et al., 2013; Singh et al., 2014). The disparities in both countries are compounded

by long distance travels and the poor road networks from one community to the next available health facility in rural areas; subsequently resulting in high cost of travel to facilities (Kumar et al., 2012; Edmonds et al., 2012). The maternal mortality figures for both countries in 2010 were considered to be one of the highest by the WHO, however, the estimates for both countries were significantly improved by the end of 2015 (WHO, 2015).

Olusegun et al. (2012) has attributed the high rates of deaths among pregnant women and their newborns in Nigeria to poor socio-economic development, weak health care system and socio-cultural barriers to maternal healthcare utilization. The study suggested that improved child survival intervention and expert obstetric care should be designed to save women during the periods of pregnancy, childbirth and post-natal period. Socio-cultural inequities have also been indicated as influencing poor health outcomes, particularly during pregnancy and after childbirth in Nigeria (Ndep, 2014; Olusegun et al., 2012; Sialubanje et al., 2015). The 2014 MMR estimates for Nigeria (560 deaths /100 000 live births) support the above statement (WHO & UNFPA, 2014), and highlights how women in SSA are dying as a result of poor health systems and the lack of governance to develop community-level interventions to prevent maternal deaths.

In short, maternal health care depends on the entire health system of a nation and on the availability of human resources and logistics to run an effective service to improve maternal health outcomes. The wide inequalities that exist in the use of maternal health services between various geographical regions in developing countries account for the high MMR in SSA (Srivastava et al., 2015; WHO & UNICEF, 2012; Ashford, 2013; Adu-Bonsaffoh et al., 2013; Asamoah et al., 2011& Alvarez et al., 2009). High MMR will continue to prevail in SSA if the health systems are not strengthened at all levels to provide comprehensive care to women during

pregnancy, labour and postpartum (Alvarez et al., 2009). Also, the lifetime experiences of women in SSA with respect to societal neglect and deprivation due to patriarchy need to be changed, and offer women the needed support in the fight against high MMR (African Progress Panel, 2010). This means that education of girls should be considered a right in the sub-region and designed to empower women to take charge of their sexuality and reproductive lives.

Researchers have identified evidence-based health policy as an approach to significantly reduce the global maternal and childbirth mortality and morbidity (Munar et al., 2015; Bose et al., 2015 & Kendall & Langer, 2015). Participants in a recent study echoed the need for health systems approach to critically examine the root causes of maternal deaths in developing countries, and suggest using pragmatic interventions to improve the maternal health problems in the milieu of such nations (Kendall & Langer, 2015). According to Bose and colleagues, improvement in public policy and public health interventions in nations with poor pregnancy outcomes are vital in reducing maternal and infant mortality and morbidity. Equally important public policies are required to ensure a rigorous health registration systems and maintenance of vital records to provide valuable data to monitor pregnancy and health outcomes by international and local communities (Bose et al., 2015; Say et al., 2014). The availability of data on maternal death, allows for the analysis of cases among various groups involved in the care of pregnant women at different levels of the health care system. This enables experts and researchers to determine where inappropriate actions or gaps exist that need to be addressed in the future to avoid maternal mortality or morbidity (Iyer et al., 2013). Again, it is recommended that health workers at all levels in the health care system keep full records on the causes of maternal mortality, including socio-demographic characteristics of all mothers who die from complications of childbirth (such as anesthesia, obstetric surgery, embolism, and uterine

rupture). Proper data will make it easier to identify the causes of deaths and be better able to design programs to reduce the rampant pregnancy-related deaths, particularly in the district hospitals and community health centers (Asamoah, 2014).

2.2 Childbirth and post-natal complications among women globally

Global data on maternal health outcomes indicate that women are still dying from pregnancy-related and childbirth-related complications. Many of these deaths occurred in developing countries, despite the MDG 5 goal to reduce maternal deaths by the end of 2015 and beyond (Ohaja, 2014; WHO, 2014). One of the main reasons why this happens to women in poorly resourced countries is the inadequacy of human resources for obstetric care and lack of training and supervision for traditional birth attendants (TBAs) who perform these services in the rural areas. Although women in rural areas prefer TBAs, their inability to detect post-partum complications puts the lives of the pregnant women in danger (Mahiti et al., 2015). Again, women's perception of TBAs and the cultural acceptability of service delivery in their own environment, together with the low cost of delivery put them at the risk for increased complications associated with childbirth and post-partum care (Ebuehi, & Akintujoye, 2012). Aminu et al. (2014) identified the following factors as some of the causes of stillbirth in developing countries: maternal disease, congenital anomalies, intrapartum causes and trauma, umbilical causes, and placental conditions. The authors, however, concluded that the lack of antenatal services in developing countries, due to the absence of health facilities and skilled attendants, were the main reasons for the numerous stillbirths. It should be noted, however, that in rural areas, access to skilled birth attendants is limited and women have to depend on TBAs for assistance during labor and delivery.

For some researchers, post-natal complications among women of childbearing age in developing countries are the consequences of insufficient access to emergency obstetric care (EmOC) at the community level (Essendi et al., 2011; Holmer et al., 2015). The existing structural social inequalities in addition to the absence of EmOC facilities in various communities may explain the reason for high pregnancy-related complications in developing countries. Furthermore, considerations of the social contexts in poorly resourced countries, such as female education, poverty reduction programs, well laid out road networks and employment opportunities are identified as factors that improve maternal health outcomes. Unfortunately, these factors are absent in several developing countries (Holmer et al., 2015). Similarly, the lack of autonomy on the part of women in decision-making at the family level is also an issue. For example, dealing with issues of autonomy surrounding the management of women's pregnancies and labor is a major factor contributing to childbirth and postnatal complications in developing countries (Essendi et al., 2011). Furthermore, women are not able to make decisions about their own care throughout pregnancy, but instead have to listen to their husbands or mother-in-law and this may predispose them to pregnancy-related complications. This can be linked to the first stage of the three delays that result in maternal mortality and morbidity according to Thaddeus & Maine (1994) - the delay in decision to seek care. The first stage of delay in turn affects the other two delays, which are the delay in reaching the appropriate facility and delay in receiving adequate care in the facility. For instance, Thaddeus and Maine argued:

“the delay in seeking care is related to having the knowledge to recognize a life-threatening problem and making the decision to go for care. The delay in reaching care results from inaccessibility of health services due to distance, poor infrastructure, lack of money, or other barriers to access. The delay in

receiving care, refers to problems in content and quality of maternal health care services” (Thaddeus & Maine, 1994; cited in GSS/GHS, 2009 p.1).

2.3 Maternal health care in Ghana

The general state of maternal health care in Ghana is similar to other developing countries such as India, Bangladesh, Nigeria, and many other countries in SSA. For instance, in Ghana, maternal mortality represents 14% of all deaths among females and this calls for structural changes to ensure quality of care throughout pregnancy and childbirth (Ganle et al., 2015; Ganle, 2014). Ghana has made strides in reducing MMR from 740 deaths/100 000 live births in the 1990s to 319/100,000 live births in 2015. Notwithstanding this achievement, the MMR for Ghana could be further reduced if low rates of female education, patriarchal values, religious beliefs, and poor road infrastructures, in hard to reach areas, are prioritized at the community level by governments over the years (Daniels et al., 2013; Ganle et al., 2015; Banchani & Tenkorang, 2014; Abugri-Akum, 2013 & Moyer et al., 2014). Adequate health infrastructure, human resources and adequate road networks at the community level could reduce the three delays in childbirth outlined by Thaddeus & Maine (1994), and are now considered the root causes of maternal deaths namely; delay in seeking care, delay in arrival at a health facility and delay in the provision of adequate care.

In addition, other empirical studies (see Dako-Gyeke et al., 2013 and Moyer, 2012) in urban Accra have indicated that facility-based delivery rates have increased, but maternal mortality rates continue to rise, despite the availability of modern health facilities in Accra, the capital of Ghana, to deal with the situation. These studies attributed this problem to the ingrained belief systems of pregnant women and therefore, suggested that women were reluctant to use modern facilities for maternal care services. The studies recommended that practical and

accessible national health policies are needed to educate women on the importance of the uptake of maternal services and ensure there is a clear reporting system for client complaints. These changes could create an enabling environment which would serve to improve the situation in urban Accra (Dako-Gyeke et al., 2013; Moyer, 2012). However, these authors did not take into account the inability of the women to pay for indirect service charges in public health facilities, full user fees in some private health facilities and lack of client satisfaction as important deterrents as to why women fail to use modern health facilities. Also, long distance travel to health facilities, lack of privacy, poor quality of care and the difficulty in traveling with their spouse to during labor could deter pregnant women from facility delivery. The failure of pregnant women to use facility-based delivery could also depend on their lack of understanding of complications associated with pregnancy and childbirth and how best skilled attendants can reduce or avoid such risks in health care facilities (Koblinsky et al., 2006; Bazzano et al., 2008; Moyer et al., 2013). This makes it difficult for some pregnancy-related complications to be diagnosed and treated. Mortality measures are useful in recognizing the health status of a given society over time that is beneficial in improving maternal and child health outcomes in Ghana (GSS, 2015).

Review of literature on childbirth and post-natal complications in Ghana also point to pregnancy-induced hypertensive disorders and hemorrhage as the major causes of death among pregnant women compared to other causes within health facilities and communities. However, it is important to note that poverty and lack of awareness on the complications of pregnancy are important causes behind both pregnancy-induced hypertensive disorders and hemorrhage at all levels of the Ghanaian society (Der et al., 2013; Asamoah et al., 2011). The results of the Ghana Maternal Health Survey (GMHS) in 2007 cited hemorrhage as the largest single cause of

maternal deaths. In addition, induced-abortion according to GMHS, accounted for more than one in ten maternal deaths. The obstetric risk from induced abortion is topmost among young women age 15-24 (GSS & GHS, 2009). Rominski et al. (2014) reports that women who are educated, young and unmarried are more likely to seek abortion services than women who are not educated, older and married which confirms the findings of GMHS 2007. In Ghana, the belief system of older and married women could prevent them from seeking abortion services during pregnancy.

Unsafe abortions have been identified as one of the main causes of maternal death in Ghana accounting for about 10% of all maternal deaths; a significant number of women who survive, live with several degrees of complications (perforation of the uterus, bleeding, infections, and lower abdominal pains). The most affected age group is 15-24 years (GSS/GHS, 2009). The increase in rates of unsafe abortions among women of reproductive age are often a result of lack of money to access professional services, non-availability of the services, and Ghana's inability to integrate safe abortion into national reproductive health policy until 2003 (IPAS, 2008). Religious beliefs also contribute to the use of unsafe abortions as a means of hiding it to avoid public stigma (GSS/GHS, 2009; Henry & Fayorsey, 2002; IPAS, 2008; Sedgh, 2010; Morhee & Morhee, 2006; Senah, 2003). Furthermore, education around family planning is low and often women have no choice but to access illegal and unsafe abortion to address unwanted pregnancies (Oduro & Otsin, 2014; Rominski et al., 2014). Rominski et al. (2014) also identified the organization of Ghanaian health system as barriers to safe abortion practices; and acknowledged individual and community-level factors for the rise in the practice of unsafe abortions in rural Ghana. Aniteye (2012) indicates the openness of public health facilities and the making comprehensive abortion care accessible for a fee to all women interested in abortion

services in Ghana would stop them from using the clandestine services of untrained abortion providers. She further suggests that service providers need to change their attitudes towards their clients by providing non-judgmental, confidential, user-friendly, quality abortion services that respect the patient. This would reduce the high number of maternal deaths resulting from unsafe abortions in Ghana (Aniteye, 2012).

In addition, two recent studies in Ghana have revealed that social factors delay pregnant women in accessing facility delivery. Some researchers have identified that men are not directly involved in issues regarding pregnancy and childbirth as a result of societal norms, but their role as family heads and having the power to make decisions concerning place of delivery can lead to complications (Moyer et al., 2013, 2014). One of the reasons which stood out was that women with low socio-economic backgrounds who lived in deprived areas in Ghana refused to utilize health facilities in their communities due to high direct and indirect costs, lack of information on service availability and past negative experiences with health providers (Koblinsky et al., 2006; Hounton et al., 2008; Bazzano et al., 2008; Moyer et al., 2013). In addition, socio-cultural influences on expectant mothers at the community-level, plays an important role in preventing the use of skilled birth attendants. For example, most women residing in rural communities and peri-urban areas in Ghana prefer home delivery to facility-based delivery due to the fear of losing their social status, privacy, and control over the birth process (Bazzano et al., 2008; GSS, 2009; Asamoah, 2014).

Another source of childbirth and post-natal complications in Ghana is anemia in pregnancy, which is mostly caused by malaria infection, worm infections, HIV, sickle cell disease, and poverty due to poor living conditions (Wilson et al., 2011). The living conditions of

women and socio-cultural factors at the community-level impact pregnancy outcomes and needs to be addressed by experts to reduce childbirth complications in Ghana.

2.4 Living conditions and socio-cultural outcomes in women's decision-making process

The importance of decision-making with regard to prenatal, perinatal and postnatal care for pregnant woman cannot be over-emphasized in the global fight against maternal mortality. Informed decision-making in obstetric care among pregnant women is considered essential and research has revealed its benefit to the mother, baby, family, and society (Goldberg, 2009). Although women's role in decision-making requires respect for their care, health providers need to improve their communication with pregnant women before, during, and after labor (Goldberg & Shorten, 2014). The pregnant women are unable to command such respect due to imbalance of power between women and health providers within health facilities, especially in the developing world (Goldberg & Shorten, 2014; Declercq et al., 2013; Haque et al., 2011; Le Ray et al., 2008).

Women's empowerment is considered one of the most important factors to reduce maternal mortality and morbidity in the developing world. Empowerment has been defined as the ability to make strategic life choices in a situation where this ability had been previously denied them. Women's empowerment in this context means women themselves must be the main actors in the process of change to enhance their wellbeing (Malhotra & Schuler, 2005; cited in Paruzzolo et al., 2010).

Also, female education and job security are vital in empowering women to be autonomous in decision-making regarding their reproductive life. Likewise, women's financial

autonomy has a positive correlation with institutional and facility-based delivery (Asamoah et al., 2014; GHS, 2006).

In addition, Pell et al. (2013) identified reproductive concerns such as women's inability to conceive, complications from previous pregnancy, ill health, parity and age as important determinants influencing women's decision to use skilled attendants during pregnancy. The inadequacy of health facilities and properly trained professionals to provide women with safe and adequate services at the community-level deprive most women from benefiting from informed decisions. Moreover, long distance travels, cultural factors and poverty thwarts pregnant women from accessing maternal health services from other communities. This accounts for the low utilization of maternal health care (Simkhada et al., 2008; Pell et al., 2013 Dhakal et al., 2007).

Furthermore, Ononokpono and colleagues (2014) underscore that many pregnant women are at a disadvantage in accessing antenatal and postnatal services due to inequalities in service delivery in the local communities of developing countries. Ross et al. (2008) added that the limited services rendered to expectant mothers in rural settings of developing countries lack the standard quality of care, which varies from one community to the other. This could explain why the incidence of maternal mortality and morbidity is very high in under-developed nations compared to developed nations. There is need for structural developments to reduce the excessive social inequities at the community-levels to improve the lives of this population.

For some authors, the discrepancy in maternal health outcomes between the developing and developed world do not completely rest within the provision of health care services, but the poor living conditions of women (Osorio et al., 2014; Yebyo et al., 2014). The authors further

revealed that women's autonomy at both the household and community level is very important in improving maternal health outcomes in developing countries.

