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FACTORS INFLUENCING UTILIZATION OF SKILLED DELIVERY SERVICES IN FANTEAKWA DISTRICT, EASTERN REGION

BY

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(MPH)

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DECLARATION

I Margaret Nyarko hereby do declare that this dissertation is a self-composed work. It is the result of an independent study. Apart from references to other research works indebted which have been duly credited, I declare that this work has not been submitted or accepted for any other degree in any institution.

……..... ……

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…….. ……..

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(Supervisor)

DEDICATION

This work is first dedicated to the almighty God for the strength and favor granted me to put this research together.

Secondly to my children Abigail Owusua Yirenkyi, Bernice Brago Yirenkyi, Adwoa Anyankwabea Yirenkyi and Godfred Kwayisi for their immense support.

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LIST OF ABBREVIATION

AOR - Adjusted Odds Ratio

ANC - Antenatal Care / Antenatal Clinic

BP - Blood Pressure

CHPS - Community-based Health Planning and Services

COR - Crude Odds Ratio

DHMT - District Health Management Team

GDHS - Ghana Demographic Health Survey

GHS - Ghana Health Service

GMHS - Ghana Maternal Health Survey

GSS - Ghana Statistical Survey

NGO - Non Governmental Organization

NHIS - National Health Insurance Scheme

PNC - Postnatal Care

SDG - Sustainable Development Goals

TBA - Traditional Birth Attendant

WIFA - Women in Fertility Age

WHO - World Health Organization

DEFINITION OF TERMS

Antenatal Care: Care given to women during pregnancy that provides an important opportunity for a pregnant woman and a health care provider to discuss health behavior during pregnancy, recognizing complications that may arise during pregnancy, and delivery plans that met the needs of the individual woman.

Maternal health care: Maternal care refers to maternity services (antenatal, delivery, and postnatal care) by a health professional with midwifery skill that can be provided at different levels.

Maternal mortality: Refers to the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

Maternal mortality ratio: This is the measurement of the number of maternal deaths per 100,000 live births among women in the 15-49 age group.

Skilled birth attendant: A qualified healthcare provider with midwifery skills (midwife, nurse or doctor) who has been trained to be proficient in the skills necessary to manage normal deliveries and identify, manage, or refer obstetric complications.

Still birth: This refers to the delivery, after 20th week of pregnancy, of a baby who has died.

Skilled Deliveries: Percentage of deliveries in health facilities, this include public and private hospitals, clinics and health centers, irrespective of who attended the deliveries at these facilities.

Traditional Birth Attendants: Refers to a person who assist a mother during child birth in the community. Skills are acquired by apprenticeship.

ABSTRACT

Background: Low utilization of skilled delivery claims the lives of about half a million of women globally each year and more than half of these deaths occur in Africa. Meanwhile, skilled delivery has been demonstrated to decrease maternal mortality and morbidity, yet in 2016 only 56. 2 % of women gave birth with the assistance of skilled birth attendants in Ghana.

Objectives: The study assessed factors influencing utilisation of skilled delivery services in the Fanteakwa District, Eastern Region.

Methods: A community based cross-sectional study was conducted. A sample of three hundred and fifty six (356) mothers were selected from eight (8) communities within four (4) sub- districts using a multi-stage sampling technique to select nursing mothers who delivered between January – December, 2017. Using structured questionnaire as a survey instrument, information sought included socio-demographic characteristics, client factors, healthcare provider factors, and community factors. The data were entered into Microsoft excel and imported to Stata version 15.0 for analysis; bivariate analysis and logistic regression analysis. The result of the study were obtained by processing data into frequency tables, chi-square values and regression models. A level of significance was accepted at $p<0.05$.

Results: Out the 356 mothers, 66.9% used skilled delivery. Majority (51.4%) of the respondents were between 26 and 35 years of age. Variables that were significantly associated with utilisation of skilled delivery included level of education ($p < 0.001$), ANC visits ($p < 0.001$), parity ($p < 0.001$), quality of ANC counselling ($p < 0.026$) , road network ($p<0.004$) and the means of health access during emergency ($p <0.030$). Predictors of utilisation of skilled delivery were good quality of counseling (OR 2.498 CI: 1.261 - 4.945), more than four ANC visits (AOR 12.971 CI: 4.489 – 37.481), having less than 5 children (AOR: 3.277 CI: 1.691 – 6.350) and very accessible road network (AOR 5.327 CI: 1.739 - 16.317).

