Factors Influencing the Utilization of Maternal Health Care Services: A Qualitative Case Study of Ketu South, Ghana

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Dedication

Dedicated to my Lord, the owner of my life, the Almighty who lets me see the light despite darkness.

Dedicated to the most loving woman in the world mother

my foremost supporter, father

and my beloved sister, Martha.

Acknowledgement

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I will never forget all the love and support I received from so many people. They shall have me stay humble and let me live to share more with others in need.

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Table of Contents

List of Figures

List of Tables

Abstract

Ghana has continuously worked to reduce maternal mortality over the decades. Although Ghana has not yet met the Millennium Development Goal 5 which aimed to reduce maternal mortality by 75 percent, its efforts to reduce maternal death is continued through Sustainable Development Goals which include a goal to ensure health for all. Improvement in increasing the utilization of maternal health care services is needed to reduce preventable maternal deaths occurring in Ghana. Among various maternal health care services, the utilization of skilled birth attendance is the lowest especially compared to the utilization of antenatal care services. Thus, the following study aims to analyze and understand the low utilization rate of maternal health care services.

The study used qualitative method using in-depth interviews and focus group discussions among women who had childbirth and men who have wives with childbirth in last five years. The results of the study were categorized using Andersen's behavioral model. The factors influencing the utilization of antenatal care and skilled birth attendance services include organization of health care facilities, attitude and knowledge of health care service consumers, finance, transportation, social influence, and finding needs of using antenatal care services.

After finding and analyzing the factors of low rate of the utilization of skilled birth attendance in Ghana, the recommendations are as following. In order to eliminate or minimize barriers in use of maternal health care services, the function of community health facility of Ghana called Community Health Planning and Services needs to be specified and strengthened. Community Health Planning and Services need to deliver maternal health care services by establishing a formal referral system with other health facilities and also by having a transportation system that can be mobilized in urgent situations. Lastly, the allocation of financial resources to eliminate all costs incurred from using maternal health care services is necessary to ensure health for all, especially the most vulnerable population.

As the majority of maternal deaths are preventable, reducing them is not only a matter of health but of a social justice, that it is critical for international societies to delve into understanding more about components that affect the use of maternal health care services that are effective in preventing unnecessary death during and after childbirth. The following study is expected to contribute by offering a broader perspective in examining the factors that influence the use of maternal health care services through discovery of new factors using qualitative research.

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Chapter 1. Introduction

1.1. Background and Significance of the Study

Approximately 275,000 women die every year during or soon after childbirth (World Health Organization, 2012). A woman's death during pregnancy or within 42 days after childbirth is called maternal mortality (World Health Organization, United Nations Children's Fund, United Nations Population Fund, & The World Bank, 2012). Approximately 99% of all maternal deaths occur in developing countries and 75% of them occur in the sub-Saharan African region. Ghana, as one of the sub-Saharan African countries, shares the burden of high maternal mortality. Maternal death accounts for 14% of total deaths of females and is the second greatest cause of female deaths in Ghana (Abor, Abekah-nkrumah, Sakyi, Adjasi, & Abor, 2011). The World Health Organization (WHO) estimates the maternal mortality ratio of Ghana in 2012 as 350 maternal deaths per 100,000 live births (World Health Organization et al., 2012). The Ministry of Health in Ghana stated maternal death as national priority in Ghana Annual Health Summit of 2008 (United Nations, 2010). The maternal mortality rate in Ghana decreased over time from 760 maternal deaths per 100,000 live births in 1990 to 380 in 2013.

This high maternal mortality rate is receiving global attention as many of these deaths are preventable. It is believed that approximately 80% of the total maternal mortality worldwide is estimated to be preventable with proper care and management on time (Lewis, 2008). As the majority of maternal deaths occurring in developing countries are preventable with today's medical technology, the international society started to acknowledge reducing maternal mortality not merely as a health promotion intervention but rather as a social justice issue. In the year 2000, improving maternal health by reducing maternal mortality by three quarters has been set as a Millennium Development Goal (MDG) 5. Reducing maternal mortality has been targeted through interventions and programs that aimed in increasing the use of maternal health care services to all populations in need. Therefore, the core maternal health care services in developing countries include antenatal care, skilled birth attendance and postnatal care which are critical in preventing major causes of maternal death.

Ghana, a member country of the United Nations, has made continuous efforts to reduce maternal deaths through the utilization of core maternal health care services. However, it is yet to meet the MDG5. Learning from the success and failures of the MDGs, Ghana and other member states of the United Nations are moving beyond MDGs to new agenda that strives to achieve Sustainable Development Goals (SDG). MDG5 is continuously aimed through SDG3, which

targets to ensure health for all ages, and embraces MDG5 in a greater spectrum. However, the most vulnerable population is still limited to access of health services including maternal health.

In Ghana, the utilization of antenatal care is particularly high with 96% of pregnant women receiving it from a trained health care provider, of which 77% made four or more visits for antenatal care (Dako-Gyeke, Aikins, Aryeetey, McCough, & Adongo, 2013). While the high utilization of antenatal care in Ghana is often interpreted that women are not resisting modern medical treatment to pregnancy, it is not necessarily the case in utilization of skilled birth attendance. Some literature suggests that a correlation exists between antenatal care visits and increased likelihood of utilizing skilled birth attendance. It is also emphasized to encourage skilled birth attendance to women who come for antenatal care. However, in the case of Ghana, a large gap exists between the utilization of antenatal care (>90%) and skilled birth attendance (<70%) (Ghana Statistical Service, 2011), which challenges the presumption that having antenatal care would lead to the utilization of skilled birth attendance.

With health recognized as a human right, increasing resources and arranging those resources to ensure that the vulnerable population has access to health care services is critical. Tedros Adhanom Ghebreyesus, the new Director General of WHO, emphasized Universal Health Coverage to ensure everyone's equal access

to health care services by stating that “all roads lead to universal coverage in health” (World Health Organization & Pan American Health Organization, 2017). Universal Health Coverage is especially essential in improving maternal health through as considerable gap in the use of full maternal health care services is due to limited access. The inequality is especially the greatest in utilization of skilled birth attendance among the three core maternal health care services. The great inequalities in the utilization of skilled birth attendance in the different regions of Ghana seriously question the individual’s equal right to health. According to one study, the coverage of complete maternal health care ranged from 62% in the Central Region with the greatest coverage rate to 24% in the Northern Region as the lowest (Ganle, Parker, Fitzpatrick, & Otupiri, 2014b).

The great gap in utilization of complete maternal health care rates in different regions occur specifically in utilization of skilled birth attendance among the three core maternal health care services. The discontinued use of skilled birth attendance services is not only concerning for it questions the equal access but also because it is regarded as the most important maternal health care intervention since many main causes of maternal mortality is related to complications of childbirth. The top five causes of maternal mortality according to the WHO are eclampsia/ hypertension, obstructed labor, severe bleeding or hemorrhage, infection or sepsis and unsafe abortion. And among them, severe bleeding and hemorrhage account for

approximately 25% of all maternal deaths. Other common direct causes include ectopic pregnancy, embolism and others. Common indirect causes include heart diseases, tuberculosis, anemia and malaria (World Health Organization, United Nations Children's Fund, United Nations Population Fund, & The World Bank, 2014). By preventing and managing many of these causes of death, the utilization of skilled birth attendance alone is predicted to reduce maternal mortality at almost 33% globally (Moyer & Mustafa, 2013).

Considerable research has been carried out to understand the low utilization of skilled birth attendance in Ghana. Many studies found a relationship between personal characteristics including marital status, education level, age, income, or residency, to likelihood of using skilled birth attendance. However, knowing that these variables have relationship to likeliness of using skilled birth attendance, they do not necessarily explain "why." For example, the relationship between maternal age and likeliness of using skilled birth attendance does not provide enough information on what kind of interventions should be carried out, since health policy cannot change maternal age to change the health behavior of the population. Thus, although many studies have been carried out to find out facilitators and barriers in using skilled birth attendance services, further study is necessary to understand "why" and how interventions may be adopted to reduce barriers in utilization of full maternal health care services.

1.2. Objective of the Study

Despite the fact that numerous studies have been carried out to understand the low use of the skilled birth attendance services in Ghana, many studies are limited by focusing on demographic factors (e.g. age, occupation, place of residence) rather that social factors (perception, belief, norms) that may consequently lead to decreased utilization of skilled birth attendance services. Thus, the following study intends to explore this research gap by investigating factors such as personal perception, attitude and norms using qualitative method. The main purpose of the study is to explore reasons why the use of skilled birth attendance service is low through examining determinants of utilization of maternal health care services including antenatal care and skilled birth attendance through qualitative method in Ketu South District of Ghana. Hence, the study ultimately aims to provide suggestions to increase the utilization of skilled birth attendance in Ghana.

Chapter 2. Study Method

2.1. Study Design

The following study is qualitative research using Andersen's behavioral model as a framework. The study used qualitative method with in-depth interviews and focus group discussions in order to examine how and why facility delivery services are utilized in the Ketu South District of Ghana. A qualitative approach was selected in this study to allow opportunities to find factors that have not been found in previous studies. The study followed a guideline for qualitative research developed by Allison Tong (Tong, Sainsbury, & Craig, 2007) as much as possible.

For the interview component, the study used a semi-structured questionnaire. The questions of the study encompass perceptions on home delivery, perception on facility delivery, ideals of pregnancy and childbirth, support received during pregnancy and delivery, people who assisted during pregnancy and child delivery, saving habits to plan towards childbirth, perception on people with different delivery choices, plans in care of pregnancy in future, and advices given or received during pregnancy from others.

2.1.1. Andersen's Behavioral Model

The following study used Andersen's behavioral model to identify determinants of utilization of skilled birth attendance. A strength of the widely-used Andersen's behavioral model is that it ensures consistency in comparing and reviewing results from other studies. The outcome of this study is expected to contribute to the improvement of maternal and infant health across all regions of Ghana through the provision of recommendations that compare and address critical gaps in previous research on the subject matter.

The following study aims to use Andersen's behavioral model for several reasons. A key strength of Andersen's behavioral model is its practicality. The model was specifically developed to understand determinants of use of health services in order to re-think or implement necessary health policies. Unlike other commonly used models such as Three Delay Model developed by Thaddeus (Thaddeus & Maine, 1994), where different types of factors are completely separated from each other assuming that they do not influence one another, Andersen's behavioral model exposes the interaction between factors of different categories. In most cases, the factors themselves influence each other as well as influencing the use of health services separately. Linkage between factors of different categories is necessary. For example, individuals from different age groups may have different baselines of pain tolerance, which would influence

perceived needs that lead to seek health services. If these categorical variables are separated, it cannot make the connections required to show the whole story. If predisposing variables are completely separated from need variables, in the above example, it will only show that different age groups have different patterns on use of health services without showing the relationship between the age and pain tolerance.

Another great strength of Andersen's behavioral model is that in this framework, the use of health services is recursive. Recursive characteristics are especially true in use of maternal health services. Women usually have more than one pregnancy throughout their lifetime. As such, the use of delivery services will be repeated. The reuse of the health services is predictable in the framework as the use of health services leads to outcomes and the outcomes flow back into determinant factors to influence the re-use of service. Lastly, the model is highly useful to include different types of health services for its flexibility and adaptability. Although the categories in the model are distinguished, they are general enough to accept new factors.

The behavioral model of health services was developed by Ronald Andersen in 1960s in order to understand reasons why people use health services (Andersen, 1995). The primary goal of the model was to enhance equity in accessibility on the use of health care services. The Andersen's behavioral model provides "measures

of access to medical care" (Andersen & Aday, 1978) and aims to explain the use of services as well as to predict the likeliness of use which are influenced by different determinants. Andersen's first model included predisposing factors, enabling resources and need (Andersen & Aday, 1978).

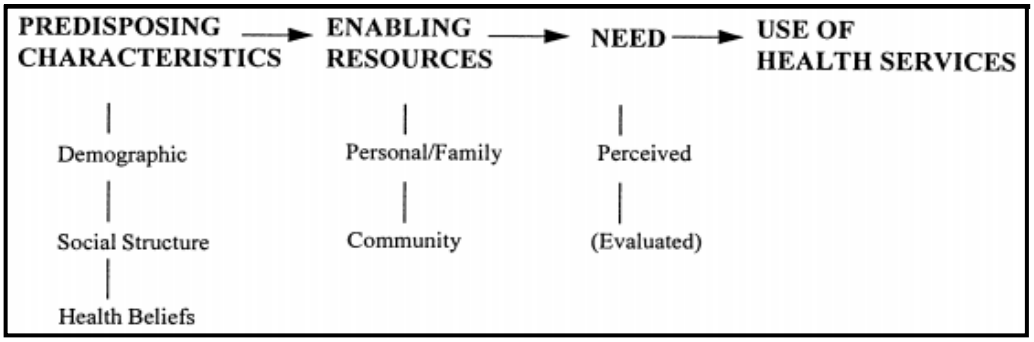

Figure 1.The First Phase Behavioral Model 1960s (Andersen, 1995)

Predisposing factors include demographic characteristics such as sex, ethnicity, age, and values on health. Enabling resources literally mean assets that allow individuals to utilize health services. Examples of enabling resources include health knowledge, income, and health insurance. Lack of enabling resources can be viewed as barriers since it would hinder the use of services. Need is divided into perceived need and evaluated need. Perceived need includes symptoms observed by the person leading the person to believe in the need to seek medical care. Andersen defines perceived need as "a social phenomenon which, when appropriately modeled, should itself be largely explained by social structure and

health beliefs" (Andersen, 1995). Perception on need to seek medical care based on values and beliefs are greatly influenced by social norms and structure. Evaluated need is a need for medical care defined by a professional health care provider. The three categories of determinants of predisposing, enabling and need factors all work together to lead to use of health services. While predisposing factors do not directly lead to use of health services, they influence enabling resources and illness level of need to result in the use of health services.

Andersen's behavioral model has not stayed fixed but rather has been modified and adopted over the decades by Andersen himself as well as by other authors. Among different phases of the model, the literature review and results of the following study are analyzed according to the 4th phase model for its unique recursive nature. The results of the study are categorized based on the 4th phrase model which highlights the interactions between different categories.

In the fourth phase, the model includes the recursive nature of the use of health services. Health service use depends on the type of illness, and if the condition reoccurs, the number of times the individual may need to re-use the same type of health service.

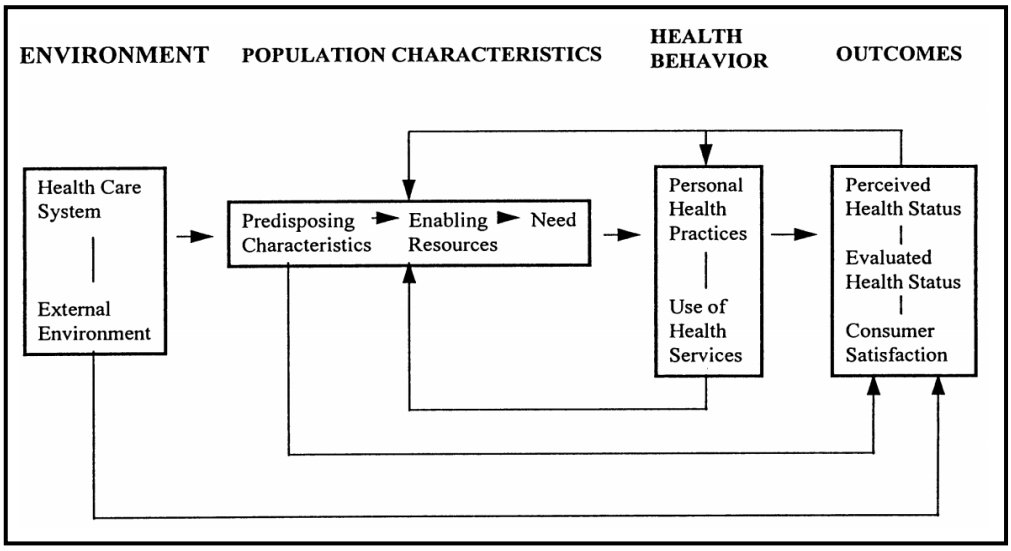

Figure 2. The Fourth Phase Model (Andersen, 1995)

The fourth model posits that health use does not always end after a single use presentation but may be used more than once. Further, the health outcomes derived from the use of health services influence population characteristics and health behavior that may promote or inhibit the individual's choice to reuse the service or not. For example, if the use of health services results into enhanced health status, the person will be more likely to reuse the service when illness reoccurs. The use of health services itself also influences population characteristics. For example, the use of health services will lead to changed health values or knowledge.

2.2. Data Collection

2.2.1. The Research Team

Two experienced local interviewers were recruited after reviewing their past interview experience. One female and one male interviewer were hired on purpose in consideration that mothers may find it more comfortable to talk to another woman about pregnancy and childbirth related matters. A male interviewer was considered more appropriate to interact with male participants due to the patriarchal culture in Ketu South District. For the focus group discussions, both of the interviewers participated with one interviewer guiding the discussion and the other interviewer participating to observe the discussion and to assist. The interviewers are fluent in Ewe, Twi and English.

A researcher directed the overall interviews with local interviewers. The researcher was familiar with qualitative research methods, having studied qualitative methodology and holding an undergraduate degree in sociology. The researcher had previously participated in focus group discussions for research related to the social implications of genome research. The researcher enrolled into a workshop on qualitative study and grounded theory to further enhance understanding on data analysis methods.

Before proceeding with the interview, the local interviewers were asked

about their expectations of the interview and perceptions on the study questions. The female interviewer was a young single mom in her twenties with a young son who was about five years old. The interviewer was aware of the importance of skilled delivery as she had delivered her son at a facility. She was personally curious about the people who delivered at home and showed great interest in the study. The male interviewer was a young man in his thirties without a partner or a child. He responded that most of the people from his village deliver their children at a facility, stating that he does not know anyone who has delivered a child at home. Both of the interviewers were particularly curious about the reasons for home delivery. They were passionate and optimistic that the findings of the study would contribute in enhancing maternal health.

2.2.2. Pilot Interview

Pilot interviews were conducted by the local interviewers under the direction of the researcher. Each interview was monitored by the researcher. Pilot interviews were carried out to gain expectation about interviews, to confirm the target population of the study, to select appropriate locations for interviews and to adjust question guidelines. Feedback was shared and the question guidelines were adjusted after the pilot interview. In addition to women, and men with childbearing partners, community chiefs, and community health nurses were interviewed.

2.2.3. Participants

The participants of the study included women who delivered babies in any setting from 2008 to 2013, as well as men with partners who delivered babies in the same time period living in Ketu South District. Husbands were included in addition to childbearing women as childbirth is more often a family event. Inclusion of husbands as use of skilled birth attendance is not at odds considering the fact that Andersen also perceived the family as a unit to health service in the original framework, although he later changed the unit to individual after finding it difficult to measure when defining the unit as a family (Andersen, 1995).

The participants include a) women and men with wives who only had home deliveries; b) women and men with partners who had both home deliveries and facility deliveries; and c) women and men with partners who had only facility deliveries. In order to include participants with different delivery places, villages with different home delivery rates were selected purposively. It is difficult to find qualitative studies that have selected interview participants with varying delivery places from different villages in a district. By selecting participants with different places of delivery, the study allows comparison between individuals with different delivery places and characteristics of villages that influence norms and perceptions of the individuals.

Table 1. Home Delivery Rates of Communities (Korea International Cooperation Agency 2015)

Community Health Planning and Services (CHPS ZONE	Community	Home Delivery %
A1	A	9
B1	B	45
C1	C	57
D1	D	92

Table 2. Distance from Facilities to each Community-based Health Planning Services Compound (Korea International Cooperation Agency, 2015)

CHPS Zone	Nearby Health Facilities with SBA	Distance	Time by car
A1	Health Facility 1	2.5km	5 minutes at 30km/h
	Health Facility 2	3km	6 minutes at 30km/h
	Health Facility 3	700m	
B1	Health Facility 4	7 km	15 minutes at 30km/h
C1	Health Facility 4	6.7km	10 minutes at 40km/h
	Health Facility 5	7.5km	15 minutes at 30km/h
	Health Facility 6	5km	10 minutes at 30km/h
D1	Health Facility 5	5.3km	8 minutes at 40km/h
	Health Facility 6	5km	10 minutes at 30km/h

Table 2 shows physical distance from Community-based Health Planning and Services (CHPS) compounds to health facilities. Community A is within the A1 CHPS zone and has shortest distance to the closest health facility compared to other communities. Although the other three villages may not be as in close proximity to health facilities as Community A, the distance to health facilities is not too far with transportation means.

While some studies observing determinants of skilled birth attendance included health care providers and community leaders as their study target population, this study excluded health care providers and community leaders from the target population following Andersen's perspective that the use of health services or access to health service is best understood by examining the behavior of consumers (Andersen & Aday, 1978). The exclusion of community leaders and health providers were confirmed through the pilot study as well. It was difficult to find any significant influence of community leaders on women's maternal health behavior. Health care providers were also excluded from the target population as many responded during the pilot interview that they cannot understand the reasons villagers choose to deliver babies at home.

With the assistance of community health nurses and community health volunteers, selected participants were brought to a quiet place near the CHPS compound for interviews. It was thought that participants would find it difficult to freely talk or engage in conversation at home or in their town due to lack of privacy. For focus group discussions, an empty classroom at a school was used with approval prior to the interview.

2.2.4. In-Depth Interview and Focus Group Discussion

In total, twenty in-depth interviews and two focus groups (with eight mothers per group) were conducted. One in-depth interview was later excluded from data after discovering that one participant was a health assistant in Togo, and her knowledge and attitude on health services differed greatly from the rest who were non-medical personnel.

Local interviewers under the direction of the researcher carried out in-depth interviews in four communities, whereas focus group discussions were carried out in two communities. The local interviewers and the researcher had several meetings prior to conducting interviews to plan the schedule and confirm guidelines of the interview.