In Ghana, the living conditions of women and their decision-making attitudes during pregnancy at all levels are not different from that of other developing countries. This reflects the poor maternal health outcomes in the country. For instance, cultural beliefs and past negative experiences of expectant mothers with health professionals stop them from the continuous use of maternal health services in their subsequent pregnancies (Lori et al., 2014; Ganle, 2014; Abor et al., 2011). For example, it is reported that some expectant mothers in rural areas avoid the use of maternal health care services upon the advice of their mother-in-law (Senah, 2003; Mantey, 2013). Again, scarce infrastructure and human resources for maternal healthcare delivery at the community-level have been identified as one of the reasons for the high maternal deaths in Ghana (Banchani & Tenkorang, 2014; Abugri-Akum, 2013 & Daniels et al., 2013; Lambon-Quayefio & Owoo, 2014). Furthermore, Esena & Sappor (2013) indicated that while there was an improvement in the rates of skilled delivery in Ga East Municipality of Ghana 29.8% (2008) to 31.6% (2009) and 37.5% in 2010, these were significantly lower than the national rate of 68% in 2011 (UNICEF, 2014). This is true for many other parts in Ghana despite the many maternal education programs rolled out by the Ministry of Health (MOH) and the Ghana Health Services (GHS) (Maternal Health Channel, 2014).

Research on psychological and social barriers to facility-based delivery in Ghana has demonstrated that women who lack autonomy but stay in communities who are in support of facility-based delivery are more likely to deliver at health facilities. On the other hand, women who lack autonomy and live in communities where pregnant women do not patronize health

facilities for delivery services, are more likely not to delivery in health care settings. The study finally added that women who are educated and autonomous in decision-making are more likely to deliver in health facilities (Speizer et al., 2014).

The problem of the low maternal health care utilization and facility-based delivery in Ghana is not related simply to the lack of awareness and understanding by expectant mothers; religious beliefs also impact maternal health service utilization in Ghana (Gyimah et al., 2006). The authors suggested that Christian women are more likely to access healthcare than women who are Traditionalists and Moslems. This is because some Christians norms and characteristics may encourage positive attitudes toward the uptake of maternal health services. The authors suggested the need to involve religious leaders in policy formulation and health education programs so that they would in turn educate their members on the importance of maternal healthcare utilization.

Banchani & Tenkorang (2014) studied occupational types and antenatal care attendance among women in Ghana and concluded that occupational and educational differences influence both the likelihood and timing of accessing antenatal care among expectant mothers. The authors found that the educated and affluent women in Ghana are more likely to meet the WHO recommended number of antenatal visits; and do that within the first trimester of pregnancy for proper screening, diagnosis and possible treatment compared to the uneducated and the poor.

2.5 Community-level factors and support systems needed to improve maternal health services

The reason for poor pregnancy outcomes can be attributed to the following three factors: systemic/social factors, health system failures, and community-level factors and individual-level factors. Improvements in the social fabrics and health systems at all levels of a country may contribute to an increase in the uptake of maternal health service.

2.5.1 Systemic/Social factors and maternal health outcomes

Maternal health care services do not solely depend on the health systems of a nation, but also on the social fabric and infrastructure of the country such as adequate road networks, proper transportation systems, social insurance schemes and good living conditions. Positive maternal health outcomes rest on the effectiveness of the health systems at all levels (primary, secondary and tertiary), the health-seeking behaviors of women and the availability of good social conditions at the community level (Parkhurst et al., 2005).

It is also evident that positive relationships exist between paid maternity leave and the uptake of maternal health care services, and this improves maternal health and the wellbeing of women (Aitken et al., 2015). Wellbeing is determined by the health and social services we receive, as well as our ability to obtain adequate living conditions such as quality education, food and housing, among other factors (Mikkonen & Raphael, 2010). That is, wellbeing does not exist in a vacuum, but helps create an enabling healthy environment that allows individuals to realize their ambitions, satisfy their desires and deal with their environments to live a productive, and fruitful life (WHO, 1949, 1986 & Breslow, 2006). This means that national-level factors such as economic development and good policies to reduce inequalities and increase job opportunities

for women can improve maternal health outcomes (Boyle et al., 2006). Thus, women's employment can strengthen their autonomy in decision-making concerning the use of maternal health services. However, Achia and Mageto (2015) have contended that the provision of short-term solutions to household poverty does not ensure changes in the health seeking behaviour of expectant mothers over time. The authors suggested that viable economic ventures directed at the community level to offer economic empowerments to women, would help in intervening household poverty in the long run.

But, the aforementioned claim is different in Ghana with regard to women's education and formal employment. For example, the 2010 population and housing census (PHC) for Ghana indicated that women in paid employment stood at 32.7 percent, a marginal increase from the 2000 PHC figure of 30.1 percent, with the problem being worse in rural Ghana (GSS, 2012). This means that majority of women in Ghana lack money to support their husbands in times of need to improve their wellbeing. The financial constraints of some women in Ghana could stop them from seeking maternal health care any time their partners refuse to offer them the needed assistance. Pregnant women's inability to access maternal health care services due to lack of money have implications for themselves and their unborn babies. This problem is more serious for women who are the head of the household and have no one to depend on during emergencies. The result is that these women seek the services of TBAs in their communities, which is less expensive and skillful, instead of skilled birth attendants (Asamoah et al., 2014; GHS, 2006).

2.5.2 Health Systems Failure

An effective health system delivers universal quality health care services to all people within nations with or without financial hardship. But, not all health systems that provide universal health care based on need and not ability to pay are effective because they are subjected to strong forces and influences that usually override rational policy making amongst nations. Good leadership and robust health policies are therefore, needed to provide balance responses to ensure equitable access to people-centred care. By this means individuals at the national, regional and local levels can have access to a wide range of health care services at affordable cost, which varies across nations (WHO, 2010, 2012). Health systems thrive on health care financing, adequate human resources for health care, and the provision of health infrastructure as well as effective and safe road networks. Fair distribution of resources at every level of the health care system is central to the survival of pregnant women and their newborns. That is, the promotion of social development, health equity and health system strengthening are necessary to ensure quality of care to avoid preventable maternal and child deaths (Souza et al., 2014).

The provisions of human resources for healthcare, infrastructure development, and community health education have been identified by recent studies as essential in reducing maternal and infant mortality in developing countries (Kyei-Nimakoh et al., 2016). For instance, training providers in emergency obstetric care, transportation and communication infrastructure such as ambulance services, hospital equipment, and the building of healthcare infrastructures are crucial in achieving set goals (Austin et al., 2015; Uzundu et al., 2015). This could only be realized through the availability of resources and social support networks within various

communities, which is still a problem in developing countries. Even though, in some developing countries a larger proportion of pregnant women visit health facilities, the poor quality of care is a major determinant of poor maternal health outcomes, which is attributable to work overload and non-availability of skilled attendants (Souza et al., 2014).

Nevertheless, Mucunguzi et al. (2014) have indicated that human resources for health care alone cannot be considered as the main asset to run an effective and efficient health care delivery. Efficient health care delivery cannot happen without an effective transportation system to augment the efforts of health professionals. The study also outlined that the availability of effective transport systems at the community levels result in better pregnancy outcomes in relation to stillbirths and post-partum complications among mothers and their babies (Mucunguzi et al., 2014).

Currently, the Ministry of Health (MOH) and the Ghana Health Services (GHS) is faced with several challenges in scaling up maternal health care services to ensure universal access to all women in Ghana. The challenges include difficulty in the placement of skilled personnel, supply logistics, staff accommodation, poor transportation and the lack of ambulances for urgent transfer of emergencies to bigger hospitals for better management. The constraints in the distribution of human resources for health care have also resulted in poor quality of care, especially with maternal health care, and women in Ghana are paying the price (UNDP, 2012; Agyemang & Aboagye, 2013). The delivery of health care including maternal health services also comes with difficulties due to the deplorable road networks and long distances linking various communities. Pregnant women and their relatives are therefore faced with transportation

difficulties during labor due to the lack of vehicles to convey them to the health facilities (Adu, 2013).

In addition, it has been argued that the delivery of better health care to the people of a nation does not only depend on the MOH and its related agencies, but key sectors of the country, such as road, transport, finance, agriculture as well as water resources and housing sectors. This calls for inter-sectoral collaboration to develop the various sectors of the Ghanaian Economy, especially the road and transport sectors to ensure the effectiveness of the health sector. In the case of Ghana, at least the regional and some district hospitals are well equipped with modern equipment to save pregnant women from dying in times of emergencies. Conversely, owing to the poor road networks and absence of proper referring systems as result of the lack of ambulances to transfer clients from one facility to the other, undue delays result in the deaths of pregnant women (Banchani & Tenkorang, 2014; Esena & Sappor, 2013; Abugri-Akum, 2013; UNDP, 2012).

2.5.3 Community and Individual-level factors

Safe motherhood activities and care are known to make pregnancies safer, but the lack of access to such activities at the community-level results in increased maternal mortality and morbidity. This is not unusual in developing countries, especially in areas where such activities are strongly influenced by socio-cultural factors (Adjei et al., 2015; Rominski et al., 2014; Sundaram et al., 2012; Mote et al., 2010 & Fathalla, 2006). The reason being that access to such services (facility delivery, abortion and post abortion, Caesarean section care) is restricted by the lack of availability of resource persons and health infrastructure. A case in point is highlighted by the recent report by the Ghanaian media on the state of maternal health care services with

respect to emergency Caesarean section in the Okomfo Anokye Teaching hospital (the second largest hospital in Ghana). They suggest the lack of theater space and logistics in the hospital left pregnant women in the hospital corridors to determine their fate. For example, women were operated in turns in the only functional theater, despite the dangers that await them due to lack of resources to safe three or four women simultaneously through Caesarean section (Boateng, 2017). The problem is compounded even further by the uneven distribution of scarce resources in remote communities which in turn widens the existing disparities regarding maternal health care (Dettrick et al., 2014). Health facilities should be provided with the requisite skilled attendants and logistics to work with. This is necessary to avoid the non-availability of care due to the absence of skilled personnel and logistics, which could prevent clients from using health facilities for its intended purposes. The findings of a study in rural Ghana reflect the above claim that many expectant mothers lack the services of skilled birth attendants as a result of the shortage of trained midwives in the country, and the few trained refuses postings to rural Ghana (Lori et al., 2012). As a consequence of the inequitable distribution of such resources, women in rural Ghana continue to lack the services of skilled attendants notwithstanding its importance in reducing maternal and neonatal mortality (UNDP, 2012).

Again, it is reported that social support networks at the community level contribute to positive maternal health outcomes and maternal health utilization (Adams et al., 2015; Lowe & Moore, 2014). For example, community poverty and education according to experts are strong predictors of maternal health care utilization. Communities who have large proportions of women from poor households and low educational backgrounds are less likely to access quality of care beyond their communities due to distance and cultural barriers (Gage, 2007; Ononokpono, 2015). Also, community participatory learning, social networking, and actions are

required to explore investments and ensure that gains in maternal health are improved and sustained through women groups. This is because support networks or social support systems have a positive association with maternal healthcare utilization, the uptake of family planning services and improve neonatal care (Paruzzolo et al., 2010; Younes et al., 2015).

Another important tool identified for developing rapport and partnerships with community leaders in order to gain access for community engagement is community outreach, which has good implications for maternal health care. The involvement of communities is considered very essential in ensuring health equity through service delivery and utilization (Draper et al., 2010; Marston et al., 2013). This according to Cofie et al. (2014) is an essential approach in designing pragmatic solutions to the problem of maternal and under-five mortality; and building referral networks to improve service delivery at the community level. The researchers, however, concluded that the approach is likely to fail in communities that lack basic infrastructure, staffing and logistics needed for sustainability. This emphasizes the importance of community resources and social networks in improving the utilization of maternal and child health care to reduce mortalities. The Maternal Health Channel (MHC) in Ghana, for example, could be used by women's groups to educate pregnant women to use appropriate resources during child birth in their campaign against maternal and infant mortality in the various regions in Ghana. As an illustration, the MHC has travelled the length and breadth of Ghana to educate women on pregnancy and they showcase the difficulty women go through in rural Ghana on their quest to promote safe motherhood on National Television and Radio since 2013. This media broadcast aims to inform individuals and societies on the dangers associated with childbirth if the pregnant mother is not given the needed attention and resources at the community level to safeguard her pregnancy. The MHC is an essential channel that uses other people's experiences

with pregnancy and childbirth to inform the issues and challenges facing Ghana as a nation (MHC, 2014).

2.6 Conceptual Framework

This section describes the socio-ecological framework used for the study. Ecological models according to Reifsnider et al. (2005) are useful to researchers who study complex community problems such as disparities in maternal health care, which is the focus of this study. The social ecological framework proposed by Bronfenbrenner in 1977 was adopted for this study and focuses on three main components: 1) the individual's perspective of the environment which depends on one's knowledge, attitude, and socioeconomic status; 2) the environment surrounding that individual such as the family members, peers, friends etc.; and 3) the dynamic interaction between the individual and the environment-for example, availability of community health facilities, good road networks, and social health insurance. This implies that the pregnant woman's behavior is affected and shaped by the environment that she resides at three different levels.

First, the pregnant woman's health-seeking behavior could be influenced by her knowledge, perceptions, skills, attitudes and beliefs of maternal health care services in relation to ANC, facility-based delivery and postnatal care. For example, if the pregnant woman holds a positive attitude towards maternal health care utilization, she will likely seek maternal health care service. However, if she holds a negative perception of maternal health care utilization she will likely not patronize maternal health care services.

Second, the pregnant woman does not live in isolation within the environment and this may also influence her health care-seeking behavior. That is, personal relations of the woman

including family, friends, intimate partner, and peers as well as the activity of TBAs, and faith organizations in the community could negatively or positively influence the pregnant woman's decision to use maternal health services. If these social networks of people associated with the woman believe and support her in matters regarding maternal health care services, she is more likely to seek health care.

Last, the organizational structures in relation to the provision of health care services, such as health facilities, the availability of human resources, social health insurance and transportation policies within the community in which the pregnant woman resides are fundamental in determining the health seeking behaviour of the woman. The absence of these facilities in the community could jeopardize the health seeking behaviour of the pregnant women. Also, the perceived attitude of the nurses providing care in the various units in the health facilities could influence the health seeking behaviour of the pregnant woman. For instance, nurse-patient relationship that commands reciprocal respect devoid of poor treatment of clients will result in an increase in maternal health care utilization and vice versa. In addition to the aforementioned problems, the socioeconomic status of the woman and her husband could also affect her health seeking behaviour. For instance, the inability of the woman to pay for the cost of transportation and drugs, which are not covered by social health insurance, could stop her from utilizing maternal health services. The understanding of the pregnant woman's health seeking behaviour among the various interconnected components will help in designing intervention strategies to safeguard these problems (Reifsnider et al., 2005).

The ecological framework helps ground the research in a theoretical context by giving a comprehensive view of the dynamic interactions between the pregnant woman and her

environment with respect to her health seeking behaviours. The utilization of maternal health care services is essential to both the pregnant woman and her unborn baby, however the women's immediate environment and her knowledge on pregnancy has strong influence on her behaviour towards care. The availability of resources at the community level and the attitude of health professionals are very crucial in enhancing the pregnant women's health seeking behaviour. That is, the enabling environment with regards to the care of the pregnant woman, which is the summation of the availability and quality of care, and the creation of awareness, is keen in improving pregnancy outcomes.

Chapter 3: Methodology

3.1 Introduction

This chapter discusses the methods used in this study. It is a mixed method consisting primarily of quantitative analysis of data obtained from the GDHS 2014 survey. It also includes a qualitative analysis of policy documents to get a better insight into the successes or failures of stated objectives for maternal and child health care in Ghana. The chapter is divided into six (6) sections. The first section presents the study design; followed by a description of the study population and the sampling techniques. The third section describes the variables used in this study; while the fourth section presents the data analytical approaches to the quantitative study. The fifth section describes the methodology for document analysis and the final section presents the ethical considerations of the study.

3.2 Quantitative Study Design

This study employed quantitative techniques to understand the effects of individual and community-level factors on maternal health outcomes among pregnant women in Ghana using data from the 2014 GDHS. Maternal health outcomes in this study included ANC, facility delivery and postnatal care. Quantitative techniques are used for many analytical purposes. Examples include the establishment of the incidence or prevalence of a health problem; health personnel's degree of adherence to a new intervention; or, the users' level of satisfaction with a service.