Conclusions/Recommendations: The study revealed that, 69.9% of respondents used skilled delivery services. Educational level of the women, quality of counselling, number of ANC visits, parity, road network and means of transportation to access health services during emergencies were the major factors identified to have influenced skilled delivery services in the Fanteakwa District. Hence it is recommended that education must be embarked upon by health care providers on birth preparedness. The ministry of education should ensure that women have at least basic level of education.

CHAPTER ONE

INTRODUCTION

1.0 Background to the study

Approximately 289,000 women die globally as a result of limited use (Sheferaw, Mengesha, & Wase, 2016) or non-use of skilled delivery services (Tessema, Tekeste, & Ayele, 2015). 99% of these deaths occur in developing nations and Sub-Saharan Africa adds to about 56% of all maternal deaths (Kalter *et al*., 2011), which is far below the Sustainable Development Goal (SDG) 3.1 target of less than 70 deaths per 100,000 live births (WHO,2016). The greatest burden of this tragedy is felt in African countries (Esena & Sappor, 2013). Meanwhile, more than 70% of the deaths are considered to be clearly avoidable (Maswime & Buchmann, 2016 ; Lund et al., 2012).

Developing strategies that remarkably improve maternal and newborn care in low resource settings is an urgent global priority (Merali *et al*., 2014). Maternal care refers to maternity services that include antenatal, delivery, and postnatal care, by a health professional with midwifery skills that can be provided at different levels (Worku, Yalew, & Afework, 2013). Skilled birth attendants have been known to reduce maternal deaths or disabilities (Sakeah *et al*., 2014). However, the utilization of skilled delivery services does not only depend on the availability of services (Vallières *et al*., 2013), but also on different other factors (Asweto, 2014). These factors can further vary from one country to another and greatly influence the prevalence of maternal mortality (Parkhurst et al., 2005).

Antenatal care (ANC), that are provided along with skilled delivery (Pell *et al*., 2013), and management of life-threatening complications for women and infants (Magoma, Requejo, Campbell, Cousens, & Filippi, 2010), are said to reduce maternal mortality and also influence

utilization of skilled delivery services(Oztas, Ozler, Caglar & Yucel, 2016). Notwithstanding, information accessible in Mali and Senegal demonstrate that roughly 50% of women had home deliveries and about half of women in Mali delivered in health facilities. Whiles in Senegal around 68% of deliveries took place in the home (Tort, Rozenberg, Traoré, Fournier, & Dumont, 2015). This might be because of the propensity that rural women are less likely to go for ANC and decide on the place of delivery (Abebe, Gebeyehu, Kidane & Eyassu, 2016). .

More specifically, evidence showed that urban dwellers and the availability of community media influence maternal service utilization in Nigeria (Worku *et al,* 2013). Contrary to this, among highly populated rural communities with higher mortality are deeply rooted in traditional beliefs and practices (Kalter *et al*., 2011), limiting the maximum use of skilled delivery within rural communities (Ensor *et al*., 2014).

In fact, enough evidence shows, a higher proportion of women attend antenatal care, however there is low use of institutional delivery (Hasanpoor-Azghdy et al., 2014). About one – fifth of expectant mothers who visited ANC four times or more in Sub-Saharan African and Asian countries do not deliver in health facilities or seek skilled delivery assistance (Magoma *et al*., 2010). Studies suggest the existence of country variations in the patronage of skilled delivery services in Africa (Adjei, 2015). For example there is high antenatal attendance. About 90% of pregnant women visited the clinic at least once and 62% at least four or more times. However, only five out of ten delivered at health centres in Tanzania (Magoma *et al*., 2010). In Ethiopia, the proportion of births with a skilled attendant is only 10% (Wilunda *et al*., 2015 ; Mengesha, Biks, Ayele, Tessema, & Koye, 2013).

The presence of a trained healthcare worker during delivery is important in reducing maternal deaths and averting barriers to skilled delivery (Mengesha *et al*., 2013).The delays that inhibit

access to adequate obstetric care, are classified into three (Karkee, Binns, & Lee, 2013). The 'first delay' is described as decision to seek care; the 'second delay' factors are causes of delay in travelling to the facility; whereas the 'third delay' looks at access to care in the health facility (Kalter *et al*., 2011).