The researcher accompanied the local interviewers to observe the community as well as to have immediate conversation and feedback after each interview. Field notes were taken by the researcher as the villages and interviews were observed. During the days when interviews were carried out, wrap up meetings were held after interviews were completed.

All interviews and discussions were audiotaped. In-depth interviews were conducted to explore reasons for choice of delivery place, future plans, knowledge about delivery and pregnancy, types of support received, community norms, ideals,

and financial management regarding pregnancy and childbirth. Similar questions were asked in focus groups. The participants of the focus group discussions were homogeneous in place of residence but not regarding their choice on delivery places. The focus group discussion participants were not selected homogeneously regarding choice on delivery place in order to specifically examine the influence among participants with different experiences.

2.2.5. Ethical Consideration

Permission for the qualitative study was obtained from the Ketu South District and by the Ghana Health Service Ethics Review Committee under the Ministry of Health, Republic of Ghana (Ethics Approval ID: GHS-ERC:07/01/15). The study was explained in plain language for all participating in the in-depth interviews and focus group discussions so that they fully understood the purpose of and the use of the information. The participants were informed of their rights to pause during the interview or end the interview at any time. The participants were also informed of their rights to remove their data after the interview upon their wish.

2.3. Data Analysis

The audiotaped interviews and group discussions were transcribed into Microsoft Word by local researchers. The transcribed word documents were then translated into English. In order to minimize error in translation, all the translated documents were reviewed in accordance to the audiotaped files.

Recurring themes were categorized using Andersen's behavioral model as a guide. Themes related to antenatal care and delivery service were separately categorized. Directed content analysis method (Hsieh & Shannon, 2005) was used to analyze the collected data. The preliminary coding scheme was determined by studying variables found from studies examining the use of skilled birth attendance in addition to variables found from Andersen's Health Behavioral Model. Along with the initial coding scheme derived from literature reviews and Andersen's behavioral model, any new themes emerged from data were given new codes. The use of directed content analysis method not only provided guidance to draw the initial coding scheme but it also determined the relationship between different codes (Andersen & Aday, 1978). In order to enhance coding validity, coding was peer reviewed by a researcher who possessed the knowledge and ability to code qualitative data.

Chapter 3. Maternal Health Care Services across Ghana and the Globe

3.1. The Components of Maternal Health Care Services

Notwithstanding proven means and methods to prevent unnecessary maternal death, the burden of maternal mortality in low-mid income countries is still great. 99% of all maternal deaths occur in developing countries. A woman born in a developing country has a 200 times greater chance of facing maternal death compared to a woman in a developed country. Among all maternal deaths, approximately 75% occur in the sub-Saharan African region alone. In the year 2000 during the Millennium Summit, maternal mortality was recognized as a global issue and was included in the Millennium Development Goals (MDGs). The definition of maternal death by the World Health Organization is “the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration or site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental causes” (World Health Organization & Dept. of Reproductive Health and Research, 2004). The fifth MDG aims to reduce the maternal mortality ratio by three quarters at the end of 2015. Many countries did not meet the goal and efforts to reduce maternal mortality are continuously

pursued. In the sub-Saharan African region, only four out of 47 countries met the fifth MDG. The goal of reducing maternal mortality and ensuring health of women are continued through the Sustainable Development Goals (SDGs) of the United Nations. Though the SDGs replaced the MDGs in 2016, MDGs are still used as the basis for a framework for action to reduce health inequalities in many countries.

More than 75% of all maternal mortality happens during childbirth and the post-partum period (World Health Organization & United Nations Children's Fund, 2012), and a great number of these deaths are preventable. Approximately 80% of the total maternal mortality worldwide is estimated to be preventable with proper care and management on time (Lewis, 2008). The top five causes of maternal mortality according to the World Health Organization are eclampsia/hypertension, obstructed labor, severe bleeding or hemorrhage, infection or sepsis and unsafe abortion. Severe bleeding and hemorrhage account for approximately 25% of all maternal deaths. Other common direct causes include ectopic pregnancy, embolism and others. Common indirect causes include heart diseases, tuberculosis, anemia and malaria (World Health Organization et al., 2012).

The core maternal health care services to reduce maternal death include antenatal care, skilled attendants during childbirth and postnatal care. Antenatal care is provided to prevent possible complications through health promotion and early diagnosis. Antenatal care is critical itself as well as a great opportunity to

provide information and education to encourage healthy lifestyles for pregnant women. The contents of antenatal care include counseling on nutrition, assessment on anemia and conditions that may cause pregnancy complications or risks, ultrasounds, preventive measures and treatment of pregnancy related symptoms. Skilled attendants during childbirth is the management of childbirth by accredited health personnel. Skilled attendants during childbirth is to safely handle childbirth and to manage unexpected complications in emergency situations. Postnatal care is to be received a minimum of three times with the first visit within 24 hours after birth. The contents of postnatal care services for mother include counseling on breastfeeding, nutrition, hygiene and family planning, provision of information on common symptoms after birth, the recovery process, and the provision of supplements.

Among the three main interventions to reduce maternal death, skilled birth attendance is considered as the most effective intervention in reducing maternal mortality. A Skilled Birth Attendant is defined as “an accredited health professional such as a midwife, doctor or nurse who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns” (Graham, Bell, & Bullough, 2001).

It should be noted that the term or definition of skilled birth attendance does

not always equate to facility delivery as long as an appropriate environment is provided with necessary equipment assisted by a licensed health professional who is able to manage normal and complicated childbirth. However, such an environment was not found across the study site other than in health facility settings. Additionally, the rate of use of skilled birth attendance in environments other than health facility settings was only 1% in Ghana (Ghana Statistical Service, 2015). Thus in the following study, skilled birth attendance should be interpreted as only occurring in health facility settings, and any home delivery should be counted as unskilled childbirth. The terms facility delivery and skilled delivery are used interchangeably in other studies of developing countries as well (Gabrysch & Campbell, 2009).

3.2. Utilization of Antenatal Care Services

The three main necessary interventions to decrease maternal mortality include the use of antenatal care, delivery under the care of a skilled health personnel and postnatal care. It is recommended to have at least four visits for antenatal care from the first trimester of pregnancy (Mengesha, Biks, Ayele, Tessema, & Koye, 2013). The majority of women living in Ghana use antenatal care during pregnancy (Doku, Neupane, & Doku, 2012). It is expected that these women will continue the rest of maternal health care after antenatal care including skilled delivery and postnatal care. Some countries including Tanzania and Cambodia showed a positive relationship between the use of antenatal care service and the use of skilled birth attendance for women with four or more visits for antenatal care (Mpembeni et al., 2007; Yanagisawa, Oum, & Wakai, 2006). However, a gap exists between the coverage of antenatal care and utilization of skilled birth attendance in many developing countries (Dako-Gyeke et al., 2013), including Ghana, which has a gap in continued use of all necessary maternal health services. The utilization of antenatal care is particularly high in Ghana with 97% of pregnant women receiving it from a trained health care provider in year 2014. In the same year, approximately 87% of them made four or more visits for antenatal care.

3.3. Utilization of Skilled Birth Attendance

As the majority of maternal mortality is strongly related to complications of pregnancy and childbirth, much attention is given to increasing the rate of delivery by skilled attendants. For this reason, the use of a skilled birth attendant is critical and the most important intervention regarding maternal mortality. The use of skilled birth attendants is believed to reduce maternal mortality and improve overall maternal health outcomes. Many health programs carried out by national governments and international organizations have encouraged women to deliver in a health facility setting to increase delivery by skilled attendants (Moyer, 2012). Delivery by skilled attendants is recognized as "the single most important factor in preventing maternal death" (World Health Organization, United Nations Population Fund, United Nations Children's Fund, & The World Bank, 1999).

Many historical events and studies predicted a positive effect on utilization of skilled birth attendants to decrease maternal mortality. By the 19th century, maternal death was drastically reduced by half in England due to the increased rate of skilled birth attendance (United Nations Children's Fund, 2007). Increasing the rate of skilled birth attendance in Sweden through the introduction of trained midwives led to large reduction in maternal mortality. The effectiveness of reducing maternal mortality through the utilization of skilled birth attendance was also

witnessed in Denmark, Netherlands and Norway, where each nation adopted a policy to train midwives (United Nations Children's Fund, 2007). Graham and other authors (2001) predicted that approximately 16 to 33% of total maternal mortality can be avoided by targeting four main complications: obstetric hemorrhage, eclampsia, puerperal sepsis and obstructed labor with skilled delivery. Although the researchers could not settle the causal relationship between skilled birth attendance and maternal mortality, they concluded that it still had possibility of impacting maternal mortality as well as maternal morbidity (Moyer, 2012).

The skilled birth attendance rate is low in developing countries with less than half of pregnant women in developing countries delivering babies with a skilled health personnel. Like many sub-Saharan African countries, Ghana was unsuccessful in meeting MDG 5 which targeted to reduce the maternal mortality ratio by 75% until the year 2015. Maternal mortality has decreased in Ghana with the maternal mortality ratio (maternal death per 100,000 live births) of 760 per 100,000 in 1990; to 570 per 100,000 in 2000; to 380 per 100,000 in 2013. The decreasing rate suggests that there has been approximately a 50% reduction in maternal mortalities over a 23 year period (World Health Organization et al., 2014). In spite of the progress in reducing maternal deaths, the rate of reduction is slower than expected and more should be done to speed this process (Kyei-Nimakoh, Carolan-Olah, & McCann, 2016).

The rate of skilled birth attendance in Ghana was 68.4% in 2011. Ghana certainly does not have the highest skilled birth attendance rate in the sub-Saharan African region. Countries with similar economic status had a much higher rate of skilled birth attendance, for example Malawi with 90% in 2016 (National Statistical Office & ICF, 2017). More understanding on the low rate of skilled birth attendance is needed in order to implement practical strategies and interventions, especially when Ghana has established Community-based Health Planning and Services (CHPS) program nationwide to reduce geographical burden in access of health care services.

3.3.1. Environmental Determinants

The following study categorized variables related to skilled birth attendance from previous studies following Andersen's behavioral model. This allowed consistency in comparing determinants from the following study to previous studies.

The Andersen's behavioral model frame includes population and environmental determinants that affect the accessibility of health care services. The environmental determinants are characterized as health care system and external environmental factors. Health care system factors include resources, organization

and policies. Resources refer to “labor and capital” used in health care (Aday & Andersen, 1974). Number of facilities, wards, equipment, health personnel are some examples of resources. Organization is defined as how resources are controlled and managed to distribute and arrange them. Andersen (1974) describes organization as "what the system does with its resources." Some examples of organization include types, arrangement and quality of facilities and medical personnel. Health policy directly influences the utilization of health services as it controls the resources and organization. External environmental factors influence population characteristics. Some examples of external environmental factors include community resources, norm, climate, and politics.

In the following literature review, human resources were studied under the category resource. For organization, distance (physical distribution of health facilities), quality of health facilities, and health care providers were studied. Under the policy, fee reduction/exemption policy was studied. Social norm was studied as an external environmental factor.

3.3.1.1. Health Care System

Human resources

Insufficient number of skilled health care providers has been a concern in

developing countries. The World Bank recommends 23 nurses, midwives and doctors per 10,000 population at a minimum. In 2010, Ghana had 0.96 physicians per 10,000 population, 9.3 nurses and midwives per 10,000 population.

This equates approximately 11 health personnel including nurses, midwives and doctors, per 10,000 populations which is less than half the minimum number recommended by the World Bank. It is likely that shortage of health personnel would lead to delays to services, poor quality of health care, and work overload leading to high stress and poor attitudes towards patients.

Distance

Spatial distribution of health facilities determines physical accessibility by influencing how far or close health facilities would be to populations. Distance has been mentioned often in many articles as one of the greatest barriers to skilled birth attendance in developing countries (Gabrysch & Campbell, 2009). The burden of long distance to a facility from home is amplified when coupled with poor road conditions and unavailability of transportation. Long distance from a health facility is mentioned as a barrier especially when women experience precipitate labor or if women experience labor late at night. Accessing transportation can be a significant challenge if the woman goes into labor at night (Duong, Binns, and Lee 2004;

Mesko et al., 2003; Amooti-Kaguna and Nuwaha, 2000; Griffiths and Stephenson, 2001; D'Ambruoso, Abbey, and Hussein, 2005).

However, when women experience critical complications or if health care providers have a good reputation, long distances are less of a barrier (Thaddeus & Maine, 1994). Even when the distance to a facility is perceived as adequate, if the quality of health provision from a facility is perceived to be bad, facility delivery is not used sufficiently (Gabrysch & Campbell, 2009). In a study by Gabrysch et al. (2011), it was found that not just the quality of health services but also the relationship of distance and level of care of a facility is related to the odds of facility delivery. The study found that the likelihood of using a facility for delivery is greater if the nearest health facility offered higher level care. A woman who lives closer to a facility with higher level care is more likely to deliver at a facility compared to a woman who lives far to a facility with lower level care (Mwaliko et al., 2014).

One main reason that long distance acts as a major barrier is because many women do not even plan facility delivery when the distance to a facility is perceived to be far or geographically far. Women who live far from a health facility are less likely to utilize facility delivery (Nakua et al., 2015). In the same context, women who choose facility as a delivery place, often cite a reason for facility delivery as living close by it (Galaa & Daare, 2008). Living close to a health facility is

commonly found as an independent variable positively associated with likeliness of facility delivery (Joharifard et al., 2012; Karkee, Binns, & Lee, 2013; Sialubanje, Massar, Hamer, & Ruiter, 2015). Not only living close by, but perception of easy access to facility is also linked to increased facility delivery rate (Mishra & Retherford, 2008).

Distance to a health facility is mentioned as a major barrier in Ghana (De Allegri et al., 2015; Mills, Williams, Adjuik, & Hodgson, 2008). A study performed in the Northern Region of Ghana, highlighted that geographical travel distance to a health facility as well as perception on physical access to the closest health facility are both associated with likeliness of utilizing skilled birth attendance (Mills et al., 2008).

Distance is consistently a major barrier in many studies. Mwaliko et al. (2014) carried out a study to examine the negative relationship between the distance and utilization of facility delivery. The study was carried out at a region where distance to delivery facilities was approximately 2.4km (Mwaliko et al., 2014). In the study, the utilization of facility delivery decreased as the distance to a facility increased from women. A correlation existed between the distance to a nearest facility, and the level of care provided by a nearest facility; and utilization of facility delivery (Mwaliko et al., 2014). Notably, if the distance to the nearest health facility increased more than 2km, the rate of home delivery rapidly increased by 30 to 70%

(Mwaliko et al., 2014). The distance to a nearest facility showed a great influence on odds of delivering in a facility or the home. After factors such as education, employment and distance to a road were adjusted, women were still more likely to deliver at home if they lived 4km or more from a facility (Mwaliko et al., 2014). The level of care provided by a facility only had an effect when a woman lived within 2km from a facility (Mwaliko et al., 2014). Women were less likely to utilize facility delivery if the nearest facility was a dispensary. When the nearest facilities were health centers or hospitals (which provide more comprehensive care compared to dispensaries), women were more likely to utilize facility delivery if it was located within 2km (Mwaliko et al., 2014). The rate of women utilizing facility delivery did not decline with distance when women were living further than approximately 2km from a facility (Mwaliko et al., 2014). The rate of women choosing home delivery was high (approximately 73%) even when they lived approximately 5km or less from a health facility (Mwaliko et al., 2014). From the study, the negative relationship between distance and use of a health facility for child delivery could not be concluded for the reason that if long distance to a facility is a definite barrier, the likeliness of facility delivery should decrease as the distance increases. The negative relationship between distance and the use of a health facility for child delivery was only significant within a certain distance range; in this case 2km. The author concluded that the distance is not a major barrier to utilization of health

facility, since distance that is a little bit further than 2km but still within 5km range is not far. However, such conclusion can be impetuous as the concept of distance is complicated matter. The concept of distance is influenced by individual perception as well as community or social norm. A distance that is perceived fairly close to one person can be perceived as far by another person in different community due to different expectations, or lifestyles.

Quality of health facilities

The quality of health care provision is highly dependent on the condition of a health facility. Poor environmental health standards of the health facility can deter women from returning again. Poor conditions include insufficient number of wards, filthy toilets, no water, lack of necessary equipment and medication (Afsana & Rashid, 2001; Griffiths & Stephenson, 2001; Kyomuhendo, 2003; MacKeith, Chinganya, Ahmed, & Murray, 2003; Mesko et al., 2003). A lack of separated rooms limits privacy for women which can lead to low satisfaction levels for women who use facility delivery as well as a barrier to use a facility at all as a delivery place.

Quality of health care providers

Poor attitudes of health care providers have been raised as a great concern in many qualitative studies. Many women witness or experience unpleasant situations directly and/or indirectly from health care providers including shouting, insulting or neglect causing them to hesitate utilizing health facility services in the future (Amooti-Kaguna & Nuwaha, 2000; Griffiths & Stephenson, 2001; Kyomuhendo, 2003; Mrisho et al., 2007; Paul & Rumsey, 2002). Sometimes the poor behavior of health care providers is beyond maltreatment but closer to abuse. Physical abuse such as slapping and kicking are mentioned as bad experiences from facilities. A study by Nakua et al. (2015), stated that more than 23% of women believed that bad attitudes of health care providers is a main barrier to skilled birth attendance. The extent of attitude of health providers as a barrier differs in different types of facilities. In Ghana, poor behavior of health care providers is more common in government health facilities than private facilities (Sipsma, Thompson, Maurer, Bradley, & Curry, 2013). A study performed in Vietnam compared the quality score between women who delivered at home and women who delivered at a facility. While women who delivered at a facility gave higher quality scores for "health care delivery," their scores were low on "communication and conduct of personnel" in comparison to women with home delivery experience (Duong et al., 2004). Although perceived physical health outcomes are greater in health facility settings,

perceived emotional and psychological health outcomes are not always satisfactory in health facility settings.

Fee reduction/ Exemption policy

The user-fee removal or reduction policies show a positive impact in reducing home delivery and increasing facility delivery (Richard et al., 2013). After user-fee exemption was implemented in Ghana, a study performed to measure the utilization of skilled birth attendance found that the usage of all maternal health care including antenatal care, skilled delivery and postnatal care have increased following the user-fee exemption policy (Ganle et al., 2014b).

However, despite policies implemented to reduce or remove user-fee relating to maternal health care including delivery, many women in developing countries still deliver at home without assistance from skilled birth attendants. Ghana eliminated the user-fee for maternal health services in 2005, however, 30% of children are still delivered at home (Dzakpasu et al., 2012). Other countries that have eliminated financial barriers under policies also have large percentage of women who still deliver at home. Other national examples include Burundi with 36% in 2010 and 29% in Senegal (Agence Nationale de la Statistique et de la Demographie, 2012). User-fee exemption does not necessarily refer to no cost.

Unofficial charges exist relating to access to maternal health care (Galaa & Daare, 2008). Significant costs still exist including cost of transportation, a list of items required for facility delivery as well as bribery to midwives in some cases (Crissman et al., 2013). These unofficial charges are a great barrier especially in rural areas and the Northern Region of Ghana (Galaa & Daare, 2008). People with better financial means have easier access to transportation and would be able to travel to further health facilities when facilities nearby are perceived as having poor quality.

3.3.1.2. External Environmental Factors

Social norm

Cultural norms and perception on pregnancy act as major factors on utilization of skilled birth attendance (Zere, Kirigia, Duale, & Akazili, 2012). Culturally in Ghana, pregnancy is viewed as dangerous period requiring spiritual protection along with medical care (Braveman, 2003; Thomas, Strauss, & Henriques, 1990). Due to commonly available spiritual practice in town and complications related to pregnancy viewed as being under spiritual attack, some women deliberately choose prayer camps as delivery place and hinder them from utilizing facility delivery (Pelletier, Frongillo, Schroeder, & Habicht, 1995;

Svedberg, 1987). Miscarriage and any disruption to pregnancy are perceived as symptoms from spiritual attack and many women mention spiritual threats as concerns during pregnancy (Zere et al., 2012). Traditional beliefs on pregnancy act as barriers in many sub-Saharan African countries. In rural region of Zimbabwe, spiritual perception on pregnancy and fear of attack from witchcraft prevent women from visiting health facilities (Ghana Statistical Service & Ghana Health Service, 2009). In many villages, traditional perception on pregnancy did not vanish along with introduction of modern health care, but rather each other are seen as alternatives to one another to many women. For many women, necessary care during pregnancy includes medical care as well as spiritual healing. Women utilize both modern health care as well as traditional herbalists, spiritual healer and traditional midwives (Zere et al., 2012).

3.3.2. Population Characteristic Determinants

The characteristics of the individuals who are in need of health care services are divided into three components including predisposing, enabling, and need. Predisposing factors refer to pre-existing conditions prior to occurrence of illness. Enabling factors are defined as resources at individual level. Need factors indicate diagnosed or perceived level of sickness.

In the following literature review, predisposing factors include age, place of residence, occupation, religion, marital status, and education. The enabling factors include financial resources, transportation, autonomy, husband's support, advice, health knowledge, and use of antenatal care were studied. Under need factor, evaluated need was studied.

3.3.2.1. Predisposing Factors

Age

Maternal age is relevant to the utilization of skilled birth attendance, for specific age may be related to different norms from different generations as well as how much authority a person may have in household decision-making. In some studies, older women are found to have more authority in the household decision-making process compared to younger women (Navaneetham & Dharmalingam, 2002; Reynolds, Wong, & Tucker, 2006). However, when considering norms among generations, women from older generations are more likely to adhere to traditional beliefs and practices that they may underutilize modern health care than women from younger generations (Navaneetham & Dharmalingam, 2002). Many studies on delivery choices and places consider women's age as a factor to likeliness of skilled birth attendance. Studies using multivariate analysis state that maternal

age has no significant effect on likeliness of childbirth aided by a skilled birth attendant (Gabrysch & Campbell, 2009). The partner or husband's age is not included in many studies. One study that included husband's age indicated that it is not a significant factor to the odds of skilled birth attendance (Asante-Sarpong, Owusu, Saravanan, Appiah, & Abu, 2016).