Quantitative data are collected through surveys and analyzed using statistical tests to determine if the results happened by chance or there was a significant correlation. Quantitative method is often used to identify patterns that can be examined more critically amongst large-

scale surveys or aggregate data (Creswell et al., 2003; Clark et al., 2008; Condelli & Wrigley, 2004; Bowling, 2014). Quantitative methods seek to minimize the role of human judgment in collecting and interpreting evidence that ensures the establishment of a causal relationship among variables under study. It attempts to clarify assumptions regarding theories and builds protections against bias. It also controls for alternative explanations to pave way for generalization and replication of the findings (Clark et al., 2008; Creswell, 2009).

Quantitative research designs are mostly used when examining inter-relationships among variables where theories are being tested (Baskas, 2011; Creswell, 2009). Also, quantitative research methods have strength in dealing with issues of clustering that disentangles individual and group effects on the outcome of interest in studies with larger sample sizes through the use of techniques such as hierarchical linear modeling (e.g., Bryk & Raudenbush, 1992; Osborne, 2000). The quantitative paradigm is the most suitable approach in examining the effects of individual and community-level factors on maternal health outcomes in Ghana and subsequently to be able to devise pragmatic approaches to reduce the existing disparities in maternal and child health care in the country.

3.3 Data and Sampling

Data from the 2014 Ghana Demographic Health Survey (GDHS) was used to examine the effects of individual and community-level factors on maternal health outcomes among women in the ten regions of Ghana. This was done in relation to the use of three specific health services: ANC, facility-based delivery or supervised delivery and postnatal care in Ghana.

Information from the women in the questionnaire of the 2014 GDHS was used for this study. This questionnaire covers detailed information on women in their reproductive years

(aged 15–49 years) with live births in the 5 years prior to the survey. The DHS is a nationally representative cross-sectional survey conducted in developing countries including Ghana. These surveys constitute one of the richest sources of information presently available to examine the determinants of maternal and child health in developing countries worldwide.

The earliest edition of GDHS was conducted in 1988; and this has been repeated every five years with the current edition undertaken in 2014; the sixth in the country. The primary purpose of the survey is to provide relevant information to monitor the population and health issues in Ghana. This has been of tremendous benefit to Ghana, particularly the academic community, MOH and other stakeholders in tracking the progress of population health of the nation through research. The women's questionnaire of the 2014 GDHS, include information on the demographic characteristics of women, and details of live births, parity, child mortality, history of ANC visits, place and mode of delivery. This is further explained in the questionnaire section of this study.

The 2014 GDHS was conducted by the Ghana Statistical Service (GSS), the Ghana Health Services (GHS) and the National Public Health Reference Laboratory (NPHRL) of the GHS. In addition, financial support for the survey was provided by the government of Ghana and other organizations such as United States Agency for International Development (USAID), the Global Fund to fight AIDS, Tuberculosis, and Malaria through the Ghana AIDS Commission (GAC) and the National Malaria Control Program (NMCP), the United Nations Children's Fund (UNICEF), the United Nations Development Program (UNDP), the United Nations Population Fund (UNFPA), the International Labor Organization (ILO), the Danish International Development Agency (DANIDA), and the Government of Ghana. ICF International provided

technical assistance through the DHS Program, a USAID-funded project offering support and technical assistance in the implementation of population and health surveys in countries worldwide (GSS, 2015).

The 2014 GDHS used a two-stage sample design that allowed estimates of key indicators at the national level, urban and rural areas for each of the ten (10) administrative regions in Ghana. The sampling frame used for the 2014 GDHS is a modernized frame generated from the 2010 Ghana PHC provided by the Ghana Statistical Service (GSS, 2013). That is, the 2014 GDHS sample was designed to provide estimates of population and health indicators including fertility and mortality rates for the country as a whole, taking into consideration the urban and rural areas for each of the ten (10) geographical regions in Ghana. Demographic Health Surveys use clustered sampling designs to avoid over-sampling and under-sampling of respondents. The 2014 GDHS therefore, used clustered sampling designs and applied standardized weights to ensure a representative data across all regions and rural areas in Ghana. Hence, all analysis in this thesis were conducted with sample-weighted data to circumvent any over-sampling or under-sampling in the responses among participants of the survey in different regions in Ghana. Further modifications were also made for the selection of participants at the individual and household levels within the various communities in Ghana.

The first stage involved the selection of clusters consisting of enumeration areas (EAs) outlined in the 2010 PHC. An EA is a geographic area covering an average, 145 households and the sampling frame contains information about the EA's location, type of residence (urban or rural), and estimated number of residential households. A total of 427 clusters were selected, 216 in urban areas and 211 in rural areas. These clusters were selected using the EAs; they form the

units of analysis at the community-level. The second stage involved, “a fixed number of 30 households per cluster were selected with an equal probability systematic selection from the newly created household listing” (GSS, 2015 p. 318). Only individuals from the selected households were interviewed for the survey. The survey was conducted in 12,810 residential households, 6,480 in urban areas and 6,330 in rural areas across the ten regions of Ghana. In the households identified (10,214 women: 5,098 urban; 5,116 rural) and 4,175 men (2,061 urban and 2,114) between the ages of 15-49 were selected to complete the survey. The details of the design and selection process are explained in the user’s guide of the GDHS 2014 (see e.g. GSS, 2015).

Of the 10,214 women selected originally for the individual interviews, only 9,656 were available, but 9,396 women were interviewed which yielded a response rate of 97 percent for the 2014 GDHS. However, the present study is restricted to 4141 women who had their last pregnancy within five years prior to the survey, and answered questions on ANC, delivery and postnatal care during the survey, meaning respondents who gave birth longer than five years prior to the survey were excluded from the analysis. This was to avoid recall bias in the responses of the women that could affect the outcome of the study.

3.4 Questionnaires

The questionnaire was administered to women and men who were eligible for the individual interview within the households of the selected clusters (GSS, 2015). The 2014 GDHS used three main questionnaires namely: the household questionnaire, the women’s questionnaire and the men’s questionnaire. The questionnaires were translated by the GDHS team from the English language into three major local languages that included Akan, Ga, and Ewe. The questionnaires were pre-tested prior to the survey and modified before the actual survey.

Included in the household survey are questions concerning the respondents' socio-economic and demographic characteristics such as age, sex, education, religion, marital status, residence as well as relationship to the head of the household. The survey also gathered data on the characteristics of the household, such as the source of water, type of fire used for cooking, type of toilet facilities, types of building and materials used for the construction of houses and toilets, use and ownership of various durable goods, and use of mosquito nets (GSS, 2015).

The women's questionnaire collected data from respondents aged 15-49 living in selected households earmarked for the survey. The women were asked questions on the following: education, residence, media exposure (radio, television news or print media); reproductive history such as ANC, delivery and postnatal care; knowledge, methods and use of family planning, fertility preferences, breastfeeding, infant and young child feeding practices, vaccinations and childhood illnesses, marriage and sexual activity, woman's work and husband's background characteristics, childhood mortality, HIV/AIDS awareness and other sexually transmitted infections (STIs), Tuberculosis infections and other health-related issues such as exposure to and treatment of malaria during their most recent pregnancy in the five years prior to the survey; and it also included questions on domestic violence. The women were asked questions on blood pressure and anemia (GSS, 2015).

In brief, the 2014 GDHS teams interviewed a total of 11,835 households which included 9,396 women aged 15-49 and 4,388 men aged 15-59 of the selected households for the survey, bringing the total number of respondents interviewed for the 2014 GDHS data set to 13,784. The data for the 2014 GDHS was collected for over a period of three-month, starting from early

September to mid December 2014 (GSS, 2015). Data from the women's questionnaire was extracted and used for this study.

3.5 Measures

3.5.1 Dependent Variables

The study used three dependent variables to measure maternal health outcomes among pregnant women in Ghana. These are antenatal attendance (the frequency of ANC visits), facility delivery and postnatal care. The 4,141 women extracted from the GDHS 2014 were women who had given birth between 2009 and 2014 and had answered questions on ANC, delivery and postnatal care during the survey, and therefore fit for the study. The figure was thus, not manipulated by the researcher.

The first dependent variable: frequency of ANC visits is a count variable but was transformed into a dichotomous outcome. Respondents were asked specifically: How many times did you receive antenatal care during this pregnancy? *Coded as '0' for less than four (4) antenatal care visits, and '1' for at least four (4) antenatal care visits.* In spite of the fact that the number of ANC visits is dependent on the medical demands and risk status of the expectant mother in question, WHO recommends at least four visits during the entire period of pregnancy. Mostly, an earlier visit within the first trimester of the pregnancy is recommended for the purposes of screening and identification of infection (see e.g. WHO, 2006; Dixon et al., 2014). These considerations informed the coding of the outcome variable on ANC. Experts have defined ANC attendance using the number of visits with a health care professional (obstetrician, midwife, or doctor/nurse), whether in a hospital or community clinic setting (see e.g. Petrou et al, 2001; Beeckman, Louckx & Putman, 2010). The importance of ANC is measured to a large

extent by the essential service package provided to pregnant women. These include amongst other things the prevention and management of anemia and malaria, micronutrient supplementation, tetanus immunization, and monitoring of certain vital signs to help in the early detection and management of complications arising from the pregnancy (GSS, 2015).

The second dependent variable, facility or place of delivery asked respondents the question: where did you give birth? The responses to the above question from the GDHS 2014 included: home, government hospitals and health facilities, different types of private health facilities, maternity homes and traditional birth attendants. Home delivery in this context means delivery without assistance of any trained health profession, being either a nurse or midwife. These places of delivery were grouped into two categories: home and facility delivery. *This was coded as '0' for home delivery and '1' for facility delivery.* The significance of skilled delivery at birth to pregnant women and their newborns cannot be overemphasized. Labor and delivery is considered the most critical period of the pregnancy-childbirth continuum. This is due to the fact that most maternal deaths occur as a result of complications during delivery. Obstetric care from a health professional (midwives, trained nurses or doctors) during delivery is considered to be critical in reducing of maternal and neonatal mortality (GSS, 2015). This highlights the importance of skilled attendant during birth to pregnant women and their newborns. The skilled attendant is capable of offering comprehensive care during emergencies to resolve any problem that may arise since they would have the needed logistics to work with. However, existing literature indicates that the vast majority of women still deliver at home in Ghana, sometimes due to some traditional norms and beliefs (see e.g. Gyimah et al. 2006; Addai, 2000).

The third dependent variable, postnatal care, was originally dichotomized. Respondents were asked the following questions: Did anyone check on your health after you gave birth? Or in two months after delivery, did any health care provider or a traditional birth attendant check on your health? The answer to any of these questions *was coded as '0' for no and '1' for yes*. Postnatal care for mothers and their newborns is vital as it ensures essential follow-up care for any complications that arise during delivery. It also provides information on how the mother can take care of herself and her newborn. While this is important in reducing the large number of maternal and neonatal deaths occurring during the first 48 hours after delivery, WHO recommendations are that those who deliver in a facility receive postnatal care in the facility for the first 24 hours, and those who deliver at home receive a home visit within 24 hours of delivery. In addition, three home visits between days seven and fourteen, and at six weeks after delivery are recommended by WHO (WHO, 2013; GSS, 2015).

3.5.2 Independent Variables

Independent variables selected for analysis are at the individual and community levels based on ecological model. These factors were hypothesized to influence women's decision regarding ANC, delivery and postnatal care.

Individual-level factors describe the socio-economic and demographic characteristics of respondents (education, wealth and employment status) and socio-demographic factors (age, ethnicity, marital status, parity, and place of residence).

Educational background: This variable was dummy-coded into four categories namely; no education = 0, primary education = 1, secondary education = 2 and higher education = 3.

Marital status: The marital status of women was dummy-coded into three categories: never married = 0, married/living together = 1 and divorce/separated/widowed = 2.

Wealth status: Household wealth was dummy-coded into three categories; poor =1; middle =2; and wealthy =3. Household wealth was derived from a combination of assets within the household which includes television, bicycle, or car, as well as dwelling characteristics, such as a source of drinking water, sanitation facilities, and type of flooring material and fuel use for cooking. It was computed using principal component analysis (PCA). PCA is a multivariate statistical method used to reduce the number of variables in a data set into a smaller number of proportions. It has been validated as a technique to describe socio-economic status differentiation within a population (Vyas and Kumaranayake, 2006).

Employment status: This variable reflects the employment status of respondents at the time of the survey coded as not working = 0 and working = 1.

Age of respondent: Age of respondents was measured in complete years and was introduced into the statistical analysis as a continuous variable.

Ethnicity: This variable was dummy-coded into five major ethnic groups including Akans = 0; Ga/Dangme = 1; Ewes = 2; Northern tribes =3 and others = 4.

Religious denomination: Respondents religious denomination was dummy-coded as Christians = 0; Islam = 1; Traditionalist = 2 and No religion = 3.

Residence: This variable was described in the GDHS to reflect the characteristics of the clusters where respondents lived, and this was classified as urban and rural. This variable was coded as urban = 0 and rural = 1.

Parity at birth: This variable shows the birth order of the last birth of the respondent and this was coded as ‘less than 3 births’ = 0; ‘3 to 5 births’ = 1; and ‘6 or more births’ = 2.

Access to health care: Respondents were asked the question: Are you registered with the National Health Insurance Scheme (NHIS)? Or does your insurance cover any of the following maternity benefits; ANC, childbirth, care in a health facility, postnatal health care for the mother and her child? This was coded as No = 0 and Yes = 1.

Distance to health facility: Respondents were asked the question: In your opinion, was it very easy; easy, fairly easy, difficult, or very difficult to see the health provider? And is the location of the health facility very convenient, convenient, fairly convenient, not convenient, or very inconvenient for you? *For this study, not a big problem (easy) was coded as 0 and a big problem (difficult) was coded as 1.*

3.5.3 Community-level factors

This study uses Enumeration Areas (EAs) to represent communities or neighbourhoods mainly because the DHS did not collect aggregate level data at the community/neighbourhood level. A total of 427 EAs (216 in urban areas and 211 in rural areas) was selected for the GDHS 2014 survey. Thus, aggregating women’s responses to questions at the individual level created community-level factors. These responses reflected questions on women’s years of education, wealth status, residence and distance to health facilities. That is, for continuous variables we estimated the mean/average of the responses for each community while proportions/percentages were used for categorical variables such as wealth status, education, marital status and ethnicity. Community-level variables included in the analysis capture the socio-economic characteristics of

the neighbourhoods especially as these have implications for accessing antenatal, delivery and post-natal care.

Mean years of education: This community-level variable was generated by aggregating the number of years of education for women in the 427 clusters or communities. This aggregate was computed using the average years of education attained by mothers in the various clusters.

Mean income score: This value was created from the mean values of the wealth index categories of individual mothers in the various clusters used for the survey.

3.6 Analytical Technique

Descriptive statistics such as means, standard deviation and percentages were used to examine sample characteristics for women attending antenatal and postnatal care, including those who delivered their babies in hospitals. Multilevel bivariate and multivariate logit models (logistic regression) were estimated to examine the relationships between independent variables and outcome variables. That is, the bivariate logit models explain the relationship or the effect of each of the predictor/independent variables on each of the outcome variables (antenatal, delivery, postnatal) of Ghanaian women at a time. Whereas, the multivariate logit models test whether all the independent variables (both continuous and categorical) put together can significantly predict the likelihood of patients attending antenatal, facility delivery and postnatal care (see chapter four for the details). Binary logit models were used mainly because of the dichotomous nature of the outcome variables. However, these models were computed using a multi-level framework. Two main reasons inform the use of multi-level analysis in this dissertation. First, it allows the estimation of the significance and magnitude of clustering within the data without which parameter estimates may be biased due to the possible violation of the independence assumption

underlying standard logit models (see Bryk and Raudenbush, 1992). Second, it allows the estimation and explanation of heterogeneity at both the individual and community levels, which is the main focus of this work.

Overall, three separate multilevel logit models were estimated for the three outcome variables. The first model estimates the effects of socio-economic predictors on antenatal, facility-based delivery and post-natal care. The second model adds demographic and socio-cultural predictors and the third model includes variables that capture access to health care. The statistical package Hierarchical Linear Modeling (HLM) version 7.0 was used to estimate all models (Raudenbush et al., 2011).