1.1 Problem Statement

Although during antenatal care (ANC), pregnant women are counseled to deliver in health institutions that provide skilled delivery care, reports shows low coverages in utilization of skilled delivery service (Semere Semere Belda & Gebremariam, 2016). Low utilization of skilled delivery takes the lives of an estimated half a million of women globally each year and more than half of these deaths occur in Africa (Tayelgn, Zegeye, & Kebede, 2011). For instance, Ghana recorded a maternal mortality ratio of 380 per 100,000 live births in 2013 (Crissman, Engmann, Adanu, Nimako, & Moyer, 2013). Subsequent research in large referral and teaching hospitals revealed a rate of 895 maternal deaths per 100,000 live births in 2016 (Ramaswamy, Kallam, Srofenyoh, & Owen, 2016).

Skilled birth delivery has been shown to reduce maternal mortality and morbidity (Wilunda *et al*., 2015). Yet in 2016, skilled health providers attended to only 56.2% of deliveries in Ghana. (GHS, 2016) and this is lower than the figure of 73.7% recorded by the 2014 Demographic and Health Survey (DHS), (Ghana Statistical Service, 2014). Even though various efforts have been made to expand and improve the utilization of skilled delivery services, Eastern region recorded skilled delivery of 52.9%, 52% and 49% between 2015 and 2017 respectively (GHS, 2017). In the Fanteakwa District where this study was conducted, utilization of skilled delivery had decreased from 33% in 2014 to 31% in 2016 and 33.2% in 2017 (GHS, 2017). Furthermore, the District recorded a stillbirth rate of 1.6% and a regional maternal death of 180/100,000 in 2017 (GHS, 2017) Behavioral risk factors such as low or non-utilization of skilled birth attendance

and limited ANC attendance have been shown to be associated with maternal deaths (Sialubanje *et al*., 2015). History of obstructed labour and number of ANC visit were also significant predictors for the selection and use of skilled delivery service (Assfaw & Sebastian, 2010).

In fact, studies in Ethiopia, have suggested that increased number of ANC visits is positively associated with skilled delivery among women (Mengesha *et al*., 2013), and most women who attended four or more ANC visits were more likely to use skilled delivery services **(** Asweto *et al*., 2014), though majority did not complete all four visits (Koster *et al*., 2016). Consequently, women who attended less than the recommended ANC visits associated with delivering preterm babies (Osei-Ampofo *et al*., 2016), and low birth weight (Temu, Masenga, Obure, Mosha, & Mahande, 2016).

In addition, financial and physical barriers are captured as issues concerning transportation (Arthur, 2012), and distance to a facility (Hounton *et al*., 2008), as well as costs of using the facility being patient barriers to utilization of skilled delivery services among women (Hasanpoor-Azghdy *et al*., 2014). Additionally, poor attitude of patients towards skilled delivery (Esena & Sappor, 2013), age, birth order (Fekadu & Regassa, 2014), and occupation (Dhakal, van Teijlingen, Raja, & Dhakal, 2011), are also individual patient predictors of skilled delivery service utilization (Dhakal *et al*, 2011).

In respect of health care provider factors that determine skilled birth attendance, literature suggest that the geographical location of the health facility (Evjen-Olsen *et al*., 2008), quality of care provided by a delivery facility (Kigenyi, Tefera, Nabiwemba, & Orach, 2013), as well as logistics needed to provide the service are determining factors of skilled birth delivery (Stanton *et al*., 2012).

In view of the aforementioned problems, it is unclear which of these factors could be contributing to low skilled delivery in Fanteakwa. Thus, this study sought to assess factors that influence utilization of skilled delivery services in the Fanteakwa District health facilities in order to provide detailed information needed for facility-based decision making to improve service utilization.

1.2 Justification for the study

Utilization of skilled delivery services has been investigated over the years (Kalter *et al*., 2011). Nonetheless, not many studies have looked into detail both client and provider factors that interplay to determine the use of skilled delivery services in Fanteakwa District of the Eastern Region. Preliminary research indicate the availability of limited data that clearly explain obvious factors that influence low utilization of skilled delivery by women and the few that exist have focused on community based investigations (Asundep *et al*., 2013). To fill the gap in literature, the current study aimed at assessing client and provider factors as a holistic concept to the utilization of skilled delivery services. Studies that exist have tackled maternal factors in general (Evjen-Olsen *et al*., 2008; Bauserman *et al*., 2015), but less attention is given to both client and service provider factors that affect utilization of skilled delivery services.