Place of residence

Inequality in utilization of skilled birth attendance is often mentioned among different places of residence. Thus, women's place of residence is one of the variables mentioned and found to be related with likeliness of facility delivery. Women residing in urban area are more likely to use facility delivery than women residing in rural area. Urban residence is found to be independently correlated to the utilization of skilled birth attendance (Mengesha et al., 2013; Enuameh et al., 2016). It should also be noted that there is a great difference in economic status between urban and rural regions (Babalola & Fatusi, 2009; Galaa & Daare, 2008; Houweling, Ronsmans, Kunst, & Campbell, 2007; Kunst & Houweling, 2001; Letamo & Rakgoasi, 2003; Magadi, Diamond, & Rodrigues, 2000). Further, modernization usually occurs in urban regions first compared to rural regions. With a generally better economy and more modernization, urban regions have better

accessibility and more exposure to media that promote modern health services compared to rural regions (Mengesha et al., 2013). On the other hand, traditional medical treatment is often more common in rural areas leading to low rate of skilled birth attendance (Mekonnen & Mekonnen, 2002).

While 80% of all births are delivered at a health facility in Greater Accra of Ghana, only 25% of births are delivered at a health facility in Northern Region (Ganle et al., 2014b). Rural women are constantly disadvantaged from accessibility in utilization of skilled birth attendance. According to the 2014 Ghana Demographic and Health Survey Report, while 91% of women living in urban regions delivered a child with the assistance of a skilled birth attendant, only 59% of women living in rural regions and approximately 36% of women living in Northern Region had child delivery through a skilled birth attendant (Ghana Statistical Service, 2015). As a consequence, maternal mortality is higher in rural regions compared to urban regions. The association of urban residency and skilled birth attendance is commonly found in other developing countries as well including Nepal and Kenya (Doku et al., 2012).

Occupation

Occupation is common household characteristics measured to understand

its association with skilled birth attendance. Women's occupation in particular may allow women to have more autonomy in decision making as well as better access to financial means which can all lead to more likeliness of facility delivery. Also, occupation is often related to income as well as educational level. Many studies find a positive association between women's employment status to health facility delivery (Addai, 2000; Fotso, Ezeh, Madise, Ziraba, & Ogollah, 2009; Olusanya, Alakija, & Inem, 2010; VanDenHeuvel, DeMey, Buddingh, & Bots, 1999; Woldemicael, 2010). Some studies have found that female farm workers are more likely to reject the use of skilled birth attendance compared to women with different occupations (De Allegri et al., 2011; Gyimah, Takyi, & Addai, 2006; Magadi, Agwanda, & Obare, 2007). However, the significance between occupation and the use of skilled birth attendance is not consistent throughout studies. Some studies find no association between women's occupation or even employment status to the use of skilled birth attendance (Gabrysch, Cousens, Cox, & Campbell, 2011; Galaa & Daare, 2008; Letamo & Rakgoasi, 2003).

Additionally, the husbands' employment status or occupation is commonly measured in studies. When the husbands' occupation was measured in association with skilled birth attendance, it was found that the higher the status of the husbands' occupation, the higher the likelihood is that his partner will use skilled birth attendance (Gabrysch & Campbell, 2009). However, according to one study

conducted in rural Haiti, when a woman does not have much autonomy in managing household wealth, she is still less likely to utilize skilled birth attendance, regardless of her husband's occupation (Gage & Calixte, 2006). One study conducted in Ghana found no significant association between husband's employment status to women's utilization of skilled birth attendance (Asante-Sarpong et al., 2016).

Religion

Different religions and ethnic backgrounds may influence differing norms and perceptions on health care, especially that of pregnancy and childbirth. In support of this theory, Glei, Goldman, and Rodríguez (2003) found close associations between socioeconomic status to religion and ethnicity. Religion and ethnicity are also related to place of residence, where less popular religion groups tend to reside in remote places where access to health services is much more difficult. The relationship between religion and the use of skilled birth attendance is not homogenous throughout studies observing factors related to delivery choices (Addai, 2000; Fotso et al., 2009; Gyimah et al., 2006; Mekonnen & Mekonnen, 2003; Olusanya et al., 2010; Stephenson, Baschieri, Clements, Hennink, & Madise, 2006). In Ghana, Muslim women are known to underutilize maternal health care services including antenatal care, skilled birth attendance and postnatal care (Addai,

2000; Gyimah et al., 2006). Many Muslim women find it difficult to utilize maternal health care services due to religious practices such as prohibition of exposure of body to a person (especially to a male person) other than her husband. Studies conducted in Ghana are not consistent with each other regarding the relationship of religion to utilization of skilled birth attendance, with the research by Speizer, Story and Singh (2014) identifying low rates of skilled birth attendance among Christian women compared to Muslim women.

Marital status

Women's marital status can influence her autonomy, social status, access to financial resources and delivery places. For example, a single mother or a divorced woman may have greater autonomy compared to married women. However, a single mother or a divorced woman may have less financial means compared to married women.

While some studies find no association between women's marital status and skilled birth attendance (Gyimah et al., 2006; Mekonnen & Mekonnen, 2003; Nwakoby, 1994), some studies find that married women are less likely to utilize skilled birth attendance (Letamo & Rakgoasi, 2003; Stekelenburg, Kyanamina, Mukelabai, Wolffers, & Van Roosmalen, 2004). In a study by Nwakoby, Gyimah,

Takyi, and Addai (2006), women in polygamous unions are found to be associated negatively to skilled birth attendance compared to women in monogamous unions.

The relationship between marital status and skilled birth attendance varied in different regions. In Tanzania, Ghana and Buyrkina Faso, marital status shows no association to skilled birth attendance while in the Ivory Coast and Kenya, women in monogamous union are associated with a greater likelihood of using skilled birth attendance than other groups (Stephenson et al., 2006). However, another study performed in Ghana found significant association between marital status and use of skilled birth attendance. Single moms were found to be more likely to utilize skilled birth attendance compared to other groups (Asante-Sarpong et al., 2016).

Education

Women's educational level is “consistently and strongly associated with all types of health behavior" according to one study (Bell, Curtis, & Alayon, 2003). High level of education is many times related to better understanding of health matters, openness to unfamiliar information, more autonomy, better wealth due to occupation requiring higher level of skills, and better communication with health care providers. Education can also reflect women's family background. Women

with higher education may be related to good social status and wealthier parents.

A high level of husband's education can also benefit women's health as a husband with high level of education may be more aware of health risks and more open to modern health care (Elo, 1992). Higher levels of education is strongly associated to likeliness of using skilled birth attendance (Addai, 2000; Babalola & Fatusi, 2009; Fotso et al., 2009; Galaa & Daare, 2008; Gyimah et al., 2006; Kunst & Houweling, 2001; Letamo & Rakgoasi, 2003; Magadi et al., 2007, 2000; Mekonnen & Mekonnen, 2003; Olusanya et al., 2010; Stephenson et al., 2006; Woldemicael, 2010). Women with an education level of secondary and above have twice the odds of utilizing skilled birth attendance than women with no school education (Mengesha et al., 2013). Similar to other variables, the level of education does not have an absolute positive association to skilled birth attendance throughout all studies. While education level of women in Tanzania has direct association to skilled birth attendance, it is not the case in Senegal (Shimamoto & Gipson, 2015).

A study in Ghana shows an association between women's level of education to utilization of skilled birth attendance. While 88% of women with education level of secondary or higher had facility delivery, only 31% of women with no school education had facility delivery (Ganle et al., 2014b). Again, it should be noted that level of education is highly associated with household income, wealth, social status, level of understanding on health matters. The change in population structure should

also be considered. In case of Ghana, the population structure has been changing differently among women with different levels of education. While the birth rate has decreased among women with no education from 40.3% to 32.7% respectively in 2003 to 2008, it has increased among women with education level of secondary or above from 5.2% to 9.1% as well from 2003 to 2008 (Bosomprah, Aryeetey, Nonvignon, & Adanu, 2014).

3.3.2.2. Enabling Factors

Financial resources

Having sufficient financial means is an indicator to the likelihood of accessing any type of health care including skilled birth attendance. Many studies found that a large inequality exists across different socio-economic groups and that the poorest women tend to utilize skilled birth attendance the least (Babalola & Fatusi, 2009; Fotso et al., 2009; Houweling et al., 2007; Kunst & Houweling, 2001; Letamo & Rakgoasi, 2003; Olusanya et al., 2010). As financial means is viewed as a great facilitator as well as a barrier when lacked, the United Nations and the African Union (De Allegri et al., 2015) recommend African countries to subsidize user-fee especially regarding delivery care. Many African countries adhered to recommendations and have implemented policies to remove financial barrier.

Transportation

Lack of transportation may refer to limited access to means of transportation (such as a motorbike or vehicle) or lacking the financial capacity to gain access for transportation. When the distance to a facility is not walking distance, access to transportation is critical. Limited means of transportation often lead to a decreased likelihood of facility delivery (Faye, Niane, & Ba, 2011; Gage, 2007; Mills et al., 2008). In one of the studies performed in Ghana, more than 20% of women responded that the reason for home delivery or unskilled delivery was due to not having access to transportation (Nakua et al., 2015).

Autonomy

Women's autonomy is related to her influence in household decision making as well as her health matters, capability to manage household wealth, and capability to leave house when she wants (Gabrysch & Campbell, 2009). Many studies include women's autonomy as a variable and found significant association to the use of skilled birth attendance (Duong et al., 2004; Glei, Goldman, & Rodríguez, 2003; Nwakoby, 1994; Stekelenburg et al., 2004). Although some studies find that women's autonomy in decision making by itself as insufficient to use skilled birth attendance without wealth (Fotso et al., 2009; Woldemicael, 2010), generally, the

status of women and autonomy are found to be positively associated with skilled birth attendance (Shimamoto & Gipson, 2015).

Husband's support

With strong patriarchal culture as part of tradition in many sub-Saharan African countries, the decision-making process is complex. Knowledge on health risks related to child delivery is insufficient to bring women to a health facility without her autonomy to her health matters or support from her husband, family or even community members (Essendi, Mills, & Fotso, 2011). Many maternal health programs recommend engaging men in maternal health as they are generally the main decision-makers as well as ones who manage household wealth. In many communities in Ghana, men often make decisions regarding wives' work, money use, food choices and availability, transportation, family planning and places of delivery (Ganle & Dery, 2015). Recent studies indicate men's disapproval as major barrier to the utilization of skilled birth attendance as well as other necessary maternal health care services (Ganle & Dery, 2015). As well, men's involvement in maternal health care has shown positive consequences on maternal health as well as their children (Aarnio, Olsson, Chimbiri, & Kulmala, 2009; Ditekemena et al., 2012; Dumbaugh et al., 2014; Ganle & Dery, 2015).

However, many men are not actively involved in their wives' maternal health matters until faced with complications. Less than 25% of men accompany their partners for antenatal or postnatal care services (Ganle & Dery, 2015). Many men recognize the importance of supporting and accompanying women for maternal health care including skilled birth attendance (Ganle & Dery, 2015). However, despite their awareness, many of them still do not carry out in action. They often do not go with their wives in receiving maternal health care nor encourage to seek necessary maternal health care (Ganle & Dery, 2015). Often men's involvement in their wives' health care conflict traditional gender roles of society.

Advised

Although encouragement by health care providers and others to deliver at a health facility shows inconsistencies in its influence on skilled birth attendance, Sylvester Z. Galla and Daare (2008) found that more than 26% of women responded being advised or referred to a health facility as a main reason for facility delivery (Galaa & Daare, 2008).

Knowledge on skilled delivery

Women with better knowledge and awareness on detailed risks involved with childbirth are expected to use the skilled birth attendance services in order to avoid such risks (Gabrysch & Campbell, 2009). Women's perception on benefits of skilled birth attendance is found to have positive association to utilization of skilled birth attendance. Perception on benefits and risks of childbirth are built from a good understanding on pregnancy related risks and how such risks can be prevented and managed in health facilities. Perception and knowledge on risks related to childbirth are also influenced by previous pregnancy and childbirth experiences (Bosomprah et al., 2014). Women who perceive unskilled childbirth as the norm are more likely to view skilled birth attendance as unnecessary and do not utilize facility delivery (Dako-Gyeke et al., 2013). Poor awareness on symptoms such as failure to correctly recognize symptoms is a barrier to timely reach of appropriate health facility for women with obstetric complications as well (Essendi et al., 2011).

Not only knowledge on health itself but better understanding on health policy, especially policy on user-fee exemption, allows better utilization of maternal health care services. In Ghana, women who have better understanding of user-fee exemption and knowledge on its coverage are much more likely to deliver at a health facility (Asante-Sarpong et al., 2016).

Use of antenatal care

The use of antenatal care is often used as a variable to predict the use of skilled birth attendance. Women's use of antenatal care is seen as acceptance as well as familiarity of modern health care services. Thus it is often assumed that women who use an antenatal care service is more likely to utilize skilled birth attendance services. Although the use of antenatal care may infer accessibility to a health facility, and thus lead to skilled birth attendance, in many sub-Saharan African countries, including Ghana, the nearest facility in rural regions often do not provide delivery services.

Some studies found an association between receiving antenatal care to likeliness of using skilled birth attendance. Timing of the first visit to antenatal care is also often measured. While Zere, Kirigia, Duale and Akazili (2012) found that an early visit to antenatal care services during a pregnancy leads to a higher likeliness of skilled birth attendance, Spangler and Bloom (2010) found an opposing outcome that a late visit to antenatal care is related to the utilization of facility delivery.

At least four visits for antenatal care is recommended by WHO (World Health Organization, United Nations Population Fund, & United Nations Children's Fund, 2015). Literature suggests that women who have four or more visits for antenatal care services are more likely to use skilled birth attendance while women

who use antenatal care services less than four times show no significant association to skilled birth attendance (Mengesha et al., 2013). Women who visit four or more times to a facility for antenatal care services may be more serious about health matters and tend to follow recommendations from health care providers as well.

3.3.2.3. Need Factors

Evaluated need

Women who experienced complications in past pregnancies, or experience complications during her present pregnancy may be more likely to utilize skilled birth attendance more due to fear of death, sickness or loss of child than women without such experiences. Women who do not experience complications or are confirmed as normal from antenatal care may feel no need to make an effort to go to a health facility for child delivery. Karkee, Binns, and Lee (2013) elucidate that women with particular complications tend to utilize skilled birth attendance even when they initially planned a home delivery.

Chapter 4. Ghana and Ketu South District

4.1. Ghana

Figure 3. Map of Ghana in Africa (Ghana, 2017)

Ghana is located in west part of Africa and in the center of the Guinea Coast. It borders with three countries. The bordering countries of Ghana include Bukina Faso located to north, Gulf of Guinea to south and Togo to the east.

The area of Ghana is 239,460km^2 which is approximately the size of United Kingdom. Ghana has ten regions including Ashanti, Brong-Ahafo, Central, Easter, Greater Accra, Northern, Upper East, Upper West, Volta and Western Region. The ten regions are sub-divided with 275 districts.

The vegetation of the country varies by region. The eastern and western parts of the country are mostly forest vegetation. The country mainly has two seasons, the rainy season and dry season (Salem, 2014).

The modes of transportation in Ghana include road (bus, taxi, private-owned car), railway, air (civil aviation), and water transport (ferry).

4.1.1. Population Characteristics

Ghana has 28,656,723 population in 2017 (Worldometers, n.d.). The number of population has been increasing since 1960. The number of population in 2010 is three times that of 1960. Ghana has a larger younger population compared to older population. An overall snapshot of the population of Ghana consists of a great number of children with a small number of elders (Ghana Statistical Service, 2013). For the sex ratio, females have been outnumbering males after 1960. The sex ratio in 2010 was 95.2 males per 100 females. In all regions except the Western Region, the number of females is greater (Ghana Statistical Service, 2013). The

majority of the population in Ghana identified themselves as Christians. 71.2% of the population identified themselves as Christians, 17.6% as Islam, 5.2% as Traditionalists and 5.3% as atheists (Ghana Statistical Service, 2013).

According to 2010 Population and Housing Census of Ghana (Ghana Statistical Service, 2013), an “average household size" is 4.4 persons. The average household size has been declining nationally from 5.1 persons in 2000. A little less than 20% out of all numbers of households in Ghana is constituted with single person. Approximately 25% of all numbers of household are nuclear families with parents and children whether biological or adoptees. Households with extended family members account for approximately 20% in rural regions in comparison to approximately 11% in urban regions. According to Ghana Statistical Service, a household head is "a member of the household who is recognized as such by the other members of the household. The head of household is generally the person who has economic and social responsibility for the house. All relationships are defined with reference to the head" (Ghana Statistical Service, 2013). Approximately 75% of household heads were male in 2010. The rate of male and female household heads varied in different regions. Whereas 40.5% had female as household heads in the Central Region, only 15% had female as household heads in the Northern Region.

4.1.2. Socio-Economic Characteristics

According to IMF World Economic Outlook, the GDP per capita of Ghana is estimated to be approximately 1,648USD in 2017 (International Monetary Fund, 2017). The overall trends of economy in Ghana has stayed the same without much change over the decades. The industry and service sectors are the major contributor to the economy of Ghana followed by agriculture. The industry and service sectors contribute to more than 50% of gross domestic product with agriculture contributing 27% in 2014. Ghana's economic activities also include exporting national goods including oil, gold, cocoa and timber (Ministry of Health, Ghana Health Service, & World Health Organization, 2016).

Approximately 70% of the population who are "15 years and older were economically active within the seven days preceding the census night," leaving approximately 30% of this population as not economically active. The proportion of people who are economically active has declined from approximately 83% in 1984.

Approximately 75% of the people who are 11 years and older are found to be literate, however, the rate of literacy differed significantly by sex. While more than 80% of males aged 11 years and older are literate, less than 70% of females who are 11 years and older are literate. Notably, rate differed greatly across the regions of Ghana. The literacy rate is approximately 84% in urban regions with

approximately 63% in rural regions. Accounting anyone who is 6 years and older, it is found out that 76.5% have either attended or were attending school. The rate of school attendance differed by sex. While approximately 82% of males have either attended or are currently attending school, approximately 72% of females have either attended or are currently attending school. The overall rate of school attendance has increased greatly over the last 50 years from 27% in 1960 to 76.5% in 2010.

4.1.3. Maternal Health

The population of fertile women generally refer to women aged between 15 to 49 years. As the general younger population has been increasing in Ghana, the population of fertile women has also been increasing from 1.1 million in 1960 to 6.3 million in 2010 (Ghana Statistical Service, 2013).

Fertility rate has been decreasing from 6.4 births per woman in 1988 to 4.2 in 2014 (Ghana Statistical Service, Ghana Health Service, & International, 2015). The fertility rate defers by regions. The fertility rate is the highest in Northern Region with 6.6 and lowest in the Western Region with 3.6 (Ghana Statistical Service et al., 2015). Fertility rate also varied by women's education level and economic status. Women with no education had greater fertility rate with 6.2 compared to women with secondary or higher level of education with 2.6. Women

from poorest households had greater fertility rate with 6.3 compared to women from wealthiest households with 2.8.

Among 33,342 deaths of females aged 12 to 54 years, 9% (3,026) of them are pregnancy-related deaths. The national maternal mortality ratio has been consistently decreasing from 204.5 maternal deaths per 100,000 live births in 2003 to 199.7 in 2008 (Ghana Health Service, 2010).

The infant and under-five mortality rate has decreased over the decades. The infant mortality rate decreased from 77 in 1988 to 50 in 2008. The under-five mortality rate has decreased by approximately half from 155 in 1988 to 80 in 2008 (DHS 1998, 2008).

4.1.4. Health Care System

In Ghana there are three teaching hospitals, nine regional hospitals, 249 district hospitals, 18 polyclinics, 1,613 health centers and clinics, 318 maternity home and 795 CHPS. In total there are 311 different levels of health facilities in 2008 (Ghana Health Service, 2010).

Main challenges of health system in Ghana include weak health programs and engagement in sub-districts, limited collaboration between health sectors, and insufficient number of human resources in the health sector. Sub-district level health sectors are found to have weakness in collaborating with other health sectors as well

as related sectors including transportation and sanitation (Ghana Health Service, 2015). Regardless of government's efforts to increase the population of health professionals, the results are vague in rural areas as well as facilities in remote areas. Many facilities in such areas have insufficient number of health professionals to increase service delivery as well as quality of health care.