3.7 Method for document analysis

A qualitative approach was used for the document analysis by adapting Walt & Gilson (1994) policy analysis framework. The framework emphasizes the need for accountability of who (actors), how (process) decisions are made, what (content) decisions are made and under what conditions (context). The actors in this context are the policy makers as individuals and members of professional groups or associations; the process involves how the policy issues are tailored on the policy agenda; the context is dependent on issues at the macro-governmental level and micro-institutional level which could be influenced by political instability; and the content of the policy could dwell on some or all of the above-mentioned constructs (see Walt & Gilson, 1994). That is, the document analysis was done to ascertain a full and deeper understanding of the contents and purposes of the maternal and child health care policies in Ghana. The documents were critically examined and read many times with particular attention to their

contents and objectives, expected outcomes and budget allocated to maternal and child health care (see chapter five for details).

3.8 Ethical Considerations

Ethical consent to undertake DHS in Ghana was approved by the Ethics Committee of ICF Macro in Calverton, USA, and the Ethics Committee of Ghana Health Service, Accra. Permission to use the secondary data set from the GDHS 2014 was sought from the Ethics Committee of ICF Macro in Calverton, USA (custodian of the DHS data sets), and the Ethics Committee of Ministry of Health Ghana. This was done through an online request at www.DHSprogram.com and access was granted to use the data set for the study. In my estimation, no further ethics approval is required from Memorial University of Newfoundland for the use of this secondary data set.

Chapter Four: Results

4.0 Introduction

This chapter presents the quantitative analysis for the study. The quantitative analysis includes descriptive and multivariate findings for the study.

4.1 Descriptive Characteristics of Individual Women Extracted from the GDHS Database

As indicated in the previous methods section (Chapter 3), this study extracted data from the 2014 GDHS on 4,141 women who had given birth between 2009 and 2014 and had answered questions on ANC, delivery and postnatal care during the survey. Table 1 provides information on the descriptive statistics of dependent variables (ANC visits, facility delivery and postnatal care) and selected independent variables (age, ethnicity, education, religion, wealth status, health care access, residence, parity, distance to health facility, the average years of education and the mean income status of women). The independent variables in level 2 represent the community-level factors selected for the study, which included residence (urban/rural), mean years of education and mean income score.

Table 1: A univariate distribution of dependent and independent variables, GDHS 2014

Dependent variables	N=4141
	Percent (%)
<i>Number of Antenatal visits</i>	
Less than 4 times	10.8
Four times or more	89.2
<i>Place of Delivery</i>	
Home delivery	25.8
Facility delivery	74.2
<i>Postnatal care within 2 months following delivery</i>	
No	26.7
Yes	73.3
Independent variables at Level 1	
Socio-economic variables	
<i>Education</i>	
No education	31.9
Primary education	20.2
Secondary/higher education	47.9
<i>Wealth Status</i>	
Poor	51.2
Middle	19.1
Rich	29.7
<i>Employment status</i>	
Not working	20.6
Working	79.4

Table 1: A univariate distribution of dependent and independent variables, GDHS 2014 (Continued)

Demographic and socio-cultural variables	N=4141		
	Percent	Mean	Standard Deviation
<i>Mean age of respondents</i>		30.6	7.1
<i>Ethnicity</i>			
Akans	38.8		
Ga/Adangbe	4.6		
Ewes	11.1		
Northern tribes	43.7		
Others	1.8		
<i>Religious denomination</i>			
Christians	72.2		
Islam	21.0		
Traditionalists	3.1		
No religion	3.8		
<i>Marital Status</i>			
Never married	8.5		
Married/Living together	84.7		
Divorced/Separated/Widowed	6.8		
<i>Residence</i>			
Urban	42.1		
Rural	57.9		
<i>Parity at birth</i>			
Less than 3	45.3		
3 to 5 births	42.8		
6 or more births	11.9		

Table 1: A univariate distribution of dependent and independent variables, GDHS 2014
(Continued)

Access to healthcare	Percent (%)	Mean	Standard Deviation
<i>Respondent has NHIS</i>			
No	29.9		
Yes	70.1		
<i>Distance to health facility</i>			
Not a problem	69.8		
A problem	30.2		
Independent variables at Level 2 (N=427)			
<i>Residence</i>			
Urban ¹	49.4		
Rural ²	50.6		
Mean years of education		6.9	
Mean income quintile score ³		316.2	829.5

¹A locality of population size with 5000 or more persons (GSS, 2012).

² A locality of population size less than 5000 persons (GSS, 2012).

³ The average income score of women at the community-level. This was estimated as 316.2 Ghana cedis

The majority of women had four or more antenatal visits (89.2%), while very few had less than four visits (10.8%). A large proportion of women sampled during the GDHS 2014 delivered their babies in health facilities (74.2%) compared to home deliveries (25.8%). Moreover, a greater number of the women attended postnatal care within the last two months after delivery, representing 73.3% compared to 26.7% of women who did not receive any care after delivery (see Table 1).

Results showed that 31.9% of women had no formal education at the time of the survey; 20.2% had primary education and 47.9% obtained secondary/higher education. This indicates that less than half of the women sampled for the study had secondary/higher education.

Women were distributed amongst three wealth statuses and the majority of them, 51.2% identified as poorest, 19.1% of the women identified within the middle wealth status and 29.7% identified within the wealthy income group. A large proportion of women were employed (79.4%) compared to the unemployed (20.6%).

The average age of women sampled during the survey was 30.6 years. About 38.8% were identified as Akans, followed by Northern tribes (43.7%), Ewes (11.1%), Ga/Adangbe (4.6%) and other tribes (1.8%). being the lowest. The majority of respondents sampled for this study were Christians (72.2%), followed by Islam (21%), then Traditionalist (3.1%) and Pagans (no religion) 3.8%. Also, most of the women were married or living together with their partners (84.7%), and 8.5% had never married, while 6.8% were divorced, separated or widowed. Quite a substantial proportion of the women selected during the survey lived in rural Ghana (57.9%) and 42.1% lived in urban Ghana.

In terms of parity, a higher proportion of the women (45.3%) had less than three children at the time of the survey, whereas 42.8% had three to five children. A few of them constituting 11.9% had six or more children. The majority of women (70.1%) indicated they were covered by NHIS, while 29.9% were not covered. Finally, the majority of the women (69.8%), indicated that distance to health facility in order to access health care was a problem compared to 30.2% who said distance to health care was not a problem.

4.2 Characteristics of Clusters/Communities

The clusters are the units of analysis at the community-level. The total number of clusters identified for this study was 427 clusters within the rural and urban centers of Ghana. A significant proportion of women were selected from each of these clusters across the ten (10) administrative regions of Ghana to ensure a fair representation of women in the study. The majority of clusters were selected from the rural areas (50.6%) and 49.4% from the urban centers as indicated in Table 1. Aggregating women's response to questions at the individual level created the community-level factors. Thus, for continuous variables, we estimated the mean of the responses for each community while proportions/percentages were used for categorical variables. From Table 1, the mean age of education among respondents of the study was 6.9 and the mean income status score was 316.2. This indicates that majority of women selected from the various clusters were educated and fell within the poor and middle wealth status.

4.3 Bivariate Analysis

The bivariate analysis (Table 2) explains the relationship or the effect of each of the predictor/independent variables on each of the outcome variables (antenatal, delivery, postnatal) care of Ghanaian women. It revealed disparities in the three maternal health care services

(antenatal, delivery and postnatal care) explored in the study by selected socio-economic, demographic and socio-cultural, and community-level variables. The results indicated that the educational level of women was significantly associated with antenatal care and place of delivery. Compared with those with no education, women with secondary/higher education were 76% more likely to make the recommended number of ANC visits (at least four visits), and 29% were more likely to visit various health facilities for delivery services. The likelihood of women seeking antenatal, delivery and postnatal care increased with their educational attainment as shown in Table 2.

In general, respondent's wealth index was statistically associated with all the three outcome variables. Table 2 showed that for each of the maternal health indicators, there were significant differences in the services obtained by wealth index. Women with high socioeconomic status were 5.4 times more likely to make the recommended ANC visits according to WHO, and 11.8 times more likely to deliver in health facilities compared to the poor. However, women within the middle wealth status were 2.1 times more likely to seek facility-based delivery and less likely to utilize postnatal care service compared to the poor.

Table 2: Bivariate analyses of Antenatal, Delivery and Postnatal care for Ghanaian women, 2014

Variables	Antenatal OR	Delivery OR	Postnatal OR
Socio-economic variables			
<i>Education</i>			
No education	1.00	1.00	1.00
Primary education	1.05 (.149)	1.53(.120) ***	1.08 (.143)
Secondary/Higher education	1.76(.147) ***	1.29(.107) ***	1.12 (.119)
<i>Wealth status</i>			
Poor	1.00	1.00	1.00
Middle	1.27 (.145)	2.17(.122) ***	.723(.126) ***
Rich	5.47(.191) ***	11.8(.185) ***	.987 (.145)
<i>Employment status</i>			
Not working	1.00	1.00	1.00
Working	1.75(.127) ***	.908 (.112)	1.38(.099) ***
Demographic and socio-cultural variables			
<i>Age of respondents</i>			
	1.02(.001) **	.982(.001) ***	1.01 (.001)
<i>Ethnicity</i>			
Akans	1.00	1.00	1.00
Ga/Adangbe	.475(.214) ***	1.08 (.210)	.864 (.229)
Ewes	.562(.199) ***	.765 (.191)	1.04 (.165)
Northern tribes	.733(.150) **	.579(.136) ***	1.97(.137) ***
Others	.485 (.397)	.299(.314) ***	1.11 (.305)
<i>Religious denomination</i>			
Christians	1.00	1.00	1.00
Islam	1.32 (.162)	.821 (.150)	1.39(.139) **
Traditionalists	.608 (.263)	.222(.309) ***	.897 (.288)
No religion	.492(.219) ***	.384(.202) ***	.994 (.219)
<i>Marital Status</i>			
Never married	1.00	1.00	1.00
Married/Living together	1.73(.167) ***	.740 (.173)	1.15 (.143)
Divorced/Separated/Widowed	1.16 (.232)	.572 (.2310)**	1.11 (.210)
<i>Residence</i>			
Urban	1.00	1.00	1.00
Rural	.423(.154) ***	.158(.149) ***	.857 (.179)
<i>Parity at birth</i>			
Less than 3	1.00	1.00	1.00
3 to 5 births	.975 (.118)	.603(.085) ***	1.17 (.094)
6 or more births	.638(.154) ***	.424(.125) ***	.971 (.137)

Note; *P<0.1; **p<0.05; ***p<0.01; robust standard errors in brackets; OR=Odd Ratios

Table 2 Cont'd: Bivariate analyses of Antenatal, Delivery and Postnatal care for Ghanaian women, 2014

Variables	Antenatal OR	Delivery OR	Postnatal OR
Access to healthcare			
<i>Respondent has NHIS</i>			
No	1.00	1.00	1.00
Yes	1.77(.117) ***	1.75(.095) ***	1.26(.097) **
<i>Distance to health facility</i>			
Not a problem	1.00	1.00	1.00
A problem	.803 (.127)	.695(.087) ***	.814 (.143)
Independent variables at Level 2			
<i>Residence</i>			
Urban	1.00	1.00	1.00
Rural	.991(.001) ***	.982(.002) ***	.998 (.002)
Years of education	1.21(.027) ***	1.44(.025) ***	.947(.029) *
Income score	1.01(.001) ***	1.01(.001) ***	.998(.001) **

Note; *P<0.1; **p<0.05; ***p<0.01; robust standard errors in brackets; OR=Odd Ratios

Variations were also found among women who were working with regard to the use of the three maternal health indicators. As indicated in Table 2, women who were employed 1.7 times more likely to make the recommended number of ANC visits and 1.3 times more likely to attend postnatal care compared to women not working.

In addition, the bivariate analysis showed some variations in the three outcome variables amongst a number of demographic and socio-cultural variables (e.g. ethnicity, religious denominators, marital status, residence, and parity). Ethnicity was statistically associated with some of the outcome measures under consideration. Compared to the Akans, the Ga/Adangbe and

Ewes were less likely to make the required number of ANC visits recommended by the WHO. While, women from the Northern tribes were 1.9 times more likely to utilize postnatal services, but 0.7 and 0.5 times less likely to use ANC and access facility delivery respectively compared to the Akans. As well, compared to Christians, Muslim women were 1.3 times more likely to attend postnatal care services and Traditionalist were 0.2 times less likely to go for facility delivery. Likewise, women who did not identify with a religion were less likely to make the recommended number of ANC visits and utilize postnatal care services compared to Christians. Also, married women were more likely to attend ANC services compared with those who never married. Divorced, separated or widowed women were less likely to use facility delivery services compared with those who were never previously married.

There were also differences seen in rural versus urban dwelling women. Rural dwellers were less likely to make the WHO recommended ANC visits and go for facility delivery compared to their counterparts in the urban centers. Parity was significantly associated with women's use of ANC and facility delivery services. Women with four or more births were less likely to access health facilities for both ANC and delivery services compared to women with less than three births. From Table 2, women who had six or more births were 0.6 times less likely to make the recommended ANC visits and 0.4 times less likely to deliver in health facilities compared to women with less than three births.

With regard to access to health care, the bivariate results indicated that NHIS was highly associated with the use of all three-outcome measures. These are cards issued by the NHIA to assist pregnant women to access free maternal care. This means that pregnant women with NHIS cards were more likely to access all three maternal health services compared to those without NHIS cards. Nonetheless, women without NHIS cards who could afford to pay for maternal health

services in public and/or private health facilities also benefited from the above-mentioned services. Similarly, results showed that distance to health facilities was negatively associated with women's use of all three dependent (ANC, facility-based delivery and postnatal care services) variables. Women who indicated distance was a problem were 0.6 times less likely to seek facility delivery compared to those who said distance was not a problem.

With respect to the community-level characteristics (independent variables at level 2), women residing in rural communities were 0.9 and 0.9 times less likely to utilize ANC and facility delivery services, respectively. Also, communities in which women with higher average years of education reside were significantly more likely to access ANC and deliver in health facilities.

4.4 Multivariate Analysis

Multivariate results are presented in Table 3; these show the net effects of both individual and community-level factors on all the three outcome variables. In other words, table 3 tests whether all of the independent variables (both continuous and categorical) put together can significantly predict the likelihood of patients attending antenatal, delivery and postnatal care.

The multivariate results were largely consistent with some bivariate findings. However, the results indicated that women's educational background was statistically associated with ANC visits, facility delivery and postnatal care services in Ghana. For instance, women with secondary/higher education were 1.8 and 1.4 times more likely to access facility delivery and postnatal care services respectively, compared to women who had no education after adjusting for other theoretical relevant variables.

Also, the wealth status of women largely affected their decisions regarding the use of the three maternal health outcomes. For example, after controlling for the effects of education and

occupation among women, it was still observed that the wealthy were 3 times more likely to make the ANC recommended visits and 3.9 times more likely to seek facility delivery compared to the poor (see Table 3). Further analysis at the multivariate level showed that ethnicity was statistically associated with women's use of ANC, facility delivery and postnatal care services. It was interesting, however, to find that women from the Northern tribes were significantly more likely to seek facility delivery and postnatal care services compared to Akan women. For example, women from the Northern tribes were 1.3 times more likely to seek facility delivery, and 1.9 times more likely to go for postnatal care compared to the Akans (see Table 3). Besides, after controlling for other relevant variables, Muslims were more likely to make the recommended ANC visits compared to Christians. On the other hand, Traditionalist and women with no religious affiliation were less likely to seek facility delivery services compared to Christians. Consistent with the bivariate results, the multivariate findings showed that rural dwellers were less likely to use facility delivery and postnatal care compared to urban dwellers. Similarly, regarding parity at birth, the multivariate findings remained unchanged compared with the bivariate results having adjusted for other relevant variables.

The influence of the predictor variable (NHIS) remained statistically robust and did not change from what was observed at the bivariate level with regard to the outcome measures after controlling for related theoretical variables at the individual level. Furthermore, as showed in the bivariate analysis, results in Table 3 indicated no statistically significant differences for women's access to health care services with respect to distance to health facility.