4.2. Ketu South District

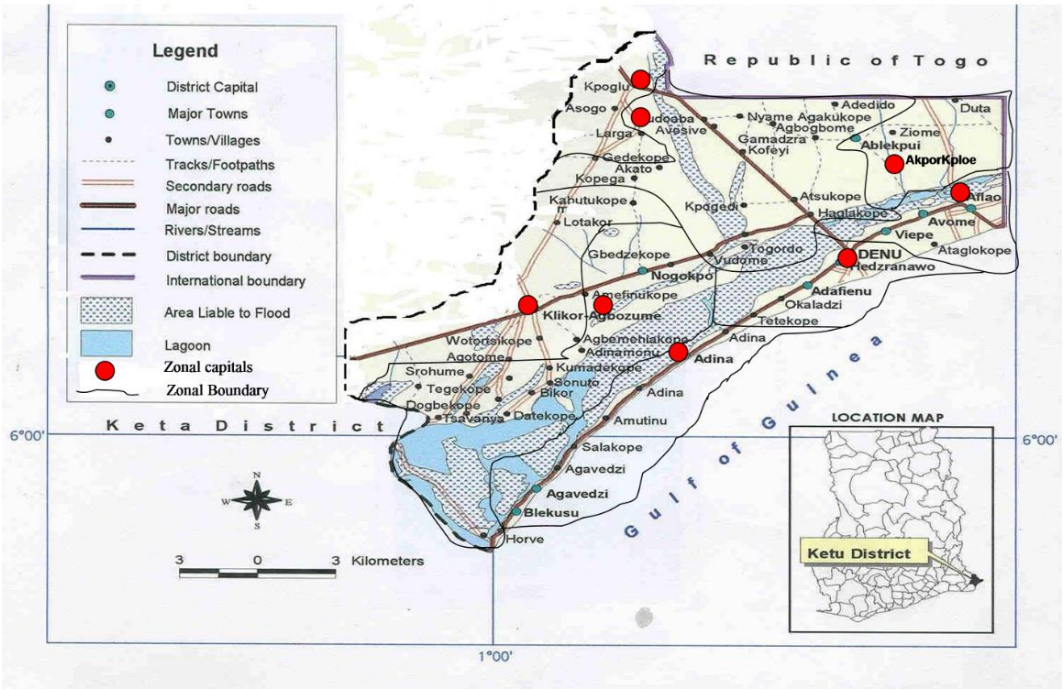

Figure 4. Map of Ketu South District (Korea International Cooperation Agency, 2015)

Ketu South District is located in Volta region, and is to the most eastern side of the region as well as within country. The district has Keta to the west, Togo to the east, Ketu North District to the north and the Gulf of Guinea to the south.

Out of the 216 districts in Ghana, Ketu South District is one of the 18

administrative districts in the Volta Region covering approximately 400km^2. The Ketu South District is one of the 216 districts in Ghana and one of the 18 administrative districts in Volta Region. The Ketu South District is the second most urbanized district after the Keta Municipality in the Volta Region. A little less than 50% of the districts' population reside in urban areas. Ketu South District has coastal woodland vegetation and dry climate.

The most common means of transportation in the Ketu South District is road transportation by bus, taxi or privately owned car. The effectiveness of road transportation is heavily affected by the condition of the road. The construction of road has been continuously improving. The roads connecting Denu-Aflao to Agbozume-Klikor are 80% complete and further roads are being paved to connect farming areas with market centers better.

4.2.1. Population Characteristics

The total population of the Ketu South District is 160,756 (Ghana Statistical Service, 2014), accounting for 7.6% of the total population in Volta Region. The population rate is greatly influenced by immigrants from Togo as well as Benin, Niger and Nigeria. The population of the district is youthful with more than 80% of population belonging to age group of 14 years old and younger. The youthful

population is due to the high fertility rate of the region. The population of females outnumber that of males with 53.4%. In the region, approximately 60% of the population identify themselves as Christians with 37% as traditional believers and 3.5% as Islam (Ghana Statistical Service, 2014).

The average household size of the region is less than national average household size with 4.0 persons per household. Nuclear families take up approximately 28.7% of all households. With youthful population, children take up 40% as the proportion of the household members. The head of household in Ketu South District is influenced by patrilineal culture in its hierarchy and authority. In household with extended families, oldest male is usually the head of the house. The authority to decision-making and property ownership is passed onto male members of a family.

4.2.2. Socio-Economic Characteristics

Among the population who are 15 years and older, 71% are economically active and 95.5% of them are employed while the rest 4.5% are unemployed. More than 70% of the employed population are self-employed. Among the unemployed population, approximately 50% of the population who are unemployed are students and approximately 20% are homemakers.

Agriculture is the major contributor to the economy of the district with approximately 60% of the population participating in agriculture activities (Ghana Statistical Service, 2014). The three main sectors of agriculture include crop, fishery and livestock. Fishery is the dominant agricultural activity followed by food cropping. Typical substances cropped include cassava, chili pepper, mango, maize and vegetables. Followed by agriculture, wholesale and trade account for approximately 24% to the district's economic activities (Ghana Statistical Service, 2014). Other main occupations of Ketu South District include craft and related trades, service and sales.

Approximately 72% of the population who are 11 years and older are literate and majority of them can read and write in English and local language. The percentage of literacy differed greatly by gender with 16.1% of male population illiterate compared to 38.1% female population (Ghana Statistical Service, 2014).

According to 2010 Population and Housing Census (Ghana Statistical Service, 2014), among the population who are 3 years and older living in Ketu South District, 25.6% has not attended school ever and the rest of the population are either currently attending school or have attended in the past. Similar to literacy rate, the rate of female population who have never attended school was greater with 33.7% than that of male population with 42.1% in 2010 (Ghana Statistical Service, 2014).

4.2.3. Maternal Health

The number of fertile women (women aged 15 to 49 years) of Ketu South District is 41,944. The general fertility rate of the region is approximately 93% births per 1,000 women aged 15 to 49 years. The fertility rate of the region is 3.1 which is lower than the fertility rate of Volta Region of 3.4.

The maternal mortality ratio has been decreasing from 137 per 100,000 live births to 87 per 100,000 live births from 2008 to 2009 (Ketu South District Assembly, 2012). The number of infant deaths has decreased from 21 in 2009 to 6 in 2010. However, the number of infant deaths were similar in 2009 and 2010 with 6 and 7 deaths respectively (Iddrisu, Dhakal, & Nam, 2015).

4.2.4. Health Care System

The Ketu South District is consisted of six sub-districts including Aflao East, Aflao West, Aflao Wego, Some Fugo, Some Wego and Klikor. In Ketu South District, there is one municipal hospital, eleven health centers and six Community Health Planning and Services compounds.

The district has been suffering from an inadequate number of health personnel and infrastructure. Especially, the district has been suffering from outnumbering demands of delivery services as the rate of skilled delivery services

has been increasing. Majority of the future retirees of health providers are midwives. On top of inadequate number of health providers, the health facilities in the region has been suffering from lack of proper equipment, accommodation for health providers, vehicles and referral system (Ghana Health Service, 2014).

Chapter 5. Findings

5.1. Characteristics of the Study Participants

A total of 36 residents including 26 women and 10 men were interviewed either through individual interviews or through focus group discussions. The age range of female participants was 18 years to 49 years old and the age range of male participants was 22 years to 61 years old. The in-depth interview participants were from four towns with 4 participants from village A; 6 participants from village D; 4 participants from village B; and 5 participants from village C. The focus group discussion participants were from B and C villages with 8 participants from each town.

The economic activities of female participants included shop keeping, dressmaking, weaving petty trading, local cook, and bread baking. The economic activities of male participants included farming, petty trading, clothes making, lotto selling, teaching, church pastor and herbalist. The majority of the participants were Christians and the rest were traditional believers.

Table 3. Demographic Characteristics of In-Depth Interview Participants

*Ed Lv= Education level, Mari St= Married status, H= Home delivery, F= Facility delivery, Mono=

No.	Village	Age	Sex	Edu Lv	Mari St	Occupation	Religion	No. of kids	Place of delivery
1	A	43	M	-	Mono	Painter	Christian	3	All H
2	D	30	M	JS 3	Mono	Lotto seller	Traditional	2	All H
3	B	22	M	P 6	Mono	Kente Weaver	None	2	All H
4	D	49	F	P 2	Mono	Trader	Traditional	10	All H
5	D	35	F	P 3	Mono	Tailor	None	5	All H
6	D	54	M	JS 3	Mono	Herbalist	Traditional	5	3 H, 2 F
7	B	44	M	High	Mono	Teacher	Christian	4	1 H, 3 F
8	D	24	F	-	Mono	Trader	Christian	3	1 F, 2 H
9	C	61	M	P 6	Mono	Farmer	Christian	7	3 H, 4 F
10	C	33	F	SS 3	Mono	Pagan	None	4	3 H, 1 F
11	B	27	F	JS 3	Mono	Store Owner	Christian	2	1 H, 1 F
12	D	45	M	SS 3	Poly	Trader	Christian	5	4 F, 1 H
13	A	36	M	-	Mono	Farmer	Christian	5	All F
14	A	18	F	-	Mono	Trader	Christian	1	All F
15	C	60	M	JS 3	Mono	Lotto seller	Christian	5	All F
16	C	26	F	SS 3	Mono	Trader	Christian	1	All F
17	A	36	M	High	Mono	Pastor/ Port Worker	Christian	1	All F
18	C	36	F	P 6	Mono	None	Traditional	6	All F
19	A	29	F	High	Mono	None	Christian	2	All F

Monogamy, Poly=Polygamy, JS= Junior secondary, SS= Senior Secondary, P=Primary, High= Anything above Senior Secondary education; Education level of Ghana is as following: pre-school 3 years, primary 6 years, JS 3 years, SS 3 years and above.

Table 4. Demographic Characteristics of Focus Group Discussion Participants

Village B							
No.	**Age**	**Edu Lv**	**Mari St.**	**Occupation.**	**Religion**	**No. of kids**	**places of delivery**
20	40	P 5	Monogamy	Kente Weaver	Traditional	6	All F
21	27	P 6	Monogamy	Kente Weaver	Christian	3	1 H, 2 F
22	22	JSS	Monogamy	Trader	Christian	4	1 H, 3 F
23	29	P 3	Monogamy	Trader	Christian	1	All F
24	28	P 6	Monogamy	Kente Weaver	Traditional	2	All F
25	19	P 4	Monogamy	Trader	Traditional	1	All F
26	31	JSS 3	Monogamy	Trader	Christian	3	1 H, 2 F
27	43	JSS 2	Monogamy	Trader	Traditional	5	2 H, 3 F
Village C							
28	37	SS 3	Monogamy	Trader	Christian	3	1 H, 2 F
29	30		Monogamy	Bread baker	Traditional	3	2 H, 1 F
30	23	JSS 3	Monogamy	Trader	Christian	2	All F
31	21	P 4	Monogamy	None	Traditional	2	1 H, 1F
32	34	P 4	Monogamy	Gari Maker	Traditional	6	All H
33	21	JSS 3	Monogamy	Apprentice	Christian	1	All F
34	25	P 4	Monogamy	Trader	Traditional	4	2 H, 2 F
35	35	P 6	Monogamy	Trader	Christian	4	2 H, 2 F

5.2. Utilization of Antenatal Care Services

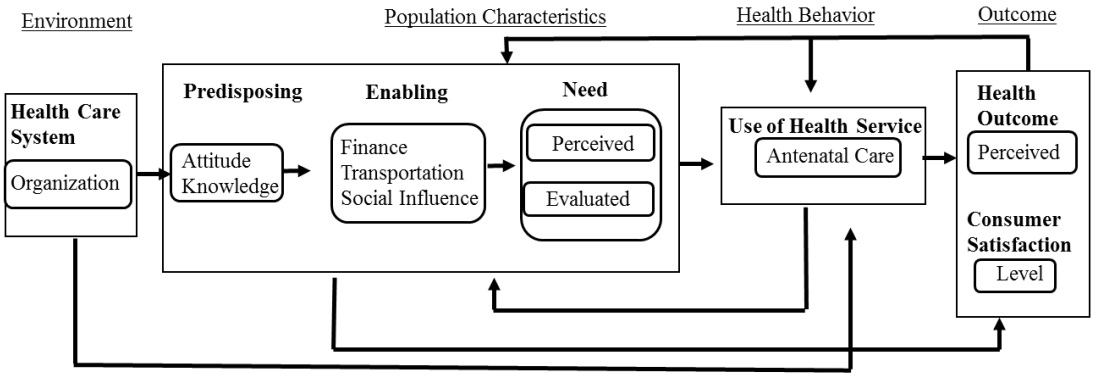

Figure 5. Behavioral Model on Utilization of Antenatal Care Services

The above diagram is the adopted Andersen's behavioral model according to the findings on factors that influence the use of antenatal care services. The diagram includes environmental, population characteristics, health behavior and outcome determinants. The recursive characteristic of the model is applied as the use of antenatal care services retrieved back to population characteristics to influence decisions on re-using the services.

Table 5. Variables Influencing the Use of Antenatal Care Services

Determinants	Factors	Domains	Themes
Environmental	Health care system	Organization	Referral
Population characteristics	Predisposing	Attitude	Subjective norm on antenatal care
			Perception on antenatal care
		Knowledge	Knowledge on antenatal care
	Enabling	Finance	Financial resources
		Transportation	Privately owned vehicle
			Passenger vehicle
			Opportunistic travel
		Social Influence	Advised for antenatal care
			Exposure
	Need	Perceived	Symptoms
		Evaluated	Complications
Use of Antenatal Care Services			
Outcomes	Health outcome	Perceived	Perceived health after antenatal care
	Consumer satisfaction	Level of satisfaction	Satisfaction after antenatal care

5.2.1. Environmental Determinants

From the results of the study, under environmental determinants, a health care system factor was found. Organization refers to distribution of resources as well as arrangement which includes cooperation between departments and facilities.

In examining determinants of utilization of antenatal care services, referral was found under the category organization. Referral refers to structural system between different departments of health facilities in order to distribute or arrange health care resources.

5.2.1.1. Health Care System

Referral

Unofficial referral systems were observed between different health facilities in provision of antenatal care services. Although Community Health Planning and Services (CHPS) compounds in the study site did not provide antenatal care services, some women were able to consult with midwives from health centers or hospitals and bring medicines and injections to a community health nurse in CHPS to continue several follow ups in CHPS. The CHPS compound providing antenatal care services on behalf of health centers or hospitals were proceeded upon request by women. Women still had to travel to health centers

or hospitals but bringing some injections allowed reduced frequency of travels to health centers/hospitals which were all located further from house than CHPS compounds. This allowed women to spend less money and time for traveling.

> *"In my case, upon discussing with the midwife at the health center about the distance from my community to the health center, the midwife gave me my medicines and injections to be brought to our CHPS compound for the CHNs to attend instead of going to the health center all the time." – Participant 30, C, female (all facility)*

The unofficial referral system was not observed in all villages but was mentioned by some women living in village C.

5.2.2. Population Characteristic Determinants

All three predisposing, enabling and need factors were found under population characteristic determinant. The domains under predisposing factor include attitude and knowledge. Attitude refers to personal views in utilizing antenatal care services. Knowledge refers to acquiring information necessary to utilize health service.

5.2.2.1. Predisposing Factors

Attitude and knowledge were found as predisposing factors. Under attitude,

subjective norm and perception on antenatal care were examined. The theme subjective norm refers to a belief about the expectation of others and willingness to comply to their expectation (Chiou, 1998). Perception on antenatal care refers to personal ideas about antenatal care which may not always reflect the factual reality.

Subjective norm on antenatal care

The participants perceived antenatal care service as a basic need for pregnancy and something that every pregnant women are supposed to do.

> "*It is normal for every pregnant woman to receive health care services like antenatal care from the health professionals. So she [my wife] is no exception at all." – Participant 3, B, male (all home)*
>
> *"Nowadays all the ladies in my community go to receive antenatal. So I didn't want to be left out." – Participant 10, C, female (home and facility)*

Most participants answered that they went for antenatal care services because it is something everyone does nowadays. While most participants perceived antenatal care as basic need and a service others use when pregnant, one participant did not perceive antenatal care as necessary nor norm of her community. According to her, managing pregnancy at home was norm and receiving antenatal care was unnecessary. For all of her five pregnancies, she had not received antenatal care service.

> *"In this village, whenever you get pregnant, you don't have to worry about going to a hospital." – Participant 4, D, female (all home)*

Receiving antenatal care from a health facility was considered as a norm by participants from all four communities except one participant from village D.

Perception on antenatal care

Participants had positive perception about antenatal care services and positive perception was generally due to high trust of health care providers. The participants had good trust on health care provider, hence, they depended on health care services provided by them.

> *"Antenatal care services is the best. At the facility, they take care of pregnancies and give the necessary advices as well as medication." Participant 3, B, male (all home)*

Knowledge on antenatal care

Knowledge on contents of antenatal care includes the use, purpose and benefits of antenatal care. The major difference observed between the participants who only had home deliveries and the participants who ever had facility deliveries was the amount of knowledge they had about the contents of antenatal care services including what it is used for and what kind of services are provided. While

participants who had facility deliveries knew specific services provided through antenatal care, participants who had home deliveries lacked knowledge on detailed services provided through it.

The participants who had facility deliveries mentioned detection of the unborn baby's sex, detection of possible complications, the management of baby's health, and prediction of due date as the purpose of antenatal care services.

> *"During the antenatal care service, I was given medicine that will prevent my unborn child from malaria and tetanus. The health of my baby inside was seen through screening. It is easy to tell if it is a boy or a girl and if there is something wrong with the baby, it will be detected by the scanning machine. It also tells when to expect your baby." – Participant 18, B, female (all facility delivered)*

5.2.2.2. Enabling Factors

Finance, transportation and social influence were found as enabling factors. Under finance, financial means were examines. The themes of transportation was categorized by modes of transportation including privately owned vehicle, passenger vehicle and opportunistic travel. Advised for antenatal care and exposure were categorized under social influence. Social influence refers to decisions to receive antenatal care affected by others. Advised to attend for antenatal care refers to a case where a person specifically encourages a participant for antenatal care

through some kind of interaction. On the other hand, exposure refers to a participant being revealed to others who use antenatal care services. Exposure differs from being advised as it simply means that a participant was exposed to anyone who uses or used antenatal care services. Exposure does not require interaction although it may occur.

Financial resources

Financial resources to utilize antenatal care services came from the husband regardless of women's employment status. Financial resources were needed to pay fees for medicine as part of antenatal care services as well as for transportation. Many husbands supported their wives financially to receive antenatal care services.

> *"I assisted her with money in going for antenatal care service because she has to transport herself to the health center."- Participant 2, D, male (all home)*

There were some cases where female participants were not supported by their husbands financially which prevented their use of antenatal care services.

> *"My husband whenever I ask him for money to go for antenatal, he complains that he has no money that I shouldn't worry about anything. He said that everything will be fine so I should stay home."- Participant 35, C,*

female (home and facility).

Under the transportation, themes were categorized based on types of transportation. The means of transportation mentioned in the use of antenatal care services included using privately owned vehicles (motorbike), passenger vehicles (e.g. taxi) and opportunistic travel (e.g. hitchhiking).

Privately owned vehicle

In cases where men owned a private vehicle, they generally owned motorbikes. The husband used his motorbike to take their wives to receive antenatal care.

"I used to carry her on my motorbike to receive antenatal care services."
– Participant 18, B, male (all facility)

Passenger vehicle

Types of passenger vehicles included taxis. When husbands did not own motorbikes, they arranged taxis for women and paid fees. Even if husbands owned motorbikes, when they were out of house, taxis were used to get to a facility.

"I arranged a car for her in going for antenatal care service because she

has to transport herself to the health center." Participant 9, C, male (home and facility)

Opportunistic travel

In few cases, hitchhiking was mentioned as a means of transportation to get to a facility for antenatal care services.

"We just get any passenger's car. She walks to the junction where she can get a car to the hospital." Participant 6, D, male (home and facility)

Advised for antenatal care

Many people influenced women regarding their health choices through interactions of sharing stories, advising and ordering. Prominent actors who were influencing women's health choices included husbands, family members and non-family members including neighbors and health care providers. And the prominent actors usually encouraged women to attend for antenatal care services.

Most of the times women told their conditions of missing period or feeling sick to their husbands. Then their husbands advised them to go to a health facility to receive antenatal care service.

"So I told my husband about it [pregnancy], he said I should go to the hospital the next day."- Participant 10, C, female (home and facility)

> "*I always counseled her to take good care of herself and also to go for antenatal care services regularly." – Participant 17, A, male (all facility)*

Family members including women's parents, siblings, parents-in-law and in-law siblings influenced women as well as their husbands by sharing their own experiences and advising them on how to manage pregnancy with the use of antenatal care services.

> *"The first time I got pregnant, I told my dad. He told me to go to a hospital for checkup."- Participant 18, B, female (facility delivered)*

> *"My mother-in-law also told me that she always went for antenatal care so I also decided to go for antenatal care." – Participant 11, B, female (home and facility)*

Often women were advised to continue receiving antenatal care services by health care providers when they went to confirm pregnancy.

> *"I received antenatal care services because the doctor asked me to come to the hospital for the antenatal care." – Participant 4, D, female (all home)*

Not all the women complied with advice from health professionals. Another participant from the same village perceived pregnancy as manageable at home and did not continue receiving antenatal care services even after the advice from a health care provider.

> *"The doctor asked me to come for antenatal care. Because I didn't see it necessary, I didn't go to the antenatal throughout the nine months." – Participant 5, D, female (all home)*

Exposure

One participant responded that she saw pregnant women going somewhere. She got curious and asked them where they were going and found out that they were on the way to receive antenatal care services. Coincidentally being exposed to other women who use antenatal care services affected women regarding their decisions to see antenatal care services in their own pregnancies.

> *"When I was not pregnant, I saw all the pregnant women from my village walking to the next village. I was told that it was antenatal care and it was very important for every pregnant women to do so that the baby will be safe and the mother as well. So when I got pregnant, I decided to go to the antenatal care service since it was good for every pregnant women." – Participant 14, A, female (all facility delivered)*

5.2.2.3. Need Factors

The need factors were categorized into perceived and evaluated need. Perceived need is finding the use of antenatal care services as vital due to view on one's own health condition. A theme having symptoms was found under perceived need. Evaluated need refers to medical judgment requiring use of antenatal care services. Having complications was found under evaluated need.

Symptoms

Perceived need to seek the use of antenatal care services included having symptoms such as feeling sick, weak and missing period. Having symptoms was commonly mentioned as one of the reasons to visit health facility for antenatal care.

> *"When it comes to my wife's pregnancy, she doesn't feel strong and healthy unless she visits health facility for some sort of medication, injection and attention they give her during and after her pregnancy." – Participant 1, A, male (all home)*

Complications

One participant regularly attended antenatal care service after being diagnosed of subfertility condition. Other participants did not mention of evaluated conditions.

> *"I was told by a doctor that it will be very difficult for me to get pregnant. Since I had complicated health problem before I got pregnant, I wanted the doctors to take very good care of the baby and myself." – Participant 16, C, female (all facility)*

5.2.3. Use of Antenatal Care Services

All the participants desired to use antenatal care services in future pregnancies.

> *"I believe it is ideal to make my wife happy by providing her basic needs as far as antenatal care services are concerned." – Participant 1, A, male (all home)*

Not a single participant responded of not wanting to receive antenatal care services. Even the participant with no experience of antenatal care services after confirming on her first pregnancy was accepting of antenatal care services in future pregnancies.

> "*I think going for antenatal is a new thing coming up and we will not reject it." – Participant 2, D, female (all home)*

5.2.4. Outcomes

Health after antenatal care

All the participants who received antenatal care services perceived their health as improved after the service. The relief of symptoms, attention from health care providers, provision of medicine and injection were the reasons for perceived enhancement on health.

> *"Such things -medication, injection, attention- keep my wife strong and healthy and that encourages me so much." - Participant 1, A, male (all home)*

Satisfaction after antenatal care

All the participants who used antenatal care services had good satisfaction. The good satisfaction came from trust towards health care providers and their attention.

> *"I like it so much because much attention is given to her."* - *Participant 7, B, male (home and facility)*

5.3. Utilization of Delivery Services

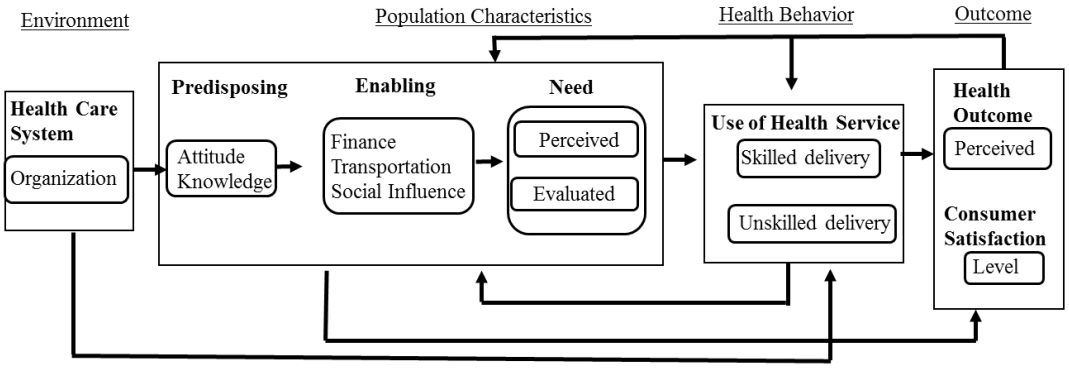

Figure 6. Behavioral Model on Utilization of Delivery Services

The above figure is modified Andersen's Behavioral Model for utilization of delivery services according to the findings of the study. The themes were found from the interviews then categorized according to the model. The figure contains determinants of environment, population characteristics, health behavior and outcome. Since most of the participants had more than one child birth, the outcomes after the use of delivery services flowed back into population characteristics as well as it directly influenced the decision to use of health service.

Table 6: Variables Influencing the Use of Delivery Services

Determinants	Factors	Domains	Themes
Environmental	Health care system	Organization	Quality of health care providers
			Function of CHPS
Population characteristics	Predisposing	Attitude	Subjective norm on delivery choices
			Perception on unskilled delivery
			Perception on skilled delivery
			Perception on authority over decision making
			Perception on distance
			Perception on cost
			Perception on public presentation
		Knowledge	Contents on skilled delivery
	Enabling	Finance	Financial resources
			Financial management
		Transportation	Privately owned vehicle
			Passenger vehicle
		Social Influence	Advised for skilled delivery
			Advised against skilled delivery
			Exposure
	Need	Perceived	Symptoms
			Avoidance of unwanted outcomess
		Evaluated	Complications
Skilled Delivery/ Unskilled Delivery Outcomes	Health outcome	Perceived	Perceived health after skilled delivery
			Perceived health after unskilled delivery
	Consumer satisfaction	Level of satisfaction	Satisfaction after skilled delivery
			Satisfaction after unskilled delivery

5.3.1. Environmental Determinants

Health care system factor was found as an environmental determinant. Under the organization of health care system, quality of health care providers and function of Community Health Planning and Services (CHPS) were found. The quality of health care providers infers how human resources are managed. The function of CHPS refers to the role it takes regarding skilled delivery services.

5.3.1.1. Health Care System Factors

Quality of health care providers

Poor behavior of health care providers was mentioned by participants who had home deliveries as well as those who had facility deliveries. Common poor attitudes included delay in attending, ignorance and shouting which insulted and humiliated women.

A participant mentioned that she wanted to deliver at home before experiencing facility deliveries due to poor behavior of health care providers after visiting a hospital.

> "*Their attitudes sometimes make me feel very less. Imagine you get sick and you visit the hospital and nurses add more pain to your pain through their attitude. They don't talk to their clients politely at all. They shout, insult and even beat patients sometimes. I can't take that. It makes me so*

sad." – Participant 16, C, female (all facility)

When the researcher visited one of the health centers, a midwife pointed at a woman and told the researcher that the woman has to go through cesarean surgery because she is too lazy to push out the baby. Her voice was loud enough to be heard by the woman as well as other women lying on the beds next to her.

Function of Community Health Planning and Services (CHPS)

When the participants were asked if they had contacted a community health nurse working in CHPS for assistance during the delivery, they responded that they did not. The reasons for not contacting or making use of CHPS were mainly that CHPS do not have delivery services and most of the participants did not have a community health nurse's number.

> *"No I did not seek any assistance from a community health nurse. Also, I don't have any community health nurse's contact number to call. CHPS don't have any delivery services anyway. So it is no use."- Participant 12, D, male (home and facility)*

5.3.2. Population Characteristic Determinants

All predisposing, enabling and need factors were found under population characteristic determinants in use of delivery care services.

5.3.2.1. Predisposing Factors

Attitude and knowledge were examined as predisposing factors. Under attitude, themes including subjective norm on delivery choice, perception on home delivery, perception on facility delivery, perception on public presentation, perception on authority over decision making, perception on cost, and perception on distance were found.

Subjective norm on delivery choices

Whether facility or home delivery is perceived as a norm was influenced by how common the practice was in their surroundings; personal experience and how they viewed their circumstances. People differed in what they perceived as norm depending on their experiences and exposure to surroundings.

All the participants who only had facility delivery perceived facility delivery as norm and described it as a "new era" and home delivery as a "past thing"

> *"Our parents and grandparents normally delivered at home. But such time has passed and we are in a new era where we receive health care from health professionals." – Participant 13, A, male (all facility)*

Participants who had both home and facility deliveries from B and C villages also perceived facility delivery as norm.

> *"Delivering at home is a thing for the past. The hospital is where most*

women deliver nowadays. Only few still deliver at home." – Participant 10, C, female (all facility delivered)

The participants who only had home deliveries from village D and a participant from village B perceived home delivery as natural and norm.

"For delivering at home, I am just like any woman in the village. It doesn't look odd." – Participant 4, D, female (all home)

"A lot of people in our community deliver at home." –Participant 3, B, male (all home)

A participant who only had home deliveries from village A perceived home delivery as an option when financially difficult.

"Some people like us [poor] in our community deliver at home"- Participant 1, A male (all home delivered)

While participants who only had home deliveries from village D perceived home delivery as a norm, on the contrary, participants who had both home and facility deliveries from village D did not. The participants who had facility deliveries from village D had characteristics that allowed them to be exposed to different norms regarding pregnancy and childbirth from different villages. One female participant had lived in Togo before coming to village D where facility delivery was norm. The two remaining male participants were exposed to other villages for one was in a polygamous marriage with another wife staying in different village and the other participant had his sister visit him during his wife's delivery who lived in Accra

where facility delivery is common.

> *"What I know is whenever woman gets pregnant, the only place to deliver is a hospital. So I was expecting to deliver at hospital. In Togo, they would laugh at me. They see it [home delivery] as abnormal." – Participant 8, D, female (home and facility delivered)*

When the researcher had to travel by a car from village D to village B, the distance was less than 10 minutes by car. It was noticed that regardless of the close distance, the people from village D did not have any interaction with people from village B or other villages. When some of the participants of village D were asked if they have been to other villages, the participants said they have not been to other nearby villages. They mentioned that there is no reason to go to next town since there is not much going on there.

Perception on unskilled delivery

Perception on home delivery greatly differed between those who ever had facility deliveries to who only had home deliveries. Participants who only had home deliveries perceived home delivery as dangerous but also not too bad and safe. Their perception on home delivery was not consistent on whether it was safe or dangerous.

> *"It is not bad," "It is not safe at all sometimes." – Participant 1, A, male (all home)*

> *"At times it is not safe at all. When there is complication, it cannot be taken care of at home and it can lead a mother or child to die. It is the best one can think of. I was encouraged by the others who delivered at home safely." – Participant 2, D, male (all home)*

The participants who only had home deliveries found no issue with home delivery because they perceived pregnancy and childbirth as naturally dangerous instead of home delivery itself as dangerous.

> *"We assume that child delivery is naturally risky because it is a matter of life and death." Participant 5, D, female (all home)*

The participants who only had home deliveries perceived non-medical personnel who handled childbirth as skilled with good amount of experience. Non-medical personnel included traditional birth attendants, parents-in-law, and neighbors from the village. In village D, it was observed that male elders were helping women with childbirth and they were often called "big brother."

> *"There is a big brother in the village. He is knowledgeable about delivery and he takes care of delivery for almost every woman in the village." – Participant 4, D, female (all home)*

In comparison, the participants who had both home and facility deliveries and those who only had facility deliveries were consistently negative about home deliveries. The negative perception was caused by people's use of old methods such as blowing

air in the bottle to let all the particles out, and pushing women's belly harsh during the delivery.

> *"I don't like anything about home delivery. TBAs (traditional birth attendants) or experienced mothers who assist delivery still use old methods and it never changes with time." – Participant 7, B, male (home and facility)*

Perception on skilled delivery

Perception on facility delivery differed between participants who ever had facility deliveries to participants who only had home deliveries. Participants who only had home deliveries had different views about facility delivery. While some perceived facility delivery would be good, some participants perceived it as strange.

- *Strangely I believe it is the best thing to do." -Participant 4, D, female (all home)*
- *"I have to leave my home and be with total strangers. The doctors will insert their hands in you."- Participant 5, D, female (all home)*

The participant also mentioned unconfirmed rumors about facility delivery.

> *"I heard sometimes people's babies get lost."- Participant 5, D, female (all home)*

Similar to perception on home delivery, participants who ever had facility deliveries were consistent on their perception about facility delivery. They had positive

perception towards facility deliveries. The positive perception was caused by high trust towards health care providers and hospital system.

> *"I believe it is the best one can receive from health professionals."- Participant 13, A, male (all facility)*
>
> *"The hospital is well organized. The health care providers are more experienced and trained. So they know what they are doing." – Participant 10, C, female (both home and facility)*

Perception on authority over decision making

The perceived decision makers of women's health choices included women themselves, husbands, husbands' family members and spiritual being. Female participants freely expressed their preference over health choices and perceived themselves as decision makers.

> *"I decided to deliver at home." – Participant 4, D, female (all home)*
>
> *"I told myself no matter what I will have to deliver at the hospital" – Participant 14, A, female (all facility)*

Most women perceived their husbands having equivalent authority over their health matters. Women participants perceived it natural to talk about their health matters including pregnancy and childbirth with their husbands and to follow or cooperate with husbands' opinions. When a participant was asked about her preference on facility delivery over home delivery, she mentioned of her husband's preference.

"My husband will not even allow me to deliver at home." – Participant 14, A, female (all facility)

One participant perceived her husband having complete authority over any decisions including that of her health matters, while she believed that she doesn't have any control over decisions on anything.

"I will ask for his permission for anything. If he says yes, I will go for it but if he says no, I will not do it. Even if he disapproves my wish to deliver at facility, I will not deliver at the facility. That means I don't have a choice."- Participant 8, D, female (both home and facility)

Female participants also perceived their in-laws having shared authority over their health matters, because they had responsibility to take care of women.

"Traditionally, it is their responsibility because I married their son."- Participant 5, D, female (all home)

In one case where husband was away, he had his brother look after his wife. When his wife needed support, her husband requested her to ask his brother.

"Before I left, I asked my older brother to look after her. When she needed something, I told her to ask my brother." – Participant 3, B, male (all home)

The perceived people who hold authority over women's health related decisions included many actors along with women themselves. Such shared authority was perceived as a norm by women themselves as well husbands and his family members. Women were viewed as in need of care by husbands and his family

members.

Spiritual being was also perceived to have authority over women's health choices. Perception on how much the spiritual being holds authority over situations and decisions differed by participants who have facility deliveries to participants who only had home deliveries.

> *"We only ask god to intervene for the fear of complications." – Participant 1, A, male (all home delivered)*
>
> *"I will pray hard that I have money to afford all her health care services." – Participant 2, D, male (all home delivered)*

On the other hand, the participants who ever had facility deliveries used expressions such as "I will do my best," or "I will save a lot" when asked about what to do in future pregnancies. They perceived themselves having full control or more over the decisions.

> *"If I get pregnant again, I will have to save a lot for myself and the baby." - Participant 16, C, female (all facility)*
>
> *"I will do my best to assist them to go to health facility to deliver." - Participant 13, A, male (all facility)*

Perception on distance

The perception of distance differed among participants. All the participants from village D except one participant perceived distance from community to health facility as “far” or “very far”.

> *“Even if I wanted to deliver at hospital, it would be very difficult because the hospital is very far. Imagine a pregnant woman in labor sitting on motorbike or in a car for that long distance. You could even deliver on your way to a hospital so what use is it or what difference does it make.”*
> *– Participant 5, D, female (all home)*

Some participants from villages B and C also perceived facilities to be far from their communities. None of the participants from village A perceived facilities to be far. The perception of distance varied among participants and it was realized that the interpretation of distance is highly subjective. For some, even a short walking distance was described as far. When the researcher asked a local person how to get to a bank, the respondent replied that it is far that one cannot go there by walking. The researcher walked anyway and arrived at the bank less than ten minutes later.

Perception on cost

The perception on cost for delivery service differed by participants on delivery places and also upon how much service individuals utilized. The cost was perceived expensive among participants who only had home deliveries. They

mentioned that the list of items must be bought to deliver at facilities and some of the items include detergent, and clean cloth. They perceived them as unnecessary and waste of money for they are not used for home deliveries.

> *"The delivery fee is high and also have to buy a lot of stuff such as detergents which at times are not used." – Participant 3 B, male (all home)*

Cost for delivery service was perceived less especially by the participants who were admitted for several days prior to delivery. The participants mentioned that they paid only for drugs and that was very little compared to how much service they used.

> *"I used health insurance. It took care of most of my bills. I just had to pay for some drugs by myself. I was admitted at the hospital for three days before I delivered but I paid less." – Participant 11, B, female (home and facility*

Perception on public presentation

Many male participants regardless of places of delivery, mentioned wives' wearing proper maternity dress and washing as essential when going to health facilities.

> *"It is important how a pregnant woman presents herself in public including washing properly and wearing a proper maternity dress. – Participant 6, D, male (home and facility)*

> *"In dealing with my wife's pregnancy, it is ideal to buy her nice clothes and food." – Participant 2, D, male (all home)*

Wearing proper maternity clothes was not mentioned as necessity in pregnancy by any of the female participants. It is noticeable that men care a lot about how they are perceived by others and care greatly about public presentation.

Knowledge on skilled delivery

Female participants who had ever had facility deliveries had better understanding about needs for facility delivery and risks involved in childbirth. They had better understanding about how facility delivery can manage complications better and mentioned specific examples such as need for cesarean surgery.

> *"Imagine your baby is too big for you to push and deliver by yourself. It will be very dangerous. I think of that and I preferred to deliver at the hospital." – Participant 18, B, female (all home)*

The participants who had ever had facility deliveries were also more knowledgeable about dangers of home delivery.

> *"Likely child and maternal death, too much loss of blood, unsafe delivery, and use of unsterilized tools could cause ailments and infections. Use of unauthorized herbal concoctions, too much pressure when women are in labor, so much pain during and after the delivery… nothing about it*

motivates me to decide my wife to deliver at home." – Participant 15, C, male (all home)

Participants who had facility delivery at least once understood specific reasons on why facility delivery was in preventing complication and managing it if it occurred.

The female participants who had both home and facility deliveries realized a great difference between the two and were able to correct superstition related to childbirth at home. Some of the superstitions related to childbirth include beliefs that the baby's cry calls out particles that the baby should not be washed until all the particles came out of a woman's womb.

"When I delivered at home there is superstition that the baby should not be taken until the placenta is out of the mother's womb. But in hospital, the baby is taken away immediately after the delivery and is cleaned and the mother too is taken care of separately." – Participant 10, C, female (home and facility)

The participants who had both home and facility deliveries mentioned that their practice of home delivery was due to ignorance and lack of knowledge. Through their experiences of both deliveries, they became aware of importance on facility delivery.

"From the first and second pregnancies and deliveries, we were ignorant about the merits of health care services. So from there, I decided that my wife should deliver at the health center." – Participant 9, C, male (home and facility)

On the other hand, participants who never had a facility delivery mentioned that facility delivery would be safer because it is handled by professionals. However, they were unaware about specific benefits of utilizing facility for childbirth nor were they aware of admittance system. Some also had misconception about cesarean surgery.

> *"I believe it is safe, convenient and more comfortable."- Participant 1, A, male (all home)*
>
> *"Sometimes when you delay in giving birth, the doctors would like to operate on you which is not good for you." – Participant 5, D, female (all home)*

5.3.2.2. Enabling Factors

Under the enabling factor, finance, health insurance, transportation and social influence were found. Under finance, the themes financial resources and management were found. Financial resource refers to economic means and its source. Financial management refers to how the resources were planned and controlled to use delivery services. The modes of transportation included privately owned vehicle and passenger vehicle. Social influence was categorized into three themes including advised for skilled delivery, advised against skilled delivery and exposure.

Financial resources

Financial means to pay for transportation fees and delivery fees came from the husband regardless of women's economic activities.

> *"I assisted her financially to go to health center which is not close to us." – Participant 15, C, male (all facility)*

As financial resources came from the husband, if husband was not present during the time of delivery, women were not able to arrange a vehicle or plan to go to health facilities.

> *"All because I was away. She was not having enough money to take her to the health center for delivery since it was expensive to deliver at facility." – Participant 1, A, male (all home delivered)*

In some cases, even when husbands were around during the time of delivery, if husbands were not providing money, women had no financial means to support herself to deliver at facility.

> *"My husband whenever I asked him for money, he complained that he has no money so I shouldn't worry about anything that everything will be fine that I should stay home. – Participant 35, C, female (home and facility)*

When the husband's income or savings were not sufficient to pay for a taxi or cost involved to deliver at a facility, financial resources and support came from acquaintances including friends and religious leaders.

"I went to Koforidua in search of money." – Participant 9, C, male (home and facility)

"My church pastor helped me with money to go to the hospital." – Participant 11, B, female (both home and facility)

Financial management

Along with financial resources, how it was managed such as planning, saving and prioritizing was observed by participants who utilized facility deliveries. Especially the participants, who previously had home deliveries then had facility deliveries later, learned the need to save in order to deliver at facilities.

"Actually, it hardly crossed my mind by then that I should save money to plan towards my wife's delivery. But after that experiences [stillbirth], I save money nowadays." – Participant 9, C, male (home and facility)

"I spend 70 percent of my income and save 30 percent."- Participant 6, D, male (home and facility)

"I have money box in my room and I put money in there at the end of every day. I save money. – Participant 10, C, female (home and facility)

Planning and saving money was individually managed and female participants were not aware of their husbands' financial management including their income and savings.

"I don't know how much my husband makes a day because I am not asking him. Traditionally it is not right for a woman to know more about her

husband's income."- Participant 10, C, female (both home and facility)

Privately owned vehicle

Participants used their husbands' motorbikes to attend a health facility for delivery.

"My husband took me to the hospital when I had to go for delivery." – Participant 14, A, female (all facility)

Passenger vehicle

Participants used taxis and husbands arranged them for wives.

"I arranged a vehicle to take her to health center."- Participant 12, D, male (home and facility)

In village B, use of neighbor's car was mentioned to go to for facility delivery.

"There are three car owners in my village."– Participant 11, B, female (home and facility)

When labor symptoms started late at night and cars were not arranged or neighbors with cars were not in town, participants did not have means of transportation.

"It was late at night and there was no car to take me to the hospital. I had no choice but to deliver at home." – Participant 10, C, female (both home and facility)

Advised for skilled delivery

All the participants who had facility deliveries were supported by husbands and were encouraged to deliver at a facility by close people including family members, friends or neighbors.

> *"My neighbors and my mother in particular shared her experiences with us and dangers involved in home delivery and merits of receiving health care from professionals." – Participant 15, C, male (all facility)*
>
> *"I was encouraged by good and bad experiences and the advices from our neighbors, relatives and friends." – Participant 15, C, male (all facility)*

In few cases, some participants were not merely encouraged but strongly advised them for facility delivery.

> *"When I told my friend that I decided to deliver at home, she told me that I was so stupid and unwise. She told me the risks of home delivery. She also told me that I wasn't serious with my life. – Participant 16, C, female (all facility)*

In one case, a participant was scolded by her mother-in-law after having home delivery and decided to never have home deliveries again.