The intra-class correlations for ANC, facility delivery and postnatal care were estimated as 17.20%, 19.5% and 40.3%, respectively which indicate the variations in women's access to health care at the community-level. While they are moderate, they are statistically significant and suggest that we need to consider community-level variables to fully understand the behaviour of the Ghanaian women when it comes to maternal health care utilization. Community-level results suggest that communities which have more women with higher education were significantly more likely to access antenatal care and facility delivery.

Table 3: Multivariate analyses of Antenatal, delivery and postnatal care for Ghanaian women, 2014

Variables	Antenatal OR	Delivery OR	Postnatal OR
Socio-economic variables			
<i>Education</i>			
No education	1.00	1.00	1.00
Primary education	1.06 (.149)	1.23 (.124)	1.28 (.154)
Secondary/Higher education	1.26 (.165)	1.86 (.119) ***	1.44 (.141) ***
<i>Wealth status</i>			
Poor	1.00	1.00	1.00
Middle	1.04 (.164)	1.30 (.136)	.788 (.133)
Rich	3.04 (.278) ***	3.99 (.245) ***	1.13 (.189)
<i>Employment status</i>			
Not working	1.00	1.00	1.00
Working	1.71 (.143) ***	1.02 (.121)	1.33 (.104) ***
Demographic and socio-cultural variables			
<i>Age of respondents</i>			
	1.04 (.001) ***	1.02 (.001)	1.01 (.001)
<i>Ethnicity</i>			
Akans	1.00	1.00	1.00
Ga/Adangbe	.394 (.234) ***	.984 (.199)	.856 (.229)
Ewes	.574 (.193) ***	.904 (.196)	1.09 (.167)
Northern tribes	1.17 (.186)	1.38 (.157) **	1.93 (.165) ***
Others	.511 (.403)	.471 (.328) **	1.18 (.319)
<i>Religious denomination</i>			
Christians	1.00	1.00	1.00
Islam	1.54 (.187) **	1.06 (.170)	1.12 (.153)
Traditionalists	.781 (.256)	.363 (.325) ***	.826 (.291)
No religion	.653 (.212)	.554 (.210) ***	1.01 (.233)
<i>Marital Status</i>			
Never married	1.00	1.00	1.00
Married/Living together	1.41 (.196)	.899 (.187)	.929 (.160)
Divorced/Separated/Widowed	1.02 (.253)	.758 (.250)	1.03 (.219)
<i>Residence</i>			
Urban	1.00	1.00	1.00
Rural	1.21 (.195)	.506 (.172) ***	.571 (.250) **
<i>Parity at birth</i>			
Less than 3	1.00	1.00	1.00
3 to 5 births	.711 (.153) **	.672 (.111) ***	1.16 (.124)
6 or more births	.427 (.242) ***	.583 (.181) ***	.964 (.193)

Note; *P<0.1; **p<0.05; ***p<0.01; robust standard errors in brackets; OR=Odd Ratios

Table 3: cont'd: Multivariate analyses of Antenatal, delivery and postnatal care for Ghanaian women, 2014

Variables	Antenatal OR	Delivery OR	Postnatal OR
Access to healthcare			
<i>Respondent has NHIS</i>			
No	1.00	1.00	1.00
Yes	1.68 (.124) ***	1.161 (.098) ***	1.21 (.101) **
<i>Distance to health facility</i>			
Not a problem	1.00	1.00	1.00
A problem	.973 (.125)	.842 (.091) *	.806 (.143)
Independent variables at Level 2			
Years of education	1.14 (.047) ***	1.21 (.043) ***	1.02 (.054)
Average Income score	1.01 (.002)	.998 (.002)	.998 (.002) ***
Variance component	.684***	.795	2.22
Intra-Class Correlations⁴	17.20%	19.5%	40.3%

Note; *P<0.1; **p<0.05; ***p<0.01; robust standard errors in brackets; OR=Odd Ratios

In summary, the quantitative results revealed that both individual and community-level factors are significant predictors of maternal health services in Ghana. At the individual level, wealthier women and those with higher education were significantly more likely to utilize ANC and delivery services, but less likely to use postnatal care services. Communities with women of higher average years of education were significantly more likely to access antenatal care and experience facility-based delivery. The results of this study are discussed in detail in chapter six.

⁴ Intra-class correlation also known as intra-class correlation coefficient is a form of descriptive statistics used in measuring quantitative units grouped together (Koch, 1982). The ICC describes how strong the various units in the same groups are in terms of resembles (i.e. the clustering at the community level).

Chapter 5: Policy Documents Analyses

5.0 Introduction

The chapter examines and analyzes policy documents on maternal and child health care in Ghana. The first section provides a review of policy documents analyses. The second part includes a description of selected policy documents of the MOH Ghana on maternal and child health care followed by the analysis of the selected documents.

5.1 Review and description of policy documents

Policy documents of the MOH Ghana on maternal and child health care were reviewed to understand the processes, content, and outcomes of the policies in the ten regions of Ghana. Policy analysis is considered as a fundamental method in understanding and making sense of social and organization practices, especially in the Western countries (Walt & Gilson, 1994). That is, documents can inform researchers in more depth about the context of social settings and policy decisions. Having said that, in considering this approach attention needs to be given to the knowledge that documents ‘contain’ about the setting, the cultural values attached to them, and their distinctive types and forms (see e.g. Coffey, 2014; Prior, 2008). For instance, the study of policy documents has been considered as a method where the analytical process permits researchers to reconstruct, sustain, contest and change our sense of social reality (see e.g. Patton, 2002). This means researchers have the ability to reduce the data in scope while retaining essential elements to derive core consistencies and meanings from it.

In addition, other scholars have emphasized the need for policy analysis that allows and encourages public health scholars and health departments to reflect on policy outputs in order to assess their successes and failures (Breton et al., 2008; Walt & Gilson, 1994). According to Prior (2003), documents are sources for research in their own right, and in using this approach experts should keep in mind the dynamics involved in the relationships between production, consumption, and content in order to understand the process of exchange to situate the product within the context of the study (see Prior, 2003). Document analysis was used in this study to support the findings from the data set (see chapter four), and to establish a full and deeper understanding of policy implementation challenges facing Ghana's health sector in its quest to provide maternal and child healthcare services. The documents studied included the five-year program of work (5YPOW) and the free maternal health care policy as well as reports on MDGs 4 and 5. The selections were made based on the objectives of the documents, target or expected outcomes and funds allocated to implement the policies outlined in the documents. The first four documents were the 5YPOW, followed by three MDG reports and a report on the free maternal health care initiative in Ghana. These are listed below:

1. The Ghana Health Sector Annual Program of Work 2004
2. The Ghana Health Sector Program of Work 2011
3. The Ghana Health Sector Program of Work 2013

4. An evaluation of the free maternal health care initiative in Ghana Report 2013
5. The Ghana Health Services 2014 Annual Report
6. The MDG acceleration framework and country action plan (Maternal Health-MDG Report), 2011
7. The Ghana MDG Report 2013
8. The Ghana MDG Report 2015

5.2 Description of the Five-year Health Sector Program of Work (5YPOW)

Ghana's first Five Year Health Sector Program of Work (5YPOW) of the Ministry of Health (MOH) was implemented during the period of 1997 to 2001. In 1996, Ghana established a long-term vision for growth and development by 2020. This agenda was known as 'Vision 2020'. The 'Vision 2020' document outlines five priority areas for action in the medium to long-term. They include: maximizing the healthy and productive life of Ghanaians, fair distribution of benefits of development, attainment of a national economic growth rate of 8 percent, reduction of population growth rate from 3 percent to 2.75 percent and the promotion of science and improved technology as tools for growth and development (MOH, 2001). The overall aim of the 'Vision 2020' document in relation to the national health policy was to improve the health status of all Ghanaians. The 'Vision 2020' therefore, set the following specific health objectives:

- Achieve significant reduction in the rates of infant, child and maternal mortality rates
- Control risk factors that expose individuals to major communicable diseases effectively

- Increased access to health services, especially in rural areas
- Establish an effective health system reoriented towards delivery of public health services
- Strengthen effective and efficient management of the health system (MOH, 2001).

In order to respond to the health needs of its citizenry and to help the government to achieve its agenda, the MOH developed and published a Medium-Term Health Strategy (MTHS) document and a five-year program of work to guide health development in Ghana over a five-year period starting from 1997 - 2001. The objectives for the Program of Work (POW) were to achieve:

- Increased geographical and financial access to basic services
- Better quality of care in all health facilities and during outreaches
- Improved efficiency in the health sector
- Closer collaboration and partnership between the health sector and communities, other sectors and private providers both allopathic and traditional
- Increased overall resources in the health sector and to ensure equitable and efficient distribution.

The MOH as the sector in charge of health policy and healthcare delivery for the entire nation came out with a mission statement that summarizes the overall direction of the sector:

“As one of the critical sectors in the growth and development of the Ghanaian economy, the mission of the health ministries, departments and agencies is to improve the health status of all people living in Ghana through the development and promotion of proactive policies for good health and longevity; the provision of universal access to basic health service and provision of quality health services which are affordable and accessible. These services will be delivered in a humane, efficient, and effective manner by well trained, friendly, highly motivated and client oriented personnel.” (MOH, 2001, p 2).

The idea was that specific targets could be achieved over the five-year period (1997 – 2001) through a sector-wide monitoring of indicators to measure progress in the nation’s health. Such sector-wide indicators included the following:

- 1) Health Status: IMR/1000 Live Births; UMR/1000; MMR/100,000; Life Expectancy/Year
- 2) Fertility: Annual Growth Rate and Total Fertility Rate (TFR)
- 3) Nutrition: Percentage of Children with Severe Malnutrition.

However, these indicators could change depending upon emerging diseases that affected Ghana. The 5YPOW has been used by the MOH Ghana as a guide to monitor the health needs of Ghanaians since its inception from 1997-2001, including the current edition 2012-2016. These documents have been used extensively, both by the MOH, scholars and development partners in assessing the health situation in Ghana.

5.3 Description of the Free Maternal Health Care in Ghana

In September 2003, the Government of Ghana introduced the policy of exempting all expectant mothers from delivery fees in health facilities. This was initially done in “the four most

deprived regions of the country, which in April 2005 was extended (without formal evaluation) to the remaining six regions” (Witter et al., 2007, p.62). The four most deprived regions are the Northern, Upper East, Upper West, and Central regions (Ensor et al., 2001). The objective of the policy of free delivery care was to reduce financial barriers that prevented poor women from accessing maternal health services in Ghana. The policy aimed at increasing the proportion of facility-based delivery to reduce maternal and perinatal deaths in Ghana. One of the major obstacles to accessing maternal health care according to previous studies is money; therefore, user fee exemption has the ability to increase health service utilization in all areas of health, especially maternal healthcare services. This brought about an increase in facility-based delivery in Ghana, but the initiative was not adequately funded by central government (MOH) through the district health administration to reimburse both public, and private health facilities per the number and type of deliveries they attended monthly (MOH, 2004; Witter et al., 2007). Therefore, some health facilities started charging user fees for maternal healthcare utilization. This resulted in a reduction in the utilization of maternal health care in Ghana since expectant mothers could not afford to use both private and public health facilities for skilled attendant at birth (Witter et al., 2009; HERA-BHPG, 2013).

The minister of health in April 2008, declared the high maternal mortality in Ghana as a national emergency (MOH, 2008). In response to the “national emergency”, the president of Ghana travelled to the UK to attend “Business Call to Action” conference, in May 2008, where he announced that maternal deliveries would be free of charge in Ghana. His call was supported by a grant of 42.5 million British pounds by the UK government. The MOH upon receiving the good news developed policy guidelines to start the free maternal healthcare policy in June 2008 and implementation started in July 2008. Registration of pregnant women started nationwide to

keep track of the implementation of the policy. The registration process for pregnant women was factored into the National Health Insurance Scheme (NHIS) without the payment of any premium for access to medical care under the scheme. This included a comprehensive maternal healthcare package for (ANC, delivery and post-natal care as well as neonatal care for infants for a period of three months). This initiative brought a big relief to all women of reproductive age who were pregnant at that time; this resulted in an increase in both ANC and facility-based delivery as indicated in the GDHS 2008 report (GSS et al., 2009). The fee exemption policy was later on replaced by the NHIS that covers the expenditure for a wide range of health services, including maternal health care. Currently, pregnant women and their newborns in Ghana continue to enjoy the free maternal care including delivery. However, disparities exist in the service delivery due to the non-availability of care in some health facilities, particularly in the rural part of Ghana. Besides, indirect costs continue to be a challenge in the smooth implementation of the policy, especially for women living a long distance from health facilities. The families of pregnant women and their relatives face the problem of high cost of transportation to health facilities during emergencies.

5.4 Document Analysis

The document analysis was done to ascertain a full and deeper understanding of the context, contents and purposes of the maternal and child health care policies in Ghana. Refer to **page 66-67** for the full list of documents used for the analysis. **Table 4** on **pages 77-80** provides the details on the document analysis.

The documents were critically examined with particular attention paid to their content and objectives, expected outcomes and budget allocated to maternal and child health care. This was

conducted in order to compare the findings with that of 2014 GDHS data to evaluate the progress made on maternal and child health. The focus of the analysis was on how Ghanaian Government policies on health addressed goal 4 & 5 of the MDGs agreed upon by the United Nations. The following questions were used as guiding questions for the analysis: What issues did the policy propose to address and how much money was allocated for the implementation of the policy from the MOH budget? What infrastructural development took place within the health sector during the past ten years (2004-2014) towards the achievement of the policy objectives?

The following sub-themes were identified from the document analyses: meeting objectives of MDGs 4&5, maternal healthcare under the National Health Insurance, challenges facing MDG 4&5 indicator targets, and evaluation of the free maternal healthcare initiative. These themes will be explored further in the following sections.

5.4.1 Meeting Objectives of MDGs 4&5

This analysis sheds light on the steps taken by the government of Ghana to reduce inequalities in maternal and child healthcare in Ghana. Some of the challenges faced by the government and MOH with respect to inadequate funding to permit the attainment of MDG 4&5 targets were highlighted in the Ghana Health Sector Program of Work 2013, and re-echoed in the Ghana MDG Reports 2013. Most strategies identified to improve maternal and child healthcare focused on increasing geographical and financial access to health care to increase the proportion of women who deliver in health facilities to reduce maternal and infant mortality.

Geographically, the health sector expanded the Community-based Health Planning and Service (CHPS) and health training institutions to scale-up the training of midwives to increase skilled delivery at birth in the CHPS zones and compounds:

“Rolling out CHPS, and strengthening referral and community support systems to address obstetric emergencies. The local government system in various districts to build additional 450 CHPS zones to increase access and use of modern ANC, postnatal care and adolescent health. The retraining of existing staff and the training of new staff through the establishment of midwifery schools as well as the establishment of at least one fully operational and furnished hospital in every district to deal with complications from maternal health delivery” (MOH, 2013).

5.4.2 Maternal Healthcare under the National Health Insurance Scheme

The introduction of the free maternal healthcare through the NHIS gave women access to healthcare services in their local communities and district health facilities which they would not have been able to access otherwise (**See table 4 for details**). For example, it was acknowledged in the Ghana Health sector annual program of work 2004, the role of the NHIS in increasing the uptake of maternal health services in Ghana: *“delivery of comprehensive health care services through the implementation of the national health insurance scheme”* (MOH, 2004).

5.4.3 Challenges facing MDG 4&5 indicator targets

There was also a focus on the progress of the MDGs, especially goals 4 and 5 in Ghana and the challenges facing indicator targets. As indicated in table 4, many of the documents highlighted the achievements of Ghana as a nation in areas of increased skilled delivery at birth and decrease in both infants and maternal deaths. Nevertheless, the documents did not hesitate to indicate that there is room for improvement since Ghana could not attain its MDG goal 5. Some of the challenges listed included the lack of adequate data on child mortality, poverty as a cause of maternal mortality, low coverage of comprehensive health care services, uneven distribution of skilled birth attendants, and many others:

“Inadequate human resources, poor quality of health care delivery in relation to ANC and postnatal care, lack of basic emergency obstetric care (BEOC) in health facilities, lack of blood transfusion service in some district health facilities and poor accessibility often emerge as a bottleneck for pregnant women, particularly in rural areas of Ghana” (Ghana MDG Report, 2011).

Other challenges mentioned in one of the MDG reports as stated in table 4 included:

“Under reporting of child deaths and inadequate national data to provide complete and reliable information on child health, unevenly distribution of skilled attendants at birth and the lack of attention to the Three Delays by health personnel in Ghana” (Ghana MDG Report, 2013).

5.4.4 Evaluation of the Free Maternal Healthcare Initiative

The report on the evaluation of the free maternal healthcare initiative in 2013 concentrated on the impacts of the MOH free maternal health care policy on the utilization and quality of skilled delivery services in Ghana. The report outlined the challenges in the implementation of the guidelines on the free maternal health care at all levels of service delivery, and within the NHIS and the MOH.

The report acknowledged a “steady increase in the number of facility-based deliveries from about 300,000 in 2007 to about 500,000 in 2011 and institutional maternal mortality ratio reported by the Ghana Health Service declined from 230 per 100,000 in 2007 to 170 in 2011” (HERA-HPG, 2013). The report admitted that hospitals/health facilities faced challenges in providing an acceptable level of privacy and confidentiality for women during labour.

Most health care facilities could not provide the services of assisted delivery such as forceps delivery, and Caesarean section to women due to non-availability of care. More over, shortages and/or user fees for ambulance services affected the referral system in healthcare facilities, therefore, women who needed emergency referral have to use public transportation or pay for the cost of the ambulance to the next available health facility.

Similarly, staff supervision and monitoring of the care of pregnant women was not correctly documented and done frequently (HERA-HPG, 2013). This means that the progress of expectant mothers was not well monitored during the process of labour: this could be dangerous for mothers, should their conditions change in the third stage of labour. If a pregnant woman experiences a post-partum haemorrhage as a consequence of retained placenta, in the absence of a doctor or senior midwife to supervise the removal of the placenta to stop the bleeding, the woman can bleed to death (HERA-HPG, 2013; Witter et al., 2007).

Other barriers to facility-based deliveries included distance and cost of transport, attitudes and perceived hostility of maternity staff, cultural practices and beliefs constraints, and the cost of supplies requested by midwives as well as the non-availability of services in rural health facilities and some district hospitals. The report came out with several factors that can serve as a guide to improve future policies on maternal health. These included streamlining the NHIS registration process, expanding the list of insured services, addressing human resource bottlenecks for maternity care, and decentralising maternity services. This would bring services closer to communities to build the capacity of health centres and CHPS compounds for normal delivery services as well as increasing client-friendliness of maternity services and improving client communication by maternity staff (HERA-HPG, 2013).

In summary, this document analysis indicated that the free maternal health care policy brought about a steady increase in the number of facility-based deliveries and a reduction in maternal mortality ratio in Ghana. Notwithstanding, hospitals/health facilities faced challenges in providing an acceptable level of privacy and confidentiality for women during labour. Shortages and/or user fees for ambulance services also affected referral systems in healthcare facilities. Distance and cost of transport, attitudes and perceived hostility of maternity staff, cultural practices and beliefs constraints were mentioned as barriers to maternal health care utilization in Ghana. Other barriers included the lack of availability of services in rural health facilities and some district hospitals, and the cost of supplies requested by midwives (midwives in Ghana are persons who have successfully completed midwifery education program and are licenced to deliver pregnant women in health facilities).

See **Table 4** below for details on the document analysis.

Table 4: Documents analysis display table on maternal and child health care in Ghana (2004-2014)

#	Name of Document/Year	Summary of document (Purpose, Key point)	Theme (main or sub themes)	Target/Expected outcome	Funds Allocated
1	Ghana Health Sector Annual POW MOH, 2004.	<p>Harness existing opportunities to improve health care in Ghana:</p> <ul style="list-style-type: none"> • Delivery of comprehensive health care services • Scaling up implementation of national ambulance services • Implementation of national health insurance 	<p>Health sector efficiency</p> <p>Increase geographical and financial access to health care</p> <p>Maternal and reproductive health services</p> <p>Child and adolescent health services</p>	<p>Increase supervise delivery by 80% and 50% of public health facilities to provide EOC.</p> <p>Reduce MMR in health institutions to 180/100 000.</p> <p>80% of districts to implement complete Integrated Management of Childhood Illness (IMCI).</p> <p>Improve child nutrition rate of children attending CWC.</p>	<p>Maternal delivery exemption 3M USD.</p> <p>Expanding of Health Training Institutions 2.4M USD.</p> <p>Health Insurance 1M USD.</p>
2	Ghana Health Sector POW MOH, 2011.	<p>Accelerating activities towards achieving the Millennium Development Goals:</p> <ul style="list-style-type: none"> • Improve access to quality maternal, neonatal, child and adolescent services • Improve coverage of Primary Health Care (PHC) 	<p>Procurement of Public Health essential commodities such as vaccines and contraceptives.</p> <p>Increase access to modern FP service and training of midwives.</p> <p>Increase coverage of skilled attendant at delivery.</p> <p>Construction of CHPS compounds and zones and implementation of recommendations from the MAF & EmONC assessment studies.</p>	<p>800 new functional zones operationalized, five midwifery training schools set up and increase skilled delivery rate by 50%.</p> <p>Essential nutrition actions scaled up to cover three regions.</p> <p>Increase coverage of fully immunization of children by age one to 80%.</p>	<p>RCH activities 60,299 Ghana cedis</p>
3	Ghana Health Sector POW MOH, 2013.	<p>Bridging equity gaps in health care through the CHPS concept:</p> <ul style="list-style-type: none"> • Retraining existing staff • Engage local gov't to build additional 450 CHPS zones • Increase access and use of modern contraceptives, ANC, post natal care and adolescent health 	<p>Working together to achieve MDG 4 & 5 by 2015.</p> <p>Access to comprehensive/ basic EmONC and reduce malnutrition.</p> <p>Increase Expanded Program of Immunization (EPI) coverage.</p>	<p>Increase in skilled birth attendant by 60% and 40% in FP usage with the implementation of MAF.</p> <p>ANC and post natal care clinical audit report to be made available.</p> <p>80% increase in 4 visits of ANC and 60% for Post natal care.</p> <p>100% of all district and private hospitals to provide EmNOC.</p>	<p>Reproductive and Child Health 298 247.37 Ghana cedis</p>

#	Name of Document/Year	Summary of document (Purpose, Key point)	Theme (main or sub themes)	Target/Expected outcome	Funds Allocated
4	Evaluation of the free maternal health care initiative in Ghana Report 2013, HERA, Belgium and Health Partners, Ghana	The evaluation looks at the impact of the MOH free maternal health care policy on utilisation of skilled delivery services in Ghana; and the effects of the free maternal health care policy on quality of maternal health services. The report also assessed the process and challenges in the implementation of the guidelines on free maternal health care policy at all levels of service delivery, and the challenges in the implementation of the guidelines on the free maternal health care policy within the NHIS and the MOH. Finally, the evaluation highlights lessons that will feed into the revision of the policy and for future initiatives.	Streamlining the NHIS registration process and expand the list of insured services, addressing human resource bottlenecks for maternity care, decentralise maternity services in order to bring them closer to communities by building the capacity of health centres and CHPS compounds for normal delivery services, minimise payment delays of NHI claims, increase client-friendliness of maternity services and improvement in client communication by maternity staff.		
5	Ghana Health Services 2014 Annual Report, 2015, Accra	This report highlights the following implementation activities, and health service initiatives in the Health Sector Medium Term Development Plan (HSMTDP 2014-2017). The report also highlights on the challenges faced by the GHS at the end of 2013 and the beginning of 2014. It again, detailed a summary of key priorities actions for GHS for 2014 which included scaling-up of CHPS under the 'close-to-client' service delivery policy.	Family planning, Safe motherhood and child health, accelerated reduction of maternal mortality, newborn care, contribution of CHPS to service delivery, trend of ANC4+ visits from 2010-2014, trend of ANC 4+ visits by regions 2012- 2014, trend of skilled delivery 2010 – 2014, regional trend in postnatal care coverage 2012 – 2014 and trend in institutional Maternal Mortality Ratio 2010 -2014.		
6	MDG acceleration framework (MAF) and country action plan	The report looks at the overall progress of the MDGs in Ghana with specific emphasis on maternal health since its	Maternal Health/ MDG 5 ANC and post natal care coverage, Skilled delivery, Family planning,	Establishment of at least one fully operational and furnished hospital in every district to deal with	Not specified

#	Name of Document/Year	Summary of document (Purpose, Key point)	Theme (main or sub themes)	Target/Expected outcome	Funds Allocated
	(Maternal Health); 2011; MOH/UN, Accra (MDG Report).	progress was off-track according to the 2010 MDG Report. Some challenges mentioned in the document includes; resource allocation not aligned to match policy declaration, lack of systematic tracking of set targets such as focused ANC coverage, lack of basic emergency obstetric care (BEOC) in health facilities, lack of blood transfusion service in some district health facilities and poor accessibility often emerge as a bottleneck for pregnant women, particularly in rural areas. It also stated strategic interventions of high impact for achieving the MDGs, especially MDG5.	Expansion of CHPS compounds and zones	complications from maternal health delivery. Increase access to health services under the NHIS. Improve supply and distribution of Family planning commodities Improving capacity in provision of FP services. Rolling out CHPS, and strengthening referral and community support systems to address obstetric emergencies.	
7	The Ghana MDG Report 2013, GSS/UNDP; Accra	A report prepared by the GSS Ghana showing a critical analysis of the progress and retrogression of the MDGs out of the 2010 PHC data of Ghana. The synopsis of the report provides a quick glance to the challenges facing Ghana in its quest to achieve the MDGs with reference to the progress of MDGs, especially goal 4 and 5 in Ghana	Lack of adequate data on child mortality, low coverage of comprehensive health services, inadequate human resources, poor quality of health care delivery, ANC and postnatal care. Maternal mortality rates by locality and region, uneven distribution of skilled attendants at birth, lack of attention to the three Ds by health personnel in Ghana, low coverage of NHIS, non-availability of care and distance to health facility.	Establishment of midwifery schools and redistribution of midwives, Scaling-up CHPS. MAF implementation by ensuring the three key interventions namely; FP, skilled delivery services, and emergency obstetrics and neonatal care (EmONC) and ensuring effective referral systems for emergency care	
8.	Ghana MDG Report 2015; NDPC/UN/UNDP Accra	This report details with Ghana's progress towards attainment of the MDGs as of 2014. It again shows the methods adopted in the preparation of the report which includes a desk review of relevant policy documents and of the five previous Ghana	Progress of MDG 4 and 5. Strengthening the MDG Accelerated Framework (MAF) initiative. Safe motherhood initiative and Comprehensive ANC linked with	Target not achieved, but significant improvement made as of 2014.	

#	Name of Document/Year	Summary of document (Purpose, Key point)	Theme (main or sub themes)	Target/Expected outcome	Funds Allocated
		MDG reports, a trend analysis for the indicators of the MDGs. Others include data Ghana Living Standards Surveys (GLSS), Ghana Demographic and Health Surveys (GDHS), and institutional data from the various ministries, departments and agencies (MDAs). The report also stated various MDGs which were achieved and those which were off- track.	<p>Child Welfare Clinic (CWC) implementation of (EmONC) in all 10 regions in Ghana.</p> <p>Challenges of MDG 4 and 5:</p> <p>Inadequate national data to provide complete and reliable information on child health. Lack of well-motivated personnel with adequate skills in the health system to improve the poor quality of care. Lack of adequate resources to support activities under EPI. Socio-economic and socio-cultural factors such as low female literacy rates and low levels of women's empowerment. Inadequate data on maternal healthcare to facilitate regular and reliable assessment of maternal mortality issues. Limited deployment of skilled health workers, supply of equipment, logistics, staff accommodation, transportation and ambulance services; Slow scaling up of maternal health services, particularly at district level, as well as investments in CHPS and related PHC infrastructure and systems within the context of the Ouagadougou Declaration; Ineffective referral system nationwide, compounded by transport constraints (especially for women in labour).</p>		

Chapter 6: Discussion of Results, Conclusions, and Recommendations

6.1 Introduction

Pregnancy-related complications have been established as an important public health concern long before the declaration of the MDGs and SDGs by the UN (Gruskin et al., 2008; World Health Assembly, 1998; WHO, 1999; UN, 1995). Relevant organizations within the UN such as the WHO, UNICEF and UNFPA have established the right to life as a fundamental human right which seeks to promote not only gender equality and reproductive rights, but also foster conditions essential for life and survival. These conditions include access to health care services and immunization, housing and security, and food and good drinking water that will ensure safe pregnancy and childbirth for all women (WHO, 1999). Although there has been a steady decline in maternal mortality rate from 532,000 in 1990 to 303,000 in 2015, the global maternal mortality rate remains (WHO, 2015). This decline in global MMR is likely the results of progress made in developing countries to improve their MRR, possibly in response to the MDG goals (WHO, 2015).

It has been established that maternal deaths in third-world countries are often the ultimate tragic consequence of the cumulative denial of women's human rights. In other words, women are not dying because of terminal illness or deadly diseases, but rather because of failure of societies to consider women's lives as worth saving (Sai, 2000 cited in Ransom & Yinger, 2002; Fathalla, 2006). Available evidence suggests that 99% of the global maternal mortality occurs in developing countries with almost 67% taking place in SSA (Ashford, 2013; Srivastava et al., 2015; WHO, 2015). Significant proportions of these deaths occur in the rural areas of developing countries where there are scarce resources for obstetric care. The lack of universal access to

reproductive health services among women in low-income countries has also contributed immensely to the global MMR (UN, 2006; Hogan et al., 2010; Mangham-Jefferies et al., 2014). Endorsements on the universal access to reproductive health services were re-echoed in 2012 during the UN General Assembly meeting in New York to tackle the unacceptably high maternal mortality in developing countries including those in SSA (DAWN 2012). Despite these attempts to alleviate the problem, women still risk death to give life, even though they have the right to life and health care. The societal attitude of looking down at women has resulted in the denial of their rights to maternal health care services to ensure safe pregnancy and childbirth (Fathalla, 2006). The failure of developing countries to attain their MDG 5 targets at the end of 2015 could be the reason for the UN to repeat maternal health matters in goal three of the new UN's SDG's (see e.g. SDG 3.1: reduce the global MRR to less than 70/100,000 live births by 2030) agenda.

Ghana has continued to make progress in reducing its maternal mortality since the declaration of the MDGs in the year 2000. For instance, Ghana has virtually reduced the MMR by half, from 740/100,000 in 1990 to 319/100,000 live births in 2014 (Ghana Development Planning Commission, 2015; WHO/ UNFPA, 2015). Even though this reduction is significant, Ghana could not meet its MDG 5 target of 185 deaths/100,000 live births. This means that Ghana needs to develop more pragmatic approaches to improve the structural economic and other living conditions of women, and to protect expectant mothers from preventable deaths. Ghana's inability to meet its MDG5 target could be due to lack of maternal health interventions at the community level and the cumulative denial of women's rights with respect to employment opportunities and other social conditions. Nevertheless, research examining the effects of community-level factors on maternal health outcomes is extremely limited in Ghana compared to other countries in the sub-region.

Results from this study demonstrated that half of the mothers in the survey had obtained secondary/higher education and the majority were employed, just over half identified within the poor income bracket. The majority of mothers in the study attended the recommended number of prenatal classes, gave birth in a health care facility and attended postnatal care two months after giving birth.

Arguably, the above findings are intriguing considering the fact that Ghana as a country has not performed well when it comes to female education, facility-based delivery and possibly women's employment. Although women's education has improved significantly at the post-secondary and tertiary level according to the 2010 Population and Housing Census compared to that of the 1970 figures, there is further room for improvement. For instance, 6.3% of Ghanaian women had post-secondary and tertiary education and 38.4% had no education in 2010 compared to 2.2% and 82.3% respectively, in 1970 (GSS, 2013).