> *"My mother-in-law was so angry with the decision I took in delivering at home. I promised her that I will never deliver at home again." – Participant 23, B, female (home and facility)*

If not family members or neighbors, health providers also encouraged participants and influenced them to change their mind about delivery places.

> *"When I went to the hospital after the first delivery, they were angry with me. The health care provider told me how risky it is to deliver at home. They told me I could lose my baby or my life. I decided to deliver at the hospital the next time I get pregnant." – Participant 11, B, female (home and facility)*

Advised against skilled delivery

Sometimes, women were discouraged or advised against facility delivery by others including parents-in-law or traditional birth attendants. With their husbands' support, advice against facility delivery was neglected.

> *"A traditional birth attendant from town told me I was being disrespectful because she asked me to deliver at home, but I didn't listen to her. My mother in-law even said I was disturbing her son. She said I should have delivered at home." –Participant 14, A, female (all facility)*

In another case, a participant was advised against facility delivery due to financial problems by her in-law parents. In her case, she did not receive support from her husband since her husband was away for work that she ended up having a home delivery as a result.

> *"My parents' in-law complained of not having money that I should deliver at home." – Participant 8, D, female (home and facility)*

Exposure

The participants who only had facility deliveries were exposed to people who had facility deliveries and were able to directly hear their experiences and it influenced the participants positively in deciding for facility deliveries.

> *"I know a lot of people that delivered at a hospital but I don't really know people that delivered at home." – Participant 14, A, female (all facility)*
>
> *"My mother delivered me and my siblings at a hospital. So I also would deliver at a hospital." – Participant 18, C, female (all facility)*

Compared to participants who knew people with facility deliveries, the participants who only had home deliveries from village D did not know anyone directly who had delivered a child at a health facility.

> *"I don't know anyone that delivered at facility." – Participant 5, D, female (all home)*

Most of the participants who had facility deliveries directly knew people who had facility deliveries, and were advised or encouraged to deliver at a health facility by their close people including husbands, parents, parents-in-law or neighbors.

5.3.2.3. Need Factors

The need factors were categorized into perceived and evaluated need. Perceived need include having symptoms and desire to avoid unwanted outcomes.

Evaluated need includes having complications diagnosed.

Perceived need was only found from participants who ever had facility deliveries. Perceived need included having symptoms such as intolerance of pain and avoiding unwanted outcomes including maternal and infant death.

Symptoms

Reducing pain and intolerance of pain were mentioned as factors for seeking facility delivery.

> *"I told myself no matter what I will have to deliver at the hospital since I am a type that can't stand much pain."- Participant 14, A, female (all facility)*

Avoidance of unwanted outcomes

Participants who exclusively had facility deliveries mentioned their fears of not wanting herself or her baby to die from complications during home delivery. Participants who had previously lost a child from home deliveries were motivated to deliver at facility in order to avoid similar outcomes.

> *"So from the experiences of losing my child, I decided that my wife should deliver at the health center." – Participant 9, C, male (home and facility delivered)*

Complications

Observed diagnosed conditions among participants was subfertility. The participant used facility delivery and believed it was her only option.

> *"I delivered at the hospital even though I wished to deliver at home. Because of my health issues (risk of infertility), I had no option than to deliver at the hospital. I was scared of having miscarriage." Participant 16, C, female (all facility)*

She was the only participant who had specific diagnosed condition that led to the use of facility delivery service. Other participants did not mention of any diagnosed symptoms or conditions during pregnancy or childbirth.

5.3.3. Use of Delivery Services

Skilled delivery

When asked about plans for future pregnancy, all the participants who ever had facility delivery were adamant about wanting to have a facility delivery for any future pregnancies. None of them wanted to have a home delivery.

> *"I will have to deliver at the hospital." – Participant 11, B, female (home and facility)*
>
> *"Health facility of course." – Participant 17, A, male (all facility)*

The participants who only had home deliveries mentioned having antenatal care for

future pregnancies, but many remained undecided about where to deliver.

5.3.4. Outcomes

Perceived health after skilled delivery

All the participants who ever had facility deliveries perceived their health to be good. They believed treatment given in hospital made them and their babies strong and healthy without complications.

> *"I realized from my first experience that my children are strong from birth."*
> *– Participant 18, B, female (all facility)*

Perceived health after unskilled delivery

While all the participants who used perceived their health to be good without complications after the use of facility delivery services, some participants perceived their health to be good and some observed symptoms after the home delivery.

> *"Throughout my five pregnancies, I have been strong and fit. I was fine."*
> *– Participant 5, D, female (all home)*

The participant believed she was fine throughout her pregnancies with intake of traditional herbs and medicine personally bought from a pharmacy. Some

participants mentioned of having symptoms after home delivery including severe bleeding and having too much physical pain.

> *"During my past delivery, I lost too much blood." –Participant 4, D, female (all home)*
>
> *"I felt so much pain." – Participant 8, D, female (both home and facility)*

Some participants had lost their babiess during home delivery.

> *"The baby didn't come out completely. When it finally came out, it came out dead." – Participant 9, C, male (home and facility)*
>
> *"One at home died as a result of mishandling by traditional birth attendant." – Participant 34, C, female (home and facility)*

The satisfaction was categorized into two themes including satisfaction after skilled delivery and unskilled delivery. The level of satisfaction refers to how pleasing the use of delivery services are.

Satisfaction after skilled delivery

The participants had good satisfaction after the use of facility delivery services. Levels of satisfaction came from safety, proper provision of medication and treatment, and emotional support and caring of health professionals.

> *"It is safe and sound. I am surrounded by professional health care providers. They are friendly. I like the way they cared for me." – Participant 18, B, female (all facility)*

> *"The midwives and nurses show much concern because it is always their wish to see both the baby and mother alive before, during and after delivery." – Participant 17, A, male (all facility)*

The participants who had both home and facility deliveries were appreciative of facility deliveries and greatly satisfied with them. Their good satisfaction after the use of facility deliveries came from compared outcomes and experiences with past home deliveries.

> *"I have experienced both home delivery and facility delivery. I experienced big difference. Delivery at a hospital was more pleasing to me." – Participant 10, C, female (home and facility)*

Satisfaction after unskilled delivery

The participants who had both home and facility deliveries were greatly unsatisfied with home delivery experiences. The low satisfaction was caused after realizing the difference compared to facility deliveries. The reasons for low satisfaction included high risk, skipping of medical treatment, pain and use of old methods.

> *"It is too risky to deliver at home. When health care providers came for home visit, they gave vaccination for my baby but I was not given any medication as a mother."- Participant 8, D, female (home and facility)*
>
> *"The old method used by traditional birth attendants or experienced*

mothers who assist pregnant women never changes with time. Those are the things I don't like at all." – Participant 6, D, male (home and facility)

While all the participants who had both home and facility deliveries were unsatisfied with home deliveries, the satisfaction levels of participants who exclusively had home deliveries varied. Some participants who had home deliveries found satisfaction from familiarity, trust and good health outcomes.

"I felt safe because the people helping me to deliver were my close relatives. My father-in-law cut umbilical cord and my mother-in-law washed my baby. Not everyone can cut umbilical cord. You need an experience to do that." - Participant 5, D, female (all home)

The participant had good trust in her parents-in-law as someone who can handle her delivery well due to his experience. Some participants who only had home deliveries were unsatisfied with the use of home deliveries. Severe blood loss was reported as a contributor to the low satisfaction of home delivery.

"I don't like anything about delivering at home. During my past delivery, I lost too much blood." – Participant 4, D, female (all home)

Chapter 6. Discussion

The research studied women who had childbirth, and men with wives who had childbirth in last five years. The research conducted a qualitative study to find variables influencing the utilization of maternal health care services. From the findings of the study, the factors influencing the utilization of antenatal care services include organization of health care resources as a health care system factor, attitude and knowledge of the health care service consumers as predisposing factors. Enabling factors included finance, transportation and social influence. Perceived and evaluated need factors also affected the use of antenatal care services. The factors influencing the utilization of skilled birth attendance services include organization of health facilities and health providers as health care system factors. The predisposing factors include attitude and knowledge of health service consumers. Enabling factors included finance, transportation and social influence as in utilization of antenatal care services. Both perceived and need factors were observed to lead to utilization of skilled birth attendance services.

While past studies have included chiefs, community leaders, traditional birth attendants, and health care providers (Dioulde Balde et al., 2017; Sialubanje et al., 2015; Sipsma et al., 2013) as target population, this research exclusively

studied direct health care consumers using inductive approach rather than examining factors of utilization of maternal health care services with a set of fixed variables.

Among many determinants that inhibited women from accessing maternal health care services, health care system factors stood out. The referral system between different level of health facilities and function of Community Health Planning and Services (CHPS) greatly affected utilization of antenatal care and skilled delivery services. CHPS was originally established in Ghana to provide full maternal health care services in order to reduce the burden of far distance to a health facility. However, CHPS in the study site rarely served any of the core maternal health care services due to lack of resources including midwives and necessary equipment. None of the CHPS had midwives or accredited health professionals approved to serve and manage child delivery. Not only did CHPS not serve the three most critical maternal health care services (antenatal, skilled birth attendance, postnatal), it lacked a referral system with other health facilities that provided maternal health care services. Only in one village an unofficial referral system in delivered parts of antenatal care services existed upon requests by women. While a previous study found that women often skip the nearest community-level facilities wanting to seek higher level facilities (Kruk et al., 2009), in the case of the study

site, the participants purely had no option since community level health facility (CHPS) did not provide the core maternal health care services.

In addition to weak organization of health care resources in facilities, quality of health care providers is another concern. While poor behavior of health care providers was mentioned regarding facility delivery services, it was not mentioned in use of antenatal care services. It can be assumed that poor behavior of health care providers is a greater issue regarding facility delivery services as women are more vulnerable with severe physical pain and fear during childbirth (Hodnett, Gates, Hofmeyr, Sakala, & Weston, 2003). Similar to previous studies (Dioulde Balde et al., 2017; Kyomuhendo, 2003), verbal abuse and neglect were mentioned during the visits to health facilities. Concerning behavior of health care providers may add extra reasons not to utilize facility delivery services to the ones who do not realize the need to utilize skilled delivery services. Quality of health care services and providers are critical especially in small villages as information quickly spreads. During the pilot studies, it was noted that the spread of information throughout the village was fast. As the research team visited a village and carried out focus group discussion, the participants were given soap, bottles of water, soda and candies as small gift. When the research team visited the same village the other day, too many villagers came to the site to participate in order to receive gifts. Upon observation about how fast the exchange of information between villages, it could

be the similar with rumors and information about facility deliveries. Fast spread of information, especially negative opinions about facility delivery may influence and affect the perception and norm on delivery choices.

In many of population characteristic determinants, most of the predisposing and enabling factors were dependent on the husband. As financial resources and means of transportation came from husbands, it can be assumed that the husband's lack of knowledge on the need of skilled delivery services and careless attitude can limit women's access to the necessary enabling factors. According to the findings from the study, the relevance of household income studied in many previous studies in relation to likeliness of utilizing skilled birth attendance service should be considered as women from the study generally lacked not only access, but also information regarding their husband's income. It was found that women and men separately managed their incomes and savings.

Women's lack of autonomy due to limited access to various enabling factors is greatly explained through male participants' perception on priority on spending. While male participants who had their wives deliver at home perceived buying items such as detergent, soap or clean cloth as expensive and unnecessary, they perceived buying proper maternity dress as necessary and ideal in dealing with pregnancy. In one study (Tolhurst, Amekudzi, Nyonator, Squire, & Theobald, 2008), men and women in Ghana had different priorities on where money should be spent.

Some men perceived spending money on alcohol in bars or engaging in marriage with multiple wives as priority while women perceived spending money on children's health as priority (Tolhurst et al., 2008). It can also be deduced that spending financial resources for proper public presentation may be more prioritized than receiving facility delivery services especially when lack proper knowledge regarding child delivery.

As distance was greatly studied in previous researches in use of maternal health care services, this study examined perception on distance instead. While the previous study (Mwaliko et al., 2014) concluded that distance is not the definite barrier to facility delivery, the author did not realize that people from different places with different lifestyles do not always share similar perception on distance. A walking distance of 5km was viewed as far by the participants of the study. People's perception on distance may differ due to perceived efforts needed to travel (Proffitt, Stefanucci, Banton, & Epstein, 2003). The causes of perception on distance from the study include difficulty walking with labor symptoms, egress issues such as no street lights at night, difficulty in finding a car late at night or when the husband is not present and if only available means of transportation is a motorbike, which may be unsuitable for a woman in labor. This also explains why distance was less of a barrier in use of antenatal care services. Women are less

restricted in movement and schedule in going to receive antenatal care services compared to childbirth where women are often facing physical pain and discomfort.

From observation of determinants on utilization of maternal health care services, some suggestions can be made. A lot of barriers to use of maternal health care services can be relieved by strengthening the role of Community Health Planning and Services (CHPS). The function of CHPS needs to be distinguished into long-term and short-term plan. In the long-term plan, it should strive for its original aim which is to deploy midwives in every CHPS and to allocate all necessary equipment to carry out full maternal health care services. Currently, Ghana is short of health personnel and especially of midwives. As previously mentioned, the shortage of health personnel is a concern in Ghana with 0.926 nurses and midwives and 0.096 physicians per 1000 people in 2010 (The World Bank, n.d.). In order to fill the shortage of health workers, collaboration with medical universities of the region should be considered. Collaboration with universities will not only quickly fill the insufficient health workers of CHPS but it will also benefit the future health professionals by providing sites and training opportunities.

While the long-term plan (providing full maternal health care services) should continuously be strived, specific guidelines on the role of CHPS needs to be established as it is still in the process of achieving its ultimate goal. The CHPS should be utilized in providing simple antenatal care services which do not require

complicated equipment. This will relieve the burden of traveling to health centers or hospitals which are all located further from communities. Also, by carrying out antenatal care services in CHPS, the community health nurses have a greater chance to provide full education on the contents of skilled birth attendance to bring awareness to women. Lack of knowledge and uncertainty on the need of skilled delivery even after antenatal care imply that the chance to educate women as they come for antenatal care is not effectively targeted.

Previous research has found that most women were not given full education on risks or danger signs during antenatal care services (Anya, Hydara, & Jaiteh, 2008). On average, women spent approximately 3 minutes with health care providers during antenatal care. The similar situation is expected of many regions of Ghana as the provision of detailed information is realistically difficult due to the inadequate numbers of health workers in most health centers or hospitals.

Along with targeting to educate women as they come to receive antenatal care, provision of education on skilled delivery should be carried out during village reach outs by community health nurses or community health volunteers. As found from this study as well as other studies, women were greatly influenced by others regarding delivery choices. It is important to educate populations in order to allow positive influence as they interact with women regarding health care choices.

Not only should the referral system be formed in delivery of antenatal care services, but also in transportation. By allocating vehicles to each CHPS, women can be quickly transferred to appropriate health facilities without assistance or approval from husband or other family members. By establishing transportation systems between CHPS and other health facilities, it also allows community health nurses to engage in emergency deliveries, as a community health nurse can manage emergency deliveries on the way to health facilities in the vehicle.

Finally, all fees involved in skilled delivery should be removed completely in order to ensure equal access especially to poor women. The informal fees hindering access to skilled delivery has been found in many other developing countries (Sharma et al., 2005). The removal of the request of list of items to be bought and any other informal charges will enable people with no financial means to have equal access to the use of facility delivery services. The complete fee exemption should be achieved through Universal Health Coverage in the long term. The complete fee exemption will allow women without support from husbands gain access the use of skilled delivery services. Complete fee removal will decrease rejection by husbands or other family members as most women were rejected the opportunity to utilize skilled delivery services by family members due to financial burden.

Maternal health care services for all women will eventually increase women's accessibility to health services without seeking support from other people. Increasing women's autonomy is not only important to decrease maternal mortality through use of health care services but autonomy itself holds great value. While some women in Western societies actively choose home delivery to exercise full autonomy by minimizing medical intervention, the home deliveries of Ghana or in other developing countries are difficult to be explained as an exercise of full autonomy. Full autonomy in decision making is only possible when a person has access to available options. Interventions to remove unofficial charges in use of maternal health care services will contribute to increasing autonomy and empowering women's rights.

This study highlights the intimate relationship among different factors of categories and reveal factors that were not shown in previous quantitative studies. The quantitative method is greatly limited when exploring norms, social influence that explains the effect of interactions and social network and attitude. Various themes of perception were examined in use of maternal health care services. The findings of various attitude including perception on authority, distance, cost and public presentation were hardly found in other studies and these newly discovered themes broaden perspective on factors to be considered related to health behavior. Discovering various themes contribute in filling the gap from limited set of

variables used in many quantitative studies. The following research delves deeper into the intricate issues surrounding antenatal care and delivery to clearly see what interventions need to take place in order to increase the utilization of maternal health care services.

While the study used qualitative method, the framework of analysis depended on Andersen's behavioral model with semi-structured questionnaire. The use of semi-structured questionnaire with Andersen's behavioral model can be limited in finding more unexpected themes compared to open-structured study. However, the use of Andersen's behavioral model allowed consistency in reviewing factors from previous studies to the themes found from the following study. The direct content analysis also allows an easier blend to quantitative studies. Another limitation of this study is selection of participants from a specific district which may cause difficulty in generalizing the findings to other regions. Nevertheless, by selecting participants from a narrow geographical scope, observation on factors on utilization of maternal health care services among people with not much different in culture was allowed. Despite few limitations, the findings from the study are meaningful as it offers a new perspective in examining the factors that influence the use of maternal health care services. The study is particularly meaningful to policy makers for it gives an insight to what kind of factors must be considered and studied in advance to implementation of health promotion programs.

Chapter 7. Conclusion

Determinants on the use of skilled birth attendance in Ketu South District of Ghana was examined through a qualitative study using in-depth interviews and focus group discussions. The study focused on why the discontinued use of skilled birth attendance services existed after the use of antenatal care services. By selecting participants with various delivery choices from different communities of different delivery rates in the same district, the comparison between different factors among the participants with different delivery choices and observation on characteristics of villages that could influence the utilization of maternal health care services were possible. The results from the study imply that there still needs more improvement to ensure equal access to skilled delivery services to all women in need. The role of Community Health Planning and Services needs to be strengthened by establishing formal referral system with transportation means to carry out to deliver maternal health care services to the community. In order to eliminate financial burden, incurred from unofficial charges of requiring women to buy list of items and fees for transportation need to be completely removed to ensure equal access to all women in need of maternal health care services.

Appendix A. Variables of Skilled Birth Attendance from Previous Studies

Health Care System	**Reference**
No provider/Female provider	(Ayanore, Pavlova, & Groot, 2016)
Type of ANC provider	(Moyer & Mustafa, 2013; Nakua et al., 2015)
Distance	(Gabrysch & Campbell, 2009; Joharifard et al., 2012; Karkee et al., 2013; Mpembeni et al., 2007; Nakua et al., 2015)
External Environment	**Reference**
Village level % who attended ANC	(Moyer & Mustafa, 2013)
Village level % who agree facility delivery rate as important	(Moyer & Mustafa, 2013)
Perception on delivery norm in community	(Speizer, Story, & Singh, 2014)
Predisposing	**Reference**
Maternal age	(Amo-Adjei, Anku, Amo, & Effah, 2016; Asamoah, Agardh, Pettersson, & Östergren, 2014; Asante-Sarpong et al., 2016; Ayanore et al., 2016; Doku et al., 2012; Enuameh et al., 2016; Gabrysch & Campbell, 2009; Jennings et al., 2017; Joharifard et al., 2012; Karkee et al., 2013; Mengesha et al., 2013; Moyer & Mustafa, 2013; Nakua et al., 2015; Shimamoto & Gipson, 2015; Speizer et al., 2014)
Maternal education	(Amo-Adjei et al., 2016; Asamoah et al., 2014; Asante-Sarpong et al., 2016; Ayanore et al., 2016; Diamond-Smith & Sudhinaraset, 2015; Doku et al., 2012; Enuameh et al., 2016; Gabrysch & Campbell, 2009; Jennings et al., 2017; Joharifard et al., 2012; Karkee et al., 2013; Mengesha et al., 2013; Moyer & Mustafa, 2013; Mpembeni et al., 2007; Nakua et al., 2015; Shimamoto & Gipson, 2015; Sialubanje et al., 2015)
Maternal literacy	(De Allegri et al., 2015)

Predisposing	Reference
Maternal employment status	(Amo-Adjei et al., 2016; Asante-Sarpong et al., 2016; Joharifard et al., 2012; Speizer et al., 2014)
Maternal occupation	(Amo-Adjei et al., 2016; Gabrysch & Campbell, 2009; Joharifard et al., 2012; Mengesha et al., 2013; Nakua et al., 2015)
Marital Status	(Asante-Sarpong et al., 2016; De Allegri et al., 2015; Doku et al., 2012; Enuameh et al., 2016; Gabrysch & Campbell, 2009; Jennings et al., 2017; Joharifard et al., 2012; Moyer & Mustafa, 2013; Mpembeni et al., 2007; Nakua et al., 2015; Shimamoto & Gipson, 2015; Speizer et al., 2014)
Husband/ partner's age	(Enuameh et al. 2016)
Husband/ partner's education	(Amoakoh-Coleman et al., 2015; Asante-Sarpong et al., 2016; Ayanore et al., 2016; Doku et al., 2012; Enuameh et al., 2016; Gabrysch & Campbell, 2009; Karkee et al., 2013; Mengesha et al., 2013; Moyer & Mustafa, 2013)
Husband/ partner's employment status	(Asante-Sarpong et al., 2016; Karkee et al., 2013)
Husband/ partner's occupation	(Gabrysch & Campbell, 2009; Mengesha et al., 2013; Moyer & Mustafa, 2013)
Religion	(Amo-Adjei et al., 2016; Amoakoh-Coleman et al., 2015; Asante-Sarpong et al., 2016; Doku et al., 2012; Enuameh et al., 2016; Gabrysch & Campbell, 2009; Jennings et al., 2017; Joharifard et al., 2012; Mengesha et al., 2013; Moyer & Mustafa, 2013; Speizer et al., 2014)
Ethnicity	(Amo-Adjei et al., 2016; Amoakoh-Coleman et al., 2015; Asante-Sarpong et al., 2016; Enuameh et al., 2016; Gabrysch & Campbell, 2009; Moyer & Mustafa, 2013; Speizer et al., 2014)
Residency	(Amoakoh-Coleman et al., 2015; Asamoah et al., 2014; Asante-Sarpong et al., 2016; Ayanore et al., 2016; De Allegri et al., 2015; Diamond-Smith & Sudhinaraset, 2015; Doku et al., 2012; Karkee et al., 2013; Mengesha et al., 2013; Moyer & Mustafa, 2013; Shimamoto & Gipson, 2015; Speizer et al., 2014)

Predisposing	Reference
Household size	(Gabrysch & Campbell, 2009; Mpembeni et al., 2007; Nakua et al., 2015)
Having son	(Shimamoto & Gipson, 2015)
Parity	(Amoakoh-Coleman et al., 2015; Asamoah et al., 2014; Asante-Sarpong et al., 2016; Doku et al., 2012; Enuameh et al., 2016; Jennings et al., 2017; Joharifard et al., 2012; Karkee et al., 2013; Mengesha et al., 2013; Moyer & Mustafa, 2013; Mpembeni et al., 2007; Speizer et al., 2014)
Family norm	(Diamond-Smith & Sudhinaraset, 2015; Moyer & Mustafa, 2013)
Attitude towards importance of facility delivery	(Moyer & Mustafa, 2013)
Expectations/perceived quality of care	(D'Ambruoso et al., 2005; Gabrysch & Campbell, 2009)
Perceived accessibility to health care	(Shimamoto & Gipson, 2015)
Household head	(Shimamoto & Gipson, 2015)
Autonomy	(Ayanore et al., 2016; Diamond-Smith & Sudhinaraset, 2015; Enuameh et al., 2016; Gabrysch & Campbell, 2009; Jennings et al., 2017; Moyer & Mustafa, 2013; Nakua et al., 2015; Shimamoto & Gipson, 2015; Speizer et al., 2014)
Partner involvement in decision making	(Mpembeni et al., 2007; Nakua et al., 2015)
Permission from husband, traditional birth attendants, mother, mother-in-law	(Moyer & Mustafa, 2013)
Discussed with family	(Karkee et al., 2013)
Knowledge on benefits of Skilled Birth Attendance	(Gabrysch & Campbell, 2009; Nakua et al., 2015)
Knowledge on home delivery/ risks	(Mpembeni et al., 2007; Nakua et al., 2015)

Enabling	Reference
Financial means	(Jennings et al., 2017)
Wealth	(Amo-Adjei et al., 2016; Amoakoh-Coleman et al., 2015; Ayanore et al., 2016; Diamond-Smith & Sudhinaraset, 2015; Doku et al., 2012; Enuameh et al., 2016; Karkee et al., 2013; Moyer & Mustafa, 2013; Mpembeni et al., 2007; Shimamoto & Gipson, 2015; Speizer et al., 2014)
Income	(Asamoah et al., 2014; Nakua et al., 2015)
Ability to pay	(Gabrysch & Campbell, 2009)
Financial control/access	(Joharifard et al., 2012)
Having savings	(Jennings et al., 2017)
Money readily available at home	(Enuameh et al., 2016)
Received any financial assistance	(Jennings et al., 2017)
Having debt	(Jennings et al., 2017)
Lent money to others	(Jennings et al., 2017)
Difficult with money/permission	(Ayanore et al., 2016)
Health insurance possession/ coverage	(Amoakoh-Coleman et al., 2015; Enuameh et al., 2016; Joharifard et al., 2012; Moyer & Mustafa, 2013)
Having means of transport to facility/voucher	(Moyer & Mustafa, 2013)
Difficulty with distance/transportation	(Ayanore et al., 2016; Gabrysch & Campbell, 2009)
Birth preparedness	(Nakua et al., 2015)
Social influence of others	(Diamond-Smith & Sudhinaraset, 2015; Moyer & Mustafa, 2013)
Advised to deliver in a facility during antenatal care	(Joharifard et al., 2012; Moyer & Mustafa, 2013; Mpembeni et al., 2007)
Number of community health volunteers visits	(Joharifard et al., 2012)
Information availability	(Gabrysch & Campbell, 2009)

Enabling	**Reference**
Information received	(Karkee et al., 2013)
Education on danger signs of pregnancy during antenatal care	(Enuameh et al., 2016)
Need	**Reference**
Previous miscarriage	(De Allegri et al., 2015)
Pregnancy wanted-ness	(Diamond-Smith & Sudhinaraset, 2015; Enuameh et al., 2016; Gabrysch & Campbell, 2009; Moyer & Mustafa, 2013)
Precipitate labor	(Moyer & Mustafa, 2013)
Desire to appear modern	(Moyer & Mustafa, 2013)
Complications	(Amoakoh-Coleman et al., 2015; Gabrysch & Campbell, 2009; Moyer & Mustafa, 2013)
Use of Service	**Reference**
Ever had home delivery/unskilled delivery	(Nakua et al., 2015)
Previous facility delivery	(Gabrysch & Campbell, 2009)

Appendix B. Comparison of Variables from this Study to Previous Studies

Determinants	Factors	Domains	Themes	Pre	New
Environmental	Health care system	Resources	Use of maternity waiting homes	O	
		Organization	No provider/Female provider	O	
			Type of ANC provider	O	
			Distance	O	
			Behavior of health care providers		O
	External environment	Community norm	Village level % who attended ANC	O	
			Village level % who agree facility delivery rate as important	O	
			Perception on delivery norm in community	O	
Population Characteristics	Predisposing	Socioeconomic Status	Maternal age	O	
			Maternal education	O	
			Maternal literacy	O	
			Maternal employment status	O	
			Maternal occupation	O	
			Marital status	O	
			Partner’s age	O	
			Partner’s education	O	
			Partner’s employment status	O	
			Partner’s occupation	O	
			Religion	O	
			Ethnicity	O	
			Residency	O	
			Household size	O	
			Having son	O	
			Parity	O	
		Attitude	Family norm	O	
			Perceived norm on delivery choices		O
			Perception on unskilled delivery		O

Determinants	Factors	Domains	Themes	Pre	New
			Perception on skilled delivery		O
			Attitude towards importance of facility delivery	O	
			Expectations/perceived quality of care	O	
			Perception on authority over decision making		O
			Perceived accessibility to health care	O	
			Perception on distance		O
			Perception on cost		O
			Perception on public presentation		O
		Authority	Household head	O	
			Autonomy	O	
			Partner involvement in decision making	O	
			Permission from husband/ traditional birth attendants, mother, mother-in-law	O	
			Discussed with family	O	
		Knowledge	Knowledge on benefits of Skilled Birth Attendance	O	O
			Knowledge on home delivery/risks	O	
	Enabling	Finance	Financial means	O	O
			Wealth	O	
			Income	O	
			Ability to pay	O	
			Control/access	O	
			Having savings	O	
			Money readily available at home	O	
			Received any financial assistance	O	
			Having debt	O	

Determinants	Factors	Domains	Themes	Pre	New
			Lent money to others	O	
			Difficult with money/permission	O	
			Financial management		O
		Insurance	Health insurance possession/ coverage	O	
		Transportation	Having means of transport to facility/voucher	O	
			Difficulty with distance/transportation	O	
			Privately owned vehicle		O
			Passenger vehicle		O
		Preparation	Birth preparedness	O	
		Social Influence	Social influence of others	O	
			Advised to deliver in a facility during antenatal care	O	
			Number of community health volunteers visits	O	
		Information	Information availability	O	
			Information received	O	
			Education on danger signs of pregnancy during antenatal care	O	
	Need	Perceived need	Symptoms		O
			Avoid unwanted outcomes		O
			Previous miscarriage	O	
			Pregnancy wanted-ness	O	
			Precipitate labor	O	
			Desire to appear modern	O	
		Evaluated need	Complications	O	O
Use of health services	Skilled delivery				
	Unskilled delivery				

Determinants	Factors	Domains	Themes	Pre	New
Outcomes	Health outcomes	Perceived Health Status	After skilled delivery		O
			After unskilled delivery		O
	Consumer satisfaction	Level of satisfaction	Satisfaction after skilled delivery		O
			Satisfaction after unskilled delivery		O

*Pre=variables found from previous studies, New=new variables found from this study

References

Aarnio, P., Olsson, P., Chimbiri, A., & Kulmala, T. (2009). Male involvement in antenatal HIV counseling and testing: exploring men's perceptions in rural Malawi. *AIDS Care*, *21*(12), 1537–1546. https://doi.org/10.1080/09540120902903719

Abor, P. A., Abekah-nkrumah, G., Sakyi, K., Adjasi, C. K. D., & Abor, J. (2011). The Socio-economic Determinants of Maternal Health Care Utilisation in Ghana Patience Aseweh Abor Department of Public Administration and Health Services Management. *International Journal of Social Economics*, *38*(7), 628–648. https://doi.org/10.1108/03068291111139258

Aday, L. A., & Andersen, R. (1974). A Framework for the Study of Access to Medical Care. *Health Services Research*, *9*(3), 208–220. https://doi.org/10.3205/psm000089

Addai, I. (2000). Determinants of use of maternal-child health services in rural Ghana. *Journal of Biosocial Science*, *32*(1), 1–15. https://doi.org/10.1017/S0021932000000018

Afsana, K., & Rashid, S. F. (2001). The challenges of meeting rural Bangladeshi women's needs in delivery care. *Reproductive Health Matters*, *9*(18), 79–89. https://doi.org/10.1016/S0968-8080(01)90094-1

Agence Nationale de la Statistique et de la Demographie. (2012). *Senegal Continuous Demographic and Health Survey 2012-2013*. Dakar.

Amo-Adjei, J., Anku, P. J., Amo, H. F., & Effah, M. O. (2016). Perception of quality of health delivery and health insurance subscription in Ghana. *BMC Health Services Research*, *16*(317), 1–11. https://doi.org/10.1186/s12913-016-1602-4

Amoakoh-Coleman, M., Ansah, E. K., Agyepong, I. A., Grobbee, D. E., Kayode, G. A., & Klipstein-Grobusch, K. (2015). Predictors of skilled attendance at delivery among antenatal clinic attendants in Ghana: a cross-sectional study of population data. *BMJ Open*, *5*(5), e007810. https://doi.org/10.1136/bmjopen-2015-007810

Amooti-Kaguna, B., & Nuwaha, F. (2000). Factors influencing choice of delivery sites in Rakai district of Uganda. *Social Science and Medicine*, *50*(2), 203–213. https://doi.org/10.1016/S0277-9536(99)00275-0

Andersen, R. (1995). Revisiting the Behavioral Model and Access to Medical Care: Does it Matter? *Journal of Health and Social Behavior*, *36*(1), 1–10.

Retrieved from http://www.jstor.org/stable/2137284

Andersen, R., & Aday, L. A. (1978). Access to Medical Care in the U.S.: Realized and Potential. *Medical Care*, *16*(7), 533–546. Retrieved from http://www.jstor.org/stable/3763653

Anya, S., Hydara, A., & Jaiteh, L. (2008). Antenatal care in The Gambia: missed opportunity for information, education and communication. *BMC Pregnancy and Childbirth*, *8*, 9. https://doi.org/10.1186/1471-2393-8-9

Asamoah, B. O., Agardh, A., Pettersson, K. O., & Östergren, P.-O. (2014). Magnitude and trends of inequalities in antenatal care and delivery under skilled care among different socio-demographic groups in Ghana from 1988 - 2008. *BMC Pregnancy and Childbirth*, *14*(1), 295. https://doi.org/10.1186/1471-2393-14-295

Asante-Sarpong, H., Owusu, A. Y., Saravanan, S., Appiah, E., & Abu, M. (2016). Determinants of use of supervised delivery care under Ghana's fee exemption policy for maternal healthcare: the case of the Central Region. *BMC Pregnancy and Childbirth*, *16*(1), 172. https://doi.org/10.1186/s12884-016-0960-6

Ayanore, M. A., Pavlova, M., & Groot, W. (2016). Unmet reproductive health needs among women in some West African countries: A systematic review of outcome measures and determinants. *Reproductive Health*, *13*(1), 5. https://doi.org/10.1186/s12978-015-0104-x

Babalola, S., & Fatusi, A. (2009). Determinants of use of maternal health services in Nigeria--looking beyond individual and household factors. *BMC Pregnancy and Childbirth*, *9*, 43. https://doi.org/10.1186/1471-2393-9-43

Bell, J., Curtis, S., & Alayon, S. (2003). *Trends in delivery care in six counries*. *DHS Analytical Studies No. 7*. Calverton.

Bosomprah, S., Aryeetey, G. C., Nonvignon, J., & Adanu, R. (2014). A decomposition analysis of change in skilled birth attendants, 2003 to 2008, Ghana demographic and health surveys. *BMC Pregnancy and Childbirth*, *14*, 415. https://doi.org/10.1186/s12884-014-0415-x

Braveman, P. (2003). Monitoring equity in health and healthcare: A conceptual framework. *Journal of Health Population and Nutrition*, *21*(3), 181–192. https://doi.org/10.3329/jhpn.v21i3.207

Chiou, J.-S. (1998). The Effects of Attitude, Subjective Norm, and Perceived Behavioral Control on Consumers' Purchase Intentions: The Moderating Effects of Product Knowledge and Attention to Social Comparison

Information. *Proceedings of National Science Council, Republic of China*, *9*(2), 298–308.

Crissman, H., Engmann, C., Adanu, R., Nimako, D., Crespo, K., & Moyer, C. (2013). Shifting norms: pregnant women's perspectives on skilled birth attendance and facility-based delivery in rural Ghana. *African Journal of Reproductive Health*, *17*(1), 15–26.

D'Ambruoso, L., Abbey, M., & Hussein, J. (2005). Please understand when I cry out in pain: women's accounts of maternity services during labour and delivery in Ghana. *BMC Public Health*, *5*, 140. https://doi.org/10.1186/1471-2458-5-140

Dako-Gyeke, P., Aikins, M., Aryeetey, R., McCough, L., & Adongo, P. B. (2013). The influence of socio-cultural interpretations of pregnancy threats on health-seeking behavior among pregnant women in urban Accra, Ghana. *BMC Pregnancy Childbirth*, *13*(1), 211. https://doi.org/10.1186/1471-2393-13-211

De Allegri, M., Ridde, V., Louis, V., Sarker, M., Tiendrebeogo, J., Ye, M., … Jahn, A. (2011). Determinants of utilisation of maternal care services after the reduction of user fees: A case study from rural Burkina Faso. *Health Policy*, *99*(3), 210–218. https://doi.org/10.1016/j.healthpol.2010.10.010

De Allegri, M., Tiendrebéogo, J., Müller, O., Yé, M., Jahn, A., & Ridde, V. (2015). Understanding home delivery in a context of user fee reduction: a cross-sectional mixed methods study in rural Burkina Faso. *BMC Pregnancy and Childbirth*, *15*(1), 330. https://doi.org/10.1186/s12884-015-0764-0

Diamond-Smith, N., & Sudhinaraset, M. (2015). Drivers of facility deliveries in Africa and Asia: regional analyses using the demographic and health surveys. *BMC Reproductive Health*, *12*, 6. https://doi.org/10.1186/1742-4755-12-6

Dioulde Balde, M., Diallo, B. A., Bangoura, A., Sall, O., Soumah, A. M., Vogel, J., & Bohren, M. (2017). Perceptions and experiences of the mistreatment of women during childbirth in health facilities in Guinea: a qualitative study with women and service providers. *BMC Reproductive Health*, *14*, 3. https://doi.org/10.1186/s12978-016-0266-1

Ditekemena, J., Koole, O., Engmann, C., Matendo, R., Tshefu, A., Ryder, R., & Colebunders, R. (2012). Determinants of male involvement in maternal and child health services in sub-Saharan Africa: A review. *BMC Reproductive Health*, *9*, 32. https://doi.org/10.1186/1742-4755-9-32

Doku, D., Neupane, S., & Doku, P. N. (2012). Factors associated with reproductive health care utilization among Ghanaian women. *BMC*

International Health and Human Rights, *12*, 29. https://doi.org/10.1186/1472-698X-12-29

Dumbaugh, M., Tawiah-Agyemang, C., Manu, A., Asbroek, G. H. ten, Kirkwood, B., & Hill, Z. (2014). Perceptions of, attitudes towards and barriers to male involvement in newborn care in rural Ghana, West Africa: a qualitative analysis. *BMC Pregnancy and Childbirth*, *14*(1), 269. https://doi.org/10.1186/1471-2393-14-269

Duong, D., Binns, C., & Lee, A. (2004). Utilization of delivery services at the primary health care level in rural Vietnam. *Social Science & Medicine*, *59*(12), 2585–2595. https://doi.org/http://dx.doi.org/10.1016/j.socscimed.2004.04.007

Dzakpasu, S., Soremekun, S., Manu, A., Asbroek, G. ten, Tawiah, C., Hurt, L., … Kirkwood, B. (2012). Impact of Free Delivery Care on Health Facility Delivery and Insurance Coverage in Ghana's Brong Ahafo Region. *Plos One*, *7*(11). https://doi.org/10.1371/journal.pone.0049430

Elo, I. (1992). Utilization of maternal health-care services in Peru: the role of women's education. *Health Transition Review*, *2*(1), 49–69. https://doi.org/10.2307/40652032

Enuameh, Y. A. K., Okawa, S., Asante, K. P., Kikuchi, K., Mahama, E., Ansah, E., … Kamiya, Y. (2016). Factors influencing health facility delivery in predominantly rural communities across the three ecological zones in Ghana: A cross-sectional study. *PLoS ONE*, *11*(3), 1–17. https://doi.org/10.1371/journal.pone.0152235

Essendi, H., Mills, S., & Fotso, J.-C. (2011). Barriers to formal emergency obstetric care services' utilization. *Journal of Urban Health*, *88*(SUPPL 2), 356–69. https://doi.org/10.1007/s11524-010-9481-1

Faye, A., Niane, M., & Ba, I. (2011). Home birth in women who have given birth at least once in a health facility: Contributory factors in a developing country. *Acta Obstetricia et Gynecologica Scandinavica*, *90*(11), 1239–1243. https://doi.org/10.1111/j.1600-0412.2011.01163.x

Fotso, J. C., Ezeh, A., Madise, N., Ziraba, A., & Ogollah, R. (2009). What does access to maternal care mean among the urban poor? Factors associated with use of appropriate maternal health services in the slum settlements of Nairobi, Kenya. *Maternal and Child Health Journal*, *13*(1), 130–137. https://doi.org/10.1007/s10995-008-0326-4

Gabrysch, S., & Campbell, O. (2009). Still too far to walk: literature review of the determinants of delivery service use. *BMC Pregnancy and Childbirth*, *9*, 34.

https://doi.org/10.1186/1471-2393-9-34

Gabrysch, S., Cousens, S., Cox, J., & Campbell, O. (2011). The influence of distance and level of care on delivery place in rural Zambia: A study of linked national data in a geographic information system. *PLOS Medicine*, *8*(1). https://doi.org/10.1371/journal.pmed.1000394

Gage, A. (2007). Barriers to the utilization of maternal health care in rural Mali. *Social Science and Medicine*, *65*(8), 1666–1682. https://doi.org/10.1016/j.socscimed.2007.06.001

Gage, A., & Calixte, M. G. (2006). Effects of the physical accessibility of maternal health services on their use in rural Haiti. *Population Studies*, *60*(3), 271–288. https://doi.org/10.1080/00324720600895934

Galaa, S., & Daare, K. (2008). Understanding barriers to maternal child health services utilisation in northern Ghana. *Journal of Social Development in Africa*, *23*(2), 127–155. https://doi.org/10.4314/jsda.v23i2.54260

Ganle, J. K., & Dery, I. (2015). "What men don"t know can hurt women's health': a qualitative study of the barriers to and opportunities for men's involvement in maternal healthcare in Ghana. *Reproductive Health*, *12*, 93. https://doi.org/10.1186/s12978-015-0083-y

Ganle, J. K., Parker, M., Fitzpatrick, R., & Otupiri, E. (2014a). A qualitative study of health system barriers to accessibility and utilization of maternal and newborn healthcare services in Ghana after user-fee abolition. *BMC Pregnancy and Childbirth*, *14*, 425. https://doi.org/10.1186/s12884-014-0425-8

Ganle, J. K., Parker, M., Fitzpatrick, R., & Otupiri, E. (2014b). Inequities in accessibility to and utilisation of maternal health services in Ghana after user-fee exemption: a descriptive study. *International Journal for Equity in Health*, *13*, 89. https://doi.org/10.1186/s12939-014-0089-z

Ghana Health Service. (2010). *The Health Sector in Ghana: Facts and figures 2009*. Accra. https://doi.org/10.1596/978-0-8213-9599-8

Ghana Health Service. (2014). *Ketu South Municipal Hospital 2013 Report*.

Ghana Health Service. (2015). *Ghana Health Service 2014 Annual Report*.

Ghana Statistical Service. (2011). *Ghana Multiple Indicator Cluster Survey with an Enhanced Malaria Module and Biomarker*. Accra, Ghana.

Ghana Statistical Service. (2013). *2010 Population and housing census: National analytical report*. *Ghana Statistical Service*.

Ghana Statistical Service. (2014). *2010 Population and Housing Census: District Analytical Report-Ketu South Municipality*.