Previous studies have revealed that the majority of pregnant women in Ghana seek antenatal care from health professionals. However, only one in two women deliver in a health facility, and three in four women seek postnatal care (GSS, 2009; GHS, 2009; Doku et al., 2012; Speizer et al., 2014). The findings of this study showed similar trend with respect to ANC attendants, but many more women delivered in health institutions. Likewise, the findings of this study again corroborate with the views of other studies from Ghana with slight variations regarding the trend of skilled delivery at birth. For example, Esena & Sappor (2013) reported on the trends of skilled delivery in the Ga East Municipality of Ghana at 29.8% in 2008, 31.6% in 2009 and 37.5% in 2010, respectively. This is very low compared to the national figure of 68% in 2011 (UNICEF, 2014), and that of 54.6% reported in 2013 (GHS/RCH, 2014). This indicates

that some pregnant women in the municipality prefer home delivery with the TBA to facility-based delivery.

Although, Ghana has had challenges in the past with regard to facility-based delivery and postnatal care, the findings of increased usage of facility-based delivery and postnatal care in this study, could be the result of various policies being rolled out by the GHS/MOH and its partners to ensure progress towards the attainment of the MDG 4 and 5. These policies included the government of Ghana's policy of exempting expectant mothers from delivery fees in all public health institutions in September 2003, the implementation of the free maternal health care policy in July 2008 and the subsequent implementation of the free maternal health care policy under the NHIS. The above policies exposed pregnant women in Ghana to a range of subsidized and comprehensive health care services including ANC and delivery (Witter et al., 2007; Opoku, 2009; GHS/RCH, 2014; GSS, 2015; Ganle, 2014).

The policy documents analysis in Table 4 confirms the above claim regarding pregnant women having access to a broad range of services. The analysis reveals that the government of Ghana through the MOH has geographically expanded the CHPS and health training institutions to scale up the training of midwives to increase skilled delivery at birth in the CHPS zones and compounds. For instance, it was mentioned in one of the policy documents that government, through the local government authority, was to build additional 450 CHPS zones to increase access and use of modern contraceptives, ANC, postnatal care and adolescent health (Ghana Health Sector POW MOH, 2013). Likewise, the evaluation of the free maternal health care policy put forward by the HERA-HPG (2013), upholds the finding that facility-based deliveries

in Ghana have increased since the introduction and implementation of the aforementioned policies.

The expansion of various health training institutions to train more health professionals (mainly midwives to oversee the numerous CHPS compounds and zones built across the country) is an important step for Ghana in sustaining its gains in reducing maternal and infant mortality and improve upon it (see Table 4). However, recent news articles have blamed the government of Ghana for refusing to employ graduates from the health training institutions to provide health care to the citizenry, including skilled attendants at birth to pregnant women (Ghana Web, 2016). This has resulted in the scarcity of human resources for health care, particularly the rural communities in Ghana, where pregnant women travel long distances to access facility-based delivery services. This brings to attention controversies that surround health policy and its implementation as indicated by Banchani and Tenkorang (2014), and Witter et al. (2013) that most health policies in Ghana have a weak link in addressing the contents of the policies, more specifically the lack of detailed planning for policy implementation. These experts further bemoaned that policies without guidelines and provision of adequate resources to ensure its smooth implementation do not yield good results.

Regardless of the above-mentioned achievements in Ghana with respect to facility-based delivery, a recent documentary of the Ghanaian media by Seth Kwame Boateng (2017) on the state of maternal health care in the second largest teaching hospital in Ghana indicates that facility-based delivery is not always of high quality and devoid of maternal deaths. The YouTube video entitled ‘Next to die’ simply means if ten pregnant women require Caesarean sections as an emergency treatment to save their lives and that of their babies, only one or two of

them can be saved due to inadequate theatres and equipment to perform the operation. The rest need to wait for their turn, and within the waiting period they could die or develop complications. Again, due to the number of women waiting for emergency treatment (Caesarean sections), the theatre bed and instruments are not properly disinfected and sterilized before the operations are carried out in order to save more women from dying. These are the serious situations that women are victim to in their quest to seek skilled delivery at birth that can give them cross infections of various types including HIV/AIDS and Hepatitis.

Another interesting revelation from the YouTube video was that some of the pregnant women were sleeping on the floor while others were sharing a bed together. The situation was worst amongst newborn babies. Three or four newborn babies with infectious conditions shared the same cot due to lack of space to be able to place a separate cot for each baby. These unfortunate situations and many others occurring to women could be some of the reasons why Ghana could not attain its MDG 5 goal of 185 deaths/ 100 000 live births at the end of 2015. In addition, the YouTube video clearly demonstrates that the health systems in Ghana do not only need more skilled professionals (nurses and doctors), but modern health infrastructure for maternal health care where emergency operations can be performed. This will ensure availability of care and improve quality of care for women at all levels of the health system in Ghana.

Nonetheless, some of the above-mentioned findings run contrary to studies in other developing countries where ANC and facility-based deliveries have been reported to be very low compared to the use of maternal services in Ghana after the inception of the MDGs (Yeboyo et al., 2014; Amano et al., 2012; Haque et al., 2016).

Several studies have underscored the positive association between ANC and facility-based delivery in developing countries, including Ghana (Amano et al., 2012; Moyer & Mustafa, 2013; Lambon-Quayefio & Owoo, 2014; Yebyo et al., 2014). Nevertheless, some socio-cultural variables (poverty, religion, place of residence, and maternal education) according to existing literature have weakened the impact of ANC on facility-based delivery (Gyimah et al., 2006; Gabrysch & Campbell 2009; Moyer et al., 2013; Ganle, 2014; Haque et al., 2016). For example, experts have identified religion and parity as significant predictors of pregnant women's place of delivery (Stephenson et al., 2006; GSS et al., 2009; Anyait et al., 2012; Tey & Lai, 2013; Haque et al., 2016). Previous studies helped highlight why women from the Northern tribes were less likely to seek ANC and facility-based delivery in Ghana (Ganle, 2014, 2015; Gyimah et al., 2006). These authors emphatically stated religion as a strong determinant of maternal health utilization in Ghana, and demonstrated that Muslim women were less likely to access facility-based delivery services during childbirth due to their religious beliefs. The finding of this study confirms the above-mentioned claim because while Muslim women made the recommended ANC visits, they failed to seek delivery and postnatal care services.

This study indicates that pregnant women who are ingrained in their belief systems, particularly amongst the Traditionalists are less likely to use ANC, and facility-based delivery services or postnatal care (see Table 3). This finding is consistent with other related studies in Ghana that women's belief systems contribute to the poor utilization of maternal health services, including the use of unsafe abortions services which put women's lives in greater danger (GSS/GHS, 2009; Henry & Fayorsey, 2002; IPAS, 2008; Sedgh, 2010; Morhee & Morhee, 2006; Senah, 2003).

Besides religion, our findings demonstrated a negative relationship between parity and the use of the outcome measures which corroborates with the claims of Anyait et al. (2012) and Haque et al. (2016) that women's place of delivery is dependent on their previous experiences of labour. Also, it was recognized that the higher the parity of a woman, the lower her chances of giving birth in a health facility. A possible explanation for this paradox could be that women who have had four or more births successfully see themselves as experienced with the birthing process and thus, may think they need no assistance from skilled birth attendants (Haque et al., 2016). Alternatively, they may consider the time they spend away from home as having a negative impact on the care of their older children. These findings suggest the need for continuous maternal health education to all women regarding the dangers associated with multiparous women delivering outside the health facilities to avoid the many preventable deaths that occur during labour. This indicates that facility-based delivery⁵ with skilled birth attendants has better pregnancy outcomes than home delivery with TBAs in Ghana as indicated in the GDHS 2014 survey (GSS, 2015). For example, Cofie et al. (2015) identified two patterns of preferences and birth outcomes in Ghana namely: preference for home delivery and facility-based delivery. The results indicated that pregnant women who delayed care seeking and delivered at home had increased cases of stillbirths and postpartum morbidities compared to those who had facility-based delivery.

⁵ Facility-based delivery in the Ghanaian context is used interchangeably with skilled attendant at birth. In Ghana, skilled delivery only takes place in health facilities. Health professional such as midwives, nurses, and doctors do not attend and deliver pregnant women in their homes. Pregnant women can only receive such services in health facilities such as clinics, health posts, health centres, hospitals and registered private health facilities, including Maternity Homes. It is only Traditional Birth Attendants (TBAs) who conduct deliveries in the client's home.

Ethnicity was also found to be statistically associated with some outcome variables under consideration. For instance, women from the Northern tribes were observed to be more likely to seek facility-based delivery and postnatal care compared to the Akans (see Table 3). This finding runs contrary to many studies in the three Northern regions of Ghana with respect to maternal health outcomes in the past (GHS/GSS, 2009; Banchani & Tenkorange, 2014; Afulani, 2015; Ganle, 2015; Amoakoh-Coleman). For example, according to the GHS/GSS (2009) four in every five births in the Greater-Accra region were delivered in the health facility compared to one in four births in the Northern region. Thus, this recent finding could be the result of the continuous health education within small communities coupled with the many CHPS compounds and zones in the three Northern regions of Ghana. Also, the impressive performances of the outcome measures among pregnant women in Northern Ghana could be one of the positive impacts of the free maternal health policy which allows pregnant women to seek skilled attendants before, during and after birth.

This study adds to other concerns raised by some scholars in Ghana and other developing countries in the past, that women's wealth combined with education enhances maternal health service uptake (Abekah-Nkrumah et al., 2011; Abor et al., 2011; Arthur, 2012; Doku et al., 2012; Haque et al., 2016). Women's wealth through higher education and employment opportunities bring improvement in their socioeconomic status that in turn may result in better maternal outcomes. The results of this study demonstrated that women's educational background was positively associated with the use of the three outcome measures. Pregnant women with secondary/higher education were 86% more likely to access facility delivery services and 44% more likely to access postnatal care compared their uneducated counterparts, having adjusted for other theoretical relevant variables. It is interesting, however, to note that employed women were

less likely to go for facility-based delivery. This counter-intuitive finding may be because we use an employment variable that is extremely limited. In their analysis of antenatal care in Ghana, Banchani & Tenkorang (2015) used a detailed ‘employment’ variable to demonstrate that the majority of employed women in Ghana are in fact ‘self-employed’. They also note that unlike those in ‘managerial/professional/clerical’ and ‘service’ occupations, self-employed Ghanaian women tend to have limited education leading to their antenatal health access being not so different or even sometimes worse than the uneducated. Thus, the relationship between employment, education and maternal health outcomes of women in Ghana is complex and needs to be properly unpacked with qualitative data. Meanwhile, the finding is inconsistent with Kamal (2013) who indicated that in Bangladesh, employed and educated women were more likely to seek facility-based delivery and caesarean sections compared to unemployed and uneducated women. Kamal further indicated that women with high socioeconomic statuses have the power to utilize private health facilities for quality maternal health care services. Kamal’s finding is consistent with some studies in Ghana that women within the higher socioeconomic statuses prefer the use of private health facilities during labour and postnatal care (Banchani and Tenkorang, 2014; Afulani, 2015). Despite the aforesaid explanations, these findings need to be investigated further to better understand why employed women compared to unemployed women are less likely to access facility-based delivery services.

The results of the study confirm the negative impacts of rural residence on the use of maternal health services in Ghana. Women in rural areas were less likely to access the three outcome variables compared to women in urban areas. Apart from ANC visits, facility-based delivery and postnatal care were poorly utilized by women in rural Ghana (see Table 3). Previous studies have explained this problem by maintaining that women in urban areas often have higher

socioeconomic statuses which can affect their use of maternal health services. For instance, it has been stated elsewhere that almost 24 percent of the poorest women deliver with skilled attendants, compared to about 95 percent of the richest women in Ghana. Other studies have also linked urban residence with higher quality of maternal health care services in Ghana compared to their rural counterparts. For example, women from urban areas do not need to travel long distance to access comprehensive care and at the same time have private health facilities at their disposal to access maternal health care services for a fee from equally well-trained professionals.

The low quality of maternal health care services provided to rural people in Ghana and other developing nations is a consequence of less developed health infrastructure and inadequately trained health professional to provide the needed quality of care. Some experts have stated that women in rural Ghana are more likely to be treated poorly, even when they seek care in urban facilities compared to women in urban areas. Compared to those from urban areas, women residing in rural areas lack financial resources to pay for transportation cost to access quality care at critical moments beyond their catchment areas even when the costs of services are covered by NHIS (Gabrysch & Campbell, 2009; Friberg et al., 2010; Izugbara & Ngilangwa, 2010; GSS, 2011; Lori et al., 2012; UNDP, 2012; Graham et al., 2013; Moyer & Mustafa, 2013; Yebo et al., 2014; Moyer et al., 2014; Afulani, 2015).

The rural-urban differences in maternal health care services with respect to infrastructural development and the distribution of human resources is a well-known problem in Ghana over the past number of decades (Lori et al., 2012; UNDP, 2012; Agyemang & Aboagye, 2013). A review of policy documents on maternal and child health care of the MOH Ghana has indicated this point in addition to many of the 5YPOW documents. For example, the bridging of equity gaps in

geographical access to health care, and the provision of social insurance to protect the poor were identified as key priority areas of the MOH policies with regards to maternal and child health care (MOH, 2013). The CHPS concept (Ghana's own version of the PHC system by the WHO) was developed by the GHS/MOH to solve problems of equity gaps between rural and urban Ghana with respect to health care delivery. The CHPS concept since its inception has contributed immensely in providing maternal access in rural Ghana, especially the provision of ANC, facility-based delivery and postnatal care services (see Table 4).

This notwithstanding, equity gaps still exist in the provision of ANC, facility delivery, and postnatal services in rural and urban Ghana. Quality of care, infrastructural development, lack of skilled professionals to manage rural health facilities, poor road networks, poor referral systems and cost are some of the reasons for these equity gaps. This could be one of the reasons why Ghana was unable to meet the MDG 5 target of 185 deaths/100,000 live births in 2015, despite innovative programs rolled out by the government of Ghana and its developing partners to safeguard the lives of pregnant women. Approximately 50% of Ghana's population live in rural areas with the majority of women uneducated and lacking access to basic health care (GSS, 2012; Gething et al., 2012; Afulani, 2015). The findings of this study are in consonance with the views of Gething et al. (2012) that the complexity of access factors in addition to distances to health facilities are significant barriers in Ghana, especially for rural dwellers, making it very difficult for women to access maternal health care. They further explained that approximately a third of women in rural Ghana live more than four hours away from district health facilities and, therefore, stand a higher risk of dying in the event of unexpected complications during labour or delivery. This assertion seems to agree with the Solar and Irwin (2010) that health inequities are the consequences of unequal distribution of power, prestige, and resources among groups around

the globe, nations, societies and communities. Therefore, we call on the government of Ghana and MOH to do more to solve the numerous challenges facing the smooth implementation of the CHPS concept to make the policies outlined in various documents a reality rather than a mere political promise.

The case of inequalities in accessing maternal health care services in most developing countries are not vastly different from that of Ghana as indicated by Osorio et al. (2014) and Yebyo et al. (2014) that regional inequalities exist with regard to maternal health services in Colombia and Ethiopia, respectively. These experts stated low socioeconomic development, lack of health infrastructural development at the community level and skilled attendants to provide care to women as the basis for the inequalities. This indicates that besides health infrastructural development, improvements in the structural economic conditions of women and their families are key in bridging the equity gaps in the uptake of maternal health services (Solar and Irwin, 2010).

Furthermore, access to National Health Insurance Scheme (NHIS) remains a strong predictor of maternal health services utilization after controlling for socioeconomic and demographic factors. This is an indication that NHIS is helping to bridge the inequality gaps in maternal health access since the use of skilled attendants at birth is a protective factor against maternal death. It is therefore important for women to enrol onto the NHIS in order to seek subsequent care in health facilities after previous child birth-related complications without any charges (see e.g. Arthur, 2012; Dixon et al., 2014; Amoakoh-Coleman et al., 2015). The positive association between maternal health care access and NHIS is consistent with the findings of Addai, (2000), Mensah et al. (2010) and Dzakpasu et al. (2012), who previously contended that

NHIS has the likelihood to increase the use of maternal health care services in Ghana and beyond. These studies suggested that direct financial costs such as the out-of-pocket payments and cost of transportation as some of the main barriers that prevented pregnant women from accessing the services of skilled attendants during delivery, especially in Ghana where a skilled attendant at birth can only be attained in health facility. This affects pregnant women who do not have money to pay for the cost of drugs, not covered by NHIS, and transportation costs could all be factors that lead them to avoid the use of maternal health services. This is also in line with a number of statements made in the policy documents and reports on maternal and child health care in Ghana with respect to the positive relationship between access to health care and NHIS enrolment. There is a strong need for scheme operators through the media to embark on massive education to convince uninsured Ghanaians, especially women, to register to benefit from the package awaiting them in the event of pregnancy. Despite the fundamental role played by NHIS in reducing inequalities in health care financing in Ghana, particularly maternal and child health care, the scheme is fraught with several challenges that sometimes overshadow the benefits of the scheme. The challenges include the inability of the National Health Insurance Authority (NHIA) to roll out designed programs (Capitation grant) successfully, poor implementation guidelines, inability of the NHIA to make prompt payment to providers, failure of government to pay the scheme on time, poor financial management, lack of capacity to procure essential drug and non-drug consumables, poor information management systems and over politicization of the scheme. Others include perceived poor quality of health care services to card holders, unwieldy enrolment procedure, lack of trust in scheme officials, insufficient benefit package, long distances to health facilities, negative provider attitude and overcrowding in health facilities (Witter et al., 2009; Sakyi et al., 2012; HERA-BHPG, 2013; Dixon et al., 2014; Kusi et al.,

2015). It is also important to mention that the usage of NHIS in health facilities does not eliminate all financial barriers with respect to facility-based delivery. Indirect expenses such as the cost of transportation for pregnant women and family members accompanying them coupled with informal payments in the health facilities, and this discourages the poor from accessing maternal health care during emergencies (Johnson et al., 2015; Dzakpasu et al., 2014; Ridde et al. 2012).

It is well known that barriers due to geographical distance to care have an adverse effect on the chances of pregnant women seeking care in most developing countries including Ghana. In Ghana, Gething and colleagues (2012) stated emphatically that geographical access is largely deprived with long distances to health facilities predominantly in the rural areas making it extremely hard for the majority of expectant mothers to seek health care. Other studies in Ghana and elsewhere have argued that distance to health facilities, lack of transportation, poor quality of health care and the dearth of information sometimes discourage poor women from seeking skilled attendant at birth (Ofori-Adjei 2007; Impact 2008; Witter et al. 2009; Gabrysch et al., 2011; Dzakpasu et al., 2014; Yebyo et al. 2014). The findings of this study support the above-mentioned claims that long distance travel to health facilities deters pregnant women from accessing health care. The problem of distance and the lack of availability of care in remote areas seems to defeat the agenda of the free maternal health care policy in Ghana as a pro-poor intervention to bridge the rich-poor inequity gap in facility-based delivery due to transportation barriers. The reverse is actually taking effect in Ghana as the rich are benefiting more than the poor with respect to the NHIS due to indirect cost associated with maternal health care utilization (Dzakpasu et al., 2014). This problem could be overturned by the government of Ghana through the district assembly concept to empower women in rural areas through credit creation for them

to earn a living. This will enable poor women to pay for implicit costs that come with maternal health care utilization such as transportation and non-medical cost in order to benefit fully from the NHIS coverage. This highlights the importance of improving the social conditions of women that could have multiple effects in their lives with respect to reproductive health care.

For instance, our results at the multivariate level showed that women who considered distance as a problem to health facilities were 84% less likely to access facility-based delivery compared to those who had no problem with respect to distance to health facility. The negative impact of distance on maternal health care access is worst in remote areas in Ghana, especially in sparsely populated communities where there are poor road networks, and the non-availability of care due lack of infrastructure and human resources for health care (Gething et al., 2012; Adu, 2013). This study however, point to the negative effects of distance on the CHPS concept and NHIS in Ghana as the sole means of bridging the equity gap in maternal health care utilization between the rural-urban residents and the rich-poor. This illustrates how inequalities in maternal health care utilization will continue to exist in Ghana, unless the government and Civil Society Organizations (CSOs) are more active in removing some of the key barriers in accessing health care in the hard-to-reach areas in rural Ghana.

Remarkably, the focus of this study went beyond individual and household factors and examined the net effects of community-level factors on maternal health outcomes in Ghana where there is a paucity of literature. Interestingly, the findings at the community level showed some rural-urban disparities in the use of maternal health care services (see Table 2). Expectant mothers in urban areas were found to use maternal health services (ANC and facility-based delivery) more than their rural counterparts. This finding is consistent with previous studies

elsewhere where there was a higher likelihood of urban residents seeking maternal health care compared to rural residents who are poor; it also deterred access to health care service utilization (see Mills & Bertrand, Babalola & Fatusi, 2009; Doctor, 2011; Osorio et al., 2014; Yebyo et al., 2014; Amoako-Coleman et al., 2015). These disparities could be explained by the fact that urban communities are abreast of modern health facilities and the majority of women in urban centers are employed and wealthy, hence they are not deterred by barriers that prevent rural women from seeking maternal health care in times of need. This is not to ignore the fact that not all women in urban Ghana have all the means to patronize modern health facilities for maternal health care services. Women in slum areas in urban Ghana have almost the same problems with respect to indirect medical cost and other drug-related costs that are not covered by the NHIS as a result of the complete denial of their rights regarding good employment opportunities and improved living conditions.

It is important to note that after controlling for wealth and other demographic variables at the multivariate level, it was found that women dwelling in communities with higher average years of education were more likely to make the WHO-recommended ANC visits and access health facilities for delivery services. Conversely, women residing in communities with low average years of education were less likely to visit health facilities for the said services, and sometimes pay the price of dying in the event of serious complications (Dako-Gyeke et al., 2013; Moyer, 2012). These observations are in agreement with past research that has highlighted the positive impact of women's education on maternal health services utilization (Abor et al., 2011; Rominski et al., 2014; Asamoah et al., 2014; Yebyo et al., 2014; Amoako-Coleman et al., 2015). This reiterates the debate on the significance of girl child education in developing nations in their quest to reduce maternal and infant mortality to an acceptable level. Educated women to some

extent, have the ability to fight against societal norms that have negative consequences on pregnant woman and the unborn child. Women who are educated have the fiscal power and are autonomous to make decision in times of emergency without waiting on their partners or in-laws which in a way can avoid the three delays that result in maternal mortality and morbidity as indicated by (Thaddeus & Maine, 1994). Besides, continuous health promotion activities in the form of maternal education should be provided by health professionals periodically to inculcate maternal health care seeking behavior among women in communities noted for poor use of maternal health services. Health professionals could strengthen this by partnering with local media houses (radio stations) to promote the importance of maternal health care services in such communities. For instance, if health promotion officers in these communities embark on home visit to educate women and their significant others on the essence of maternal health care utilization, the chances are that the women will possibly utilize health facilities for its intended purposes. This will remind them of the importance of accessing maternal health care services during pregnancy, labour and puerperium (six weeks postnatal).

Another important finding discovered in this study was the negative association between wealth and postnatal care services at the community level. Women in communities with higher wealth status were found to be significantly less likely to use postnatal care services. This finding is contrary to previous studies that mothers from wealthy households are more likely to seek immediate postnatal care due to their ability to pay for both direct and indirect costs associated with facility deliveries and possibly postnatal care services. Again, it is a recognized fact that women from wealthy households are more likely to benefit from media campaigns through radio and television news on the importance of postnatal care than their counterparts from less wealthy households, who do not follow radio and television news, but rely only on health care facility for

postnatal services. Nevertheless, the poor quality of postnatal care services at the community health facilities and some districts hospitals might also prevent wealthy women from patronizing postnatal care services (Khanal et al., 2014). In the same vein, wealthy women in Ghana could travel outside their communities to nearby urban centers to access quality maternal health services including postnatal care.

In addition, similar studies have argued that the lack of awareness at the community level on the significance of postnatal care, make some mothers forgo the service. This is because majority of the people at the community level see postnatal services being important only when women have complications during birth or after delivery (Titaley et al., 2010). The maternal health-seeking behaviour of women at the community level can also influence postnatal care services amongst women, which is dependent on the availability of health facilities and skilled attendants to provide quality care. The absence of care and the attitude of women towards the postnatal care in the community can dissuade others from using the service (Ononokpono, 2015). In spite of the above discussion, this finding underscores the need for experts to adopt a multi-level analysis to understand the maternal health-seeking behavior at the community level with respect to postnatal care services among the wealthy in Ghana.

6.2 Limitations of the study

There are some limitations within this research study that must be considered and discussed. One of these limitations is recall bias. The DHS data have some limitations since the data are retrospectively and simultaneously collected which can suffer recall bias from respondents and this could affect the outcome of the results. The data used did not include all women in Ghana, but only women aged 15-49 who were pregnant and attended ANC, facility-

based delivery and postnatal care services within the last five years prior to the 2014 GDHS survey. This therefore does not represent the views of all women of reproductive age in Ghana. The cross-sectional nature of the data makes it difficult to draw ‘causal’ connections between the outcome and predictor variables.

Similarly, the GDHS does not collect data on community-level factors with regard to maternal health utilization. The data is collected at only the individual and household levels; hence the researchers created the community-level factors by aggregating individual data into cluster values since it formed an important part of the study. Again, there was scarcity of literature on the effects of community-level factors on maternal health outcomes in Ghana and this hindered comparison and contrasting of our findings. This overcome by making useful comparisons with studies in other countries within the sub-region and beyond.

As well, the researcher could not get access to a number of policy documents on maternal and child health care in Ghana electronically and due to time constraints and physical distance, the researcher was unable to travel to Ghana for hard copies of these documents. As a result, we analyzed a limited number of policy documents since most the documents acquired electronically did not have any budgetary allocations and therefore, excluded in the final analysis since budget allocations to various policies form an important objective of our document analysis. However, the few that were analysed helped to make useful connections with the 2014 GDHS data with respect to maternal health care in Ghana. Regardless of these shortcomings, the study suggests a number of important conclusions.

6.3 Conclusions

This study examined the effects of both individual and community-level factors on maternal health outcomes in Ghana and highlighted that both individual and community-level factors determine women's decisions regarding ANC, facility-based delivery and postnatal care. At both the individual and community levels, this research identified that the journey to a well-equipped health facility represents a routine barrier to the majority of women, especially in rural Ghana during pregnancy and childbirth.

A significant proportion of women (89.2%) had four or more antenatal visits, 74.3% had facility-based delivery and 73.3% had postnatal care at the time of the survey. This notwithstanding, it was found at the bivariate analysis that women residing in rural communities were 99% and 98% less likely to utilize ANC and facility-based delivery care services compared to women in urban communities. Parity was significantly associated with women's use of ANC and facility delivery services; and women with four or more births were less likely to access health facilities for both ANC and delivery services compared to women with less than three births.

NHIS was statistically associated with the use of all the three outcome measures in relation to access to health care services. This means pregnant women with NHIS cards were more likely to access maternal health services compared to those without NHIS cards. However, distance to health facilities was negatively associated with women's use of the outcome variables in rural Ghana. The problems of distance were enormous to the extent of even overriding the positive effect of the NHIS and the CHPS concepts on maternal health utilization in Ghana.

Women's educational background and wealth status were identified to be highly associated with maternal health utilization across Ghana. The majority of educated women have formal employment and therefore, are not discouraged by the barriers that deter the uneducated women in their quest to access maternal health care services, especially in the case of those in rural Ghana. For example, at the community level, results suggested that women in communities with higher education were significantly more likely to access antenatal care and facility delivery.

Finally, the document review and content analysis of policy documents on maternal and child health care in Ghana revealed implementation challenges facing the MOH/GHS in rolling out policies designed to bridge the equity gaps in maternal health care services. Other policy documents established a weak link in addressing the scarcity of human resources and infrastructure for health care services within the contents of the policies, more specifically the lack of detailed planning for policy implementation. The bridging of the equity gaps in health care delivery in Ghana (maternal and child health care services) requires inter-sectoral collaboration: this was neglected to be revealed in any of the policy documents reviewed. The findings of this study have policy implications for health care delivery (reproductive health care services) in Ghana.

6.4 Recommendations for policy makers and future research

Poor maternal health outcomes have been of huge concern in Ghana. Findings from this study indicate that improving access to maternal health services is a major factor in reducing maternal mortality and morbidity as well as bridging the equity gaps in Ghana. The outcomes of this study have led to the following recommendations:

1. There is a need for inter-sectoral collaborations between the Ministry of Health, Ministry of Finance and Economic Planning, Ministry of Housing, and Ministry of Roads and Transport in tackling the issue of equity gaps in health care access in rural-urban Ghana through infrastructural development in the area of road construction and health facilities.
2. The government of Ghana should do more to solve some of the numerous challenges (human resources, infrastructural and logistical constraints, and poor road networks) facing the smooth implementation of the CHPS concept to make the policies outlined in various documents a reality rather than a mere political promise.
3. The government of Ghana, policy makers in education and CSOs should prepare innovative policies to keep girls in school, especially in rural areas of Ghana in order for them to acquire knowledge on reproductive health and the empowerment benefits it offers women.
4. The government of Ghana should continue to develop the adolescent health component of reproductive health nationwide to educate youth on their reproductive rights to avoid unwanted pregnancies that result in maternal deaths.
5. The government of Ghana should provide the needed funds for reproductive health policies and detailed policy guidelines for full implementation to safeguard maternal and child health care services. The availability of funds together with detailed policy guidelines could bring about smooth implementation of the policy to save mothers and children in Ghana.

6. Health policy makers in Ghana should be guided by WHO health policy guidelines to prepare policies that are not too broad, but realistic and measurable for smooth implementation; and policy documents of MOH should be made accessible to the public through the health information department of the ministry to enable researchers and CSOs to access them to make suggestions for future policy improvements.
7. The human resources division of the MOH should advise the government of Ghana to restore the training allowances of the health training institutions to increase enrolment among trainees to produce more skilled personnel to manage the various CHPS compounds and zones in rural communities.
8. The National Health Insurance Authority (NHIA) should be nonpartisan in order to improve it by ensuring that monies due them will be timely paid by the government to pay providers on time for continuity of care; and also, take steps to make the social health insurance attractive to invite more people into the scheme through media education, especially women, to register to benefit from the package awaiting them in the event of pregnancy. The NHIA should employ more qualified staff such as health economist and financial administrators to manage the scheme instead of politicians who have no expertise in financial administration and management, and all the activities within the NHIA should be monitored frequently by independent bodies to prevent financial malfeasance that has occurred in the past.
9. Policy interventions directed towards alleviation of poverty amongst women in rural Ghana should be initiated by government and CSOs to enhance the financial security of women in rural Ghana given the prevalence of poverty in the area.

10. Government and Civil Society Organizations (CSOs) should do more to remove some of the key barriers such as poor road networks, lack of transportation, non-availability of care, poverty, and illiteracy in accessing health care in the hard-to-reach areas in rural Ghana to bridge the inequalities in maternal health care utilization.
11. Continuous health promotion activities in the form of maternal education should be provided by health professionals periodically to inculcate maternal health care seeking behavior among women in communities noted for poor use of maternal health services. Health professionals could strengthen this by partnering with local media houses (radio stations) to promote the importance of maternal health care services in such communities. For instance, if health promotion officers in these communities embark on home visit to educate women and their significant others on the essence of maternal health care utilization, the chances are that the women will possibly utilize health facilities for its intended purposes.
12. Health facilities at the community-level in Ghana should be provided with the needed equipment and the requisite health professional to impose confidence in women to use the facilities for maternal health care services.
13. The obstetric and gynecological departments in tertiary hospitals in Ghana should be provided with modern infrastructural and adequate health professionals to give quality care to women refer for emergency obstetric care.

It is recommended that further research is needed in the areas of:

1. The effects of individual and community-level factors on maternal health care utilization in Ghana using a mixed method approach.

2. The role of the Ghanaian media in reducing maternal and infant mortality in the wake of the SDG's.
3. Finally, further studies should be conducted in various communities in Ghana using primary data to investigate the relationship between women's wealth and the use of postnatal care services.

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