Ghana Statistical Service. (2015). *Ghana Demographic and Health Survey 2014*.

Ghana Statistical Service, & Ghana Health Service. (2009). *Ghana Demographic and Health Survey 2008*.

Ghana Statistical Service, Ghana Health Service, & International, I. (2015). *2014 Ghana Demographic and Health Survey Key Findings*. Rockville, Maryland, USA.

Glei, D., Goldman, N., & Rodríguez, G. (2003). Utilization of care during pregnancy in rural Guatemala: Does obstetrical need matter? *Social Science and Medicine*, *57*(12), 2447–2463. https://doi.org/10.1016/S0277-9536(03)00140-0

Graham, W., Bell, J., & Bullough, C. (2001). Can Skilled Attendance at Delivery Reduce Maternal Mortality in Developing Countries ? *Safe Motherhood Strategies: A Review of the Evidence*, 97–130.

Griffiths, P., & Stephenson, R. (2001). Understanding Users' Perspectives of Barriers To Maternal Health Care Use in Maharashtra, India. *Journal of Biosocial Science*, *33*(3), 339–359. https://doi.org/10.1017/S002193200100339X

Gyimah, S. O., Takyi, B., & Addai, I. (2006). Challenges to the reproductive-health needs of African women: On religion and maternal health utilization in Ghana. *Social Science and Medicine*, *62*(12), 2930–2944. https://doi.org/10.1016/j.socscimed.2005.11.034

Halfdansdottir, B., Wilson, M., Hildingsson, I., Olafsdottir, O. A., Smarason, A. K., & Sveinsdottir, H. (2015). Autonomy in place of birth: a concept analysis. *Medicine, Health Care and Philosophy*, *18*(4), 591–600. https://doi.org/10.1007/s11019-015-9624-y

Hodnett, E., Gates, S., Hofmeyr, G. J., Sakala, C., & Weston, J. (2003). Continuous support for women during childbirth. *Cochrane Databse of Systematic Reviews*, (3). https://doi.org/10.1002/14651858.CD003766

Houweling, T., Ronsmans, C., Kunst, A., & Campbell, O. (2007). Huge poor–rich inequalities in maternity care: an international comparative study of maternity and child care in developing countries. *Bulletin of the World Health Organization*, *85*, 745–754. https://doi.org/10.1590/S0042-96862007001000010

Hsieh, H.-F., & Shannon, S. (2005). Three approaches to qualitative content

analysis. *Qualitative Health Research*, *15*(9), 1277–1288. https://doi.org/10.1177/1049732305276687

Iddrisu, F. A., Dhakal, S., & Nam, E. W. (2015). Strengthening Health Systems to Accelerate Achievement of Millennium Development Goals 4 and 5: A Case Study of Ketu South and Keta Municipalities in Ghana. *African Journal of Reproductive Health*, *19*(2), 100–107.

International Monetary Fund. (2017). World Economic and Financial Surveys: World Economic Outlook Database. Retrieved July 23, 2017, from https://www.imf.org/external/pubs/ft/weo/2016/02/weodata/index.aspx

Jennings, L., Yang, F., Otupiri, E., Akinlo, A., Okunlola, M., & Hindin, M. (2017). Association of Household Savings and Expected Future Means with Delivery Using a Skilled Birth Attendant in Ghana and Nigeria: A Cross-Sectional Analysis. *Maternal and Child Health Journal*, *21*(1), 85–95. https://doi.org/10.1007/s10995-016-2097-7

Jericho, B., Mayer, D., & Mcdonald, T. (2010). Disruptive Behaviors in Healthcare. *The Internet Journal of Anesthesiology*, *28*(2).

Joharifard, S., Rulisa, S., Niyonkuru, F., Weinhold, A., Sayinzoga, F., Wilkinson, J., … Thielman, N. (2012). Prevalence and predictors of giving birth in health facilities in Bugesera District, Rwanda. *BMC Public Health*, *12*(1), 1049. https://doi.org/10.1186/1471-2458-12-1049

Karkee, R., Binns, C., & Lee, A. (2013). Determinants of facility delivery after implementation of safer mother programme in Nepal: a prospective cohort study. *BMC Pregnancy and Childbirth*, *13*(1), 193. https://doi.org/10.1186/1471-2393-13-193

Ketu South District Assembly. (2012). *The composite budget of the Ketu South District Assembly for the 2012 Fiscal Year*.

Korea International Cooperation Agency. (2015). *Baseline survey on improving maternal and child health project in the volta region, Ghana*. Accra.

Kruk, M., Mbaruku, G., McCord, C., Moran, M., Rockers, P., & Galea, S. (2009). Bypassing primary care facilities for childbirth: A population-based study in rural Tanzania. *Health Policy and Planning*, *24*(4), 279–288. https://doi.org/10.1093/heapol/czp011

Kunst, A., & Houweling, T. (2001). A global picture of rich-poor differences in the utilization of delivery care. *Studies in Health Services Organisation and Policy*, *17*, 293–311.

Kyei-Nimakoh, M., Carolan-Olah, M., & McCann, T. (2016). Millennium

development Goal 5: progress and challenges in reducing maternal deaths in Ghana. *BMC Pregnancy and Childbirth*, *16*(1), 51. https://doi.org/10.1186/s12884-016-0840-0

Kyomuhendo, G. B. (2003). Low use of rural maternity services in Uganda: Impact of women's status, traditional beliefs and limited resources. *Reproductive Health Matters*, *11*(21), 16–26. https://doi.org/10.1016/S0968-8080(03)02176-1

Letamo, G., & Rakgoasi, S. D. (2003). Factors associated with non-use of maternal health services in Botswana. *Journal of Health, Population and Nutrition*, *21*(1), 40–47.

Lewis, G. (2008). Maternal mortality in the developing world: why do mothers really die? *Obstetric Medicine*, *1*(1), 2–6. https://doi.org/10.1258/om.2008.080019

MacKeith, N., Chinganya, O., Ahmed, Y., & Murray, S. (2003). Zambian women's experiences of urban maternity care: results from a community survey in Lusaka. *African Journal of Reproductive Health*, *7*(1), 92–102. https://doi.org/10.2307/3583349

Magadi, M., Agwanda, A., & Obare, F. (2007). A comparative analysis of the use of maternal health services between teenagers and older mothers in sub-Saharan Africa: Evidence from Demographic and Health Surveys (DHS). *Social Science and Medicine*, *64*(6), 1311–1325. https://doi.org/10.1016/j.socscimed.2006.11.004

Magadi, M., Diamond, I., & Rodrigues, R. (2000). The determinants of delivery care in Kenya. *Social Biology*, *47*(3–4), 164–188. https://doi.org/10.1080/19485565.2000.9989017

Mekonnen, Y., & Mekonnen, A. (2002). *Utilization of maternal health care services in Ethiopia*. *ORC Macro*. Calverton, Maryland, USA.

Mekonnen, Y., & Mekonnen, A. (2003). Factors influencing the use of maternal healthcare services in Ethiopia. *Journal of Health, Population and Nutrition*, *21*(4), 374–382.

Mengesha, Z. B., Biks, G. A., Ayele, T. A., Tessema, G. A., & Koye, D. N. (2013). Determinants of skilled attendance for delivery in Northwest Ethiopia: a community based nested case control study. *BMC Public Health*, *13*(1), 130. https://doi.org/10.1186/1471-2458-13-130

Mesko, N., Osrin, D., Tamang, S., Shrestha, B., Manandhar, D., Manandhar, M., … Costello, A. (2003). Care for perinatal illness in rural Nepal: a descriptive

study with cross-sectional and qualitative components. *BMC International Health and Human Rights*, *3*(1), 3. https://doi.org/10.1186/1472-698X-3-3

Mills, S., Williams, J., Adjuik, M., & Hodgson, A. (2008). Use of health professionals for delivery following the availability of free obstetric care in Northern Ghana. *Maternal and Child Health Journal*, *12*(4), 509–518. https://doi.org/10.1007/s10995-007-0288-y

Ministry of Health, Ghana Health Service, & World Health Organization. (2016). *Public health risk mapping and capacities assessment in Ghana*.

Mishra, V., & Retherford, R. (2008). The effect of antenatal care on professional assistance at delivery in rural India. *Population Research and Policy Review*, *27*(3), 307–320. https://doi.org/10.1007/s11113-007-9064-3

Moyer, C. (2012). *Facility-based delivery in Ghana: A three-part study of drivers and deterrents*. University of Michigan.

Moyer, C., & Mustafa, A. (2013). Drivers and deterrents of facility delivery in sub-Saharan Africa: a systematic review. *Reproductive Health*, *10*(1), 40. https://doi.org/10.1186/1742-4755-10-40

Mpembeni, R., Killewo, J., Leshabari, M., Massawe, S., Jahn, A., Mushi, D., & Mwakipa, H. (2007). Use pattern of maternal health services and determinants of skilled care during delivery in Southern Tanzania: implications for achievement of MDG-5 targets. *BMC Pregnancy Childbirth*, *7*, 29. https://doi.org/10.1186/1471-2393-7-29

Mrisho, M., Schellenberg, J., Mushi, A., Obrist, B., Mshinda, H., Tanner, M., & Schellenberg, D. (2007). Factors affecting home delivery in rural Tanzania. *Tropical Medicine and International Health*, *12*(7), 862–872. https://doi.org/10.1111/j.1365-3156.2007.01855.x

Mwaliko, E., Downing, R., O'Meara, W., Chelagat, D., Obala, A., Downing, T., … Khwa-Otsyula, B. (2014). "Not too far to walk": the influence of distance on place of delivery in a western Kenya health demographic surveillance system. *BMC Health Services Research*, *14*(1), 212. https://doi.org/10.1186/1472-6963-14-212

Nakua, E. K., Sevugu, J. T., Dzomeku, V. M., Otupiri, E., Lipkovich, H., & Owusu-Dabo, E. (2015). Home birth without skilled attendants despite millennium villages project intervention in Ghana: insight from a survey of women's perceptions of skilled obstetric care. *BMC Pregnancy and Childbirth*, *15*, 243. https://doi.org/10.1186/s12884-015-0674-1

National Statistical Office, & ICF. (2017). *Malawi Demographic and Health*

Survey 2015-16. Zomba, Malawi.

Navaneetham, K., & Dharmalingam, A. (2002). Utilization of maternal health care services in Southern India. *Social Science and Medicine*, *55*(10), 1849–1869. https://doi.org/10.1016/S0277-9536(01)00313-6

Nwakoby, B. (1994). Use of obstetric services in rural Nigeria. *Journal of the Royal Society of Health*, *114*(3), 132–136. https://doi.org/10.1177/146642409411400304

Olusanya, B., Alakija, O., & Inem, V. (2010). Non-uptake of facility-based maternity services in an inner-city community in Lagos, Nigeria: an observational study. *Journal of Biosocial Science*, *42*(3), 341–58. https://doi.org/10.1017/S0021932009990526

Paul, B. K., & Rumsey, D. (2002). Utilization of health facilities and trained birth attendants for childbirth in rural Bangladesh: An empirical study. *Social Science and Medicine*, *54*(12), 1755–1765. https://doi.org/10.1016/S0277-9536(01)00148-4

Pelletier, D., Frongillo, E., Schroeder, D., & Habicht, J. (1995). The effects of malnutrition on child mortality in developing countries. *Bulletin of the World Health Organization*, *73*(4), 443–448.

Proffitt, D., Stefanucci, J., Banton, T., & Epstein, W. (2003). The role of effort in perceiving distance. *Psychological Science*, *14*(2), 106–112. https://doi.org/10.1023/B:TRAG.0000005082.29212.cf

Reynolds, H., Wong, E., & Tucker, H. (2006). Adolescents' use of maternal and child health services in developing countries. *International Family Planning Perspectives*, *32*(1), 6–16. https://doi.org/10.1363/ifpp.32.006.06

Richard, F., Antony, M., Witter, S., Kelley, A., Sieleunou, I., Kafando, Y., & Meessen, B. (2013). Fee Exemption for Maternal Care in Sub-Saharan Africa: A Review of 11 Countries and Lessons for the Region. *Global Health Governance*, *6*(2), 1–190.

Salem, E. S. (2014). *Utilizing the Community-Based Health Planning and Services Program to Promote Skilled Attendants At Delivery in Rural Ghana*. Boston University.

Sharma, S., Smith, S., Sonneveldt, E., Pine, M., Dayaratna, V., & Sanders, R. (2005). *Formal and Informal Fees for Maternal Health Care Services in Five Countries: Policies, Practices and Perspectives* (16). *Policy working paper series*.

Shimamoto, K., & Gipson, J. (2015). The relationship of women's status and

empowerment with skilled birth attendant use in Senegal and Tanzania. *BMC Pregnancy and Childbirth*, *15*(1), 154. https://doi.org/10.1186/s12884-015-0591-3

Sialubanje, C., Massar, K., Hamer, D., & Ruiter, R. (2015). Reasons for home delivery and use of traditional birth attendants in rural Zambia: a qualitative study. *BMC Pregnancy and Childbirth*, *15*(1), 216. https://doi.org/10.1186/s12884-015-0652-7

Sipsma, H., Thompson, J., Maurer, L., Bradley, E., & Curry, L. (2013). Preferences for home delivery in Ethiopia: provider perspectives. *Global Public Health*, *8*(9), 1014–26. https://doi.org/10.1080/17441692.2013.835434

Spangler, S., & Bloom, S. (2010). Use of biomedical obstetric care in rural Tanzania: The role of social and material inequalities. *Social Science and Medicine*, *71*(4), 760–768. https://doi.org/10.1016/j.socscimed.2010.05.025

Speizer, I., Story, W., & Singh, K. (2014). Factors associated with institutional delivery in Ghana: the role of decision-making autonomy and community norms. *BMC Pregnancy and Childbirth*, *14*(1), 398. https://doi.org/10.1186/s12884-014-0398-7

Stekelenburg, J., Kyanamina, S., Mukelabai, M., Wolffers, I., & Van Roosmalen, J. (2004). Waiting too long: Low use of maternal health services in Kalabo, Zambia. *Tropical Medicine and International Health*, *9*(3), 390–398. https://doi.org/10.1111/j.1365-3156.2004.01202.x

Stephenson, R., Baschieri, A., Clements, S., Hennink, M., & Madise, N. (2006). Contextual influences on the use of health facilities for childbirth in Africa. *American Journal of Public Health*, *96*(1), 84–93. https://doi.org/10.2105/AJPH.2004.057422

Svedberg, P. (1987). *Undernutrition in Sub-Saharan Africa: A Critical Assessment of the Evidence*. Helsinki.

Thaddeus, S., & Maine, D. (1994). Too far to walk: Maternal mortality in context. *Social Science and Medicine*, *38*(8), 1091–1110. https://doi.org/10.1016/0277-9536(94)90226-7

The World Bank. (n.d.). World Health Organization's Global Health Workforce Statistics. Retrieved January 25, 2017, from http://data.worldbank.org/indicator/SH.MED.NUMW.P3?end=2010&locations=GH&page=1&start=2004&view=chart

Thomas, D., Strauss, J., & Henriques, M. (1990). Child survival, height for age

and household characteristics in Brazil. *Journal of Development Economics*, *33*(2), 197–234. https://doi.org/10.1016/0304-3878(90)90022-4

Tolhurst, R., Amekudzi, Y. P., Nyonator, F., Squire, B., & Theobald, S. (2008). "He will ask why the child gets sick so often": The gendered dynamics of intra-household bargaining over healthcare for children with fever in the Volta Region of Ghana. *Social Science and Medicine*, *66*(5), 1106–1117. https://doi.org/10.1016/j.socscimed.2007.11.032

Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*, *19*(6), 349–357. https://doi.org/10.1093/intqhc/mzm042

United Nations. (2010). *The Millennium Development Goals Report*. New York.

United Nations Children's Fund. (2007). *The State of the World's Children 2008*. New York.

VanDenHeuvel, O., DeMey, W., Buddingh, H., & Bots, M. (1999). Use of maternal care in a rural area of Zimbabwe: A population-based study. *Acta Obstetricia et Gynecologica Scandinavica*, *78*(10), 838–846.

Woldemicael, G. (2010). Do women with higher autonomy seek more maternal health care? Evidence from Eritrea and Ethiopia. *Health Care for Women International*, *31*(7), 599–620. https://doi.org/10.1080/07399331003599555

World Health Organization. (2012). *Trends in maternal mortality: 1990 to 2010*. Geneva.

World Health Organization, & Dept. of Reproductive Health and Research. (2004). *Maternal Mortality in 2000: Estimates developed by WHO, UNICEF and UNFPA. WHO*. Geneva. https://doi.org/10.1016/S0968-8080(07)30326-1

World Health Organization, & Pan American Health Organization. (2017). World health assembly elects Tedros Adhanom Ghebreyesus as new Director-General of WHO. Retrieved July 26, 2017, from http://www.paho.org/hq/index.php?option=com_content&view=article&id=13349%3A-ams-eligio-tedros-adhanom-ghebreyesus-director-general-oms&catid=1443%3Aweb-bulletins&Itemid=135&lang=en

World Health Organization, & United Nations Children's Fund. (2012). *Building a Future for Women and Children: The 2012 Report*. Wathington DC.

World Health Organization, United Nations Children's Fund, United Nations Population Fund, & The World Bank. (2012). *Trends in maternal mortality: 1990 to 2010*. Geneva.

World Health Organization, United Nations Children's Fund, United Nations Population Fund, & The World Bank. (2014). *Trends in Maternal Mortality: 1990-2013*. Geneva.

World Health Organization, United Nations Population Fund, & United Nations Children's Fund. (2015). *Pregnancy, Childbirth, Postpartum and Newborn Care: a guide for essential practice* (3rd ed.). Geneva: World Health Organization.

World Health Organization, United Nations Population Fund, United Nations Children's Fund, & The World Bank. (1999). *Reduction of maternal mortality*. Geneva.

Worldometers. (n.d.). Population of Ghana. Retrieved July 25, 2017, from http://www.worldometers.info/world-population/ghana-population/

Yanagisawa, S., Oum, S., & Wakai, S. (2006). Determinants of skilled birth attendance in rural Cambodia. *Tropical Medicine and International Health*, *11*(2), 238–251. https://doi.org/10.1111/j.1365-3156.2005.01547.x

Zere, E., Kirigia, J., Duale, S., & Akazili, J. (2012). Inequities in maternal and child health outcomes and interventions in Ghana. *BMC Public Health*, *12*(1), 252. https://doi.org/10.1186/1471-2458-12-252

Abstract in Korean

가나는 지난 수십년 동안 꾸준히 모성 사망률을 낮추기 위해 혼신의 노력을 기울여왔다. 비록 밀레니엄 개발 목표 5 인 모성 사망률을 25% 이하로 낮추지는 못하였지만, 모성 사망률을 낮추기 위한 노력이 (모든 이에게 의료 혜택의 접근성을 높이기 위한) 지속가능개발목표를 통해서 꾸준히 이어지고 있다. 가나에서 발생하는 모성 사망률을 낮추기 위해서는 모성건강 서비스 활용률을 높이는 것이 절대적으로 필요하다. 다양한 모성건강 서비스 중, 숙련된 의료인에 의한 분만이 산전관리나 다른 의료서비스들의 이용에 비해 낮은 상황이다. 본 연구는 가나에서 모성건강 서비스 활용률이 낮은 원인들에 대해서 고찰하고자 한다.

본 연구는 개발도상국가들에서 발생하는 모성사망에 관한 연구들이 주로 양적 연구를 통해서 그 원인들과 요소들을 밝히고 있는 경향과 달리 질적 연구를 수행하였다. 이 연구는 가나의 케투 사우스 지역에서 지난 5 년 이내에 출산 경험이 있는 여성들과 출산 경험이 있는 아내를 둔 남편들을 대상으로 심층 면담과 포커스 그룹 토의를 이용하여 질적 연구를 진행하였다. 연구 결과는 앤더슨의 행동 모형을 기반으로 분류하였다. 산전관리와 숙련된 의료인에 의한 분만시설 이용에 영향을 미치는 요소들로는 의료기관의 조직화, 의료 이용 소비자의 태도와 지식, 재정, 교통, 사회적 영향 및 필요성 등이

포함되었으며, 참여자들의 면담과 토의를 통해서 이 요소들의 내용들을 파악하였다.

현대사회에서 대부분의 모성 사망은 예방 가능한 것이기 때문에, 모성 사망률을 줄이는 것은 단순히 보건의료의 문제가 아니라 사회 정의의 문제이다. 따라서 국제사회는 모성 사망률을 줄이기 위해 모성 의료서비스 이용에 영향을 미치는 요소들과 원인들을 밝히기 위해 보다 심도 깊은 탐구를 해야 하며, 이를 토대로 효과적인 정책과 지원 방안을 강구해야 한다. 본 연구는 질적 연구 방법을 사용하여 모성 건강에 영향을 미치는 새로운 요소들을 발견함으로써 기존의 연구들을 통해서 확인된 요소들에 대한 인식을 더욱 확장시킬 것으로 기대된다.

본 연구를 통해서 밝혀진 모성건강과 관련된 원인들과 요소들에 대한 분석을 토대로 다음과 같은 제안들을 제시하였다. 모성 의료서비스 이용과 관련된 장애물을 제거하거나 최소화 하기 위해서는 가나의 지역 의료 기관인 Community Health Planning and Services (CHPS)의 기능을 강화하고 보완할 필요가 있다. 타 의료기관들과 체계적인 전원 시스템을 구축하고, 비상상황에 이동이 가능하도록 교통수단을 마련하여 CHPS 를 통해 모성 의료서비스가 적시에 전달되도록 해야 한다. 또한 모성 의료 서비스를 이용하는데 발생하는 모든 비용을 전면적으로 제거하여 특히 접근성이 어려운 이용자들이 의료 서비스를 사용할 수 있게 해야 한다.