Individual characteristics such as age, parity, and education, among others, may be markers for women not using skilled delivery services (Evjen-Olsen *et al*., 2008). In addition, lower status of women in the family is also known to impede efforts of using skilled delivery (Kalter *et al*., 2011).

In most health facilities, certain factors affect skilled delivery services, these include the type and quality of services, availability, competence and caring behavior of providers (Worku *et al*., 2013). Literature have also highlighted gaps in training of skilled birth attendants and the

reluctance of trained health workers, who are not prepared to work in the low resource community setting, as another challenge facing skilled delivery (Sarfraz & Hamid, 2014).

Furthermore, social barriers to health care, such as community attitudes toward institutional delivery (Sarfraz & Hamid, 2014). Levels of decision-making autonomy among women, have received less consideration in the literature (Hasanpoor-Azghdy *et al*., 2014). In addition, it is also well established that maternal education (Vallières *et al*., 2013), a woman's cultural beliefs (Kigenyi *et al*., 2013), and financial strength are contributory barriers to skilled delivery services (Hasanpoor-Azghdy *et al*., 2014). Therefore, to improve utilization of skilled care it will require health personnel understand the culture and values of clients (Kyei-Nimakoh, Carolan-Olah, & McCann, 2016).

The researcher's own experience as a health care provider was a motivating factor for the conduct of this study. The researcher has worked in Ghana's health sector for a number of years. The experiences gained were brought to bear on the way forward towards ensuring that women utilize skilled delivery in health facilities in Ghana and elsewhere.

Both clients and healthcare providers are the immediate beneficiaries of this study, since appropriate recommendations made will be of great use. The researcher, and other stakeholders such as the Eastern Regional Health Directorate, the Ghana Health Service, and other health-related NGOs (such as UNICEF and WHO), are all beneficiaries of this research. Policy makers, may also use the results of the research for purposes of decision-making. The outcome of the study also contributes to existing knowledge of the topic or discipline.

1.3 Study objective

The study objectives have been categorized into general and specific as shown below.

1.3.1 General objective

The general objective of the study was to determine factors influencing utilization of skilled delivery services in the Fanteakwa District.

1.3.2 Specific objectives

The specific objectives were:

1. To determine the proportion of clients who delivered with a skilled birth attendant
2. To determine how client factors, influence utilization of skilled delivery services in the Fanteakwa District.
3. To examine how health provider factors, influence utilization of skilled delivery services in the Fanteakwa District.
4. To examine how community factors, influence utilization of skilled delivery services in the Fanteakwa District.

1.3.3 Research questions

The following questions helped find answers to solve the objectives of the study:

1. What proportion of clients delivered with a skilled birth attendant?
2. How do client factors influence utilization of skilled delivery services in the Fanteakwa District?
3. How do health provider factors influence utilization of skilled delivery services in the Fanteakwa District?
4. How do community factors influence utilization of skilled delivery services in the Fanteakwa District?

Outline of the Dissertation

Chapter one gave a background to the study, articulated the research problem and set out the objectives and research question for the study. Chapter two presents a review of relevant literature in order to properly position the present study.

Chapter three presents the study design and methods of collecting information from respondents. Chapter four, is a presentation of the results obtained from analysis of data. Chapter five presents the discussion of the results and relate them to literature.

Chapter six is where an attempt has been made to draw conclusions on what the study has been able to achieve and present recommendations based on the findings.

CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.0 Introduction

This chapter presents the review of existing studies on the topic under consideration. The chapter is divided into six sections.

2.1 Maternal health services

Maternal health services is considered to include comprehensive health, which ensure women have access to ANC, PNC and emergency obstetric care for the safety of both mother and child (De Allegri et al., 2011). This is done through the utilization of maternal care services, including skilled delivery (Tweheyo, Konde-Lule, Tumwesigye & Sekandi, 2010).

2.2 Utilisation of Skilled Delivery

Utilization of maternal care services means women's patronage of all services available to them during pregnancy and after delivery (Kebede, Gebeyehu, & Andargie, 2013).

2.3 Quality of Maternal Health Services

Quality of care, which is termed as the provision of professional healthcare leading to ultimate health and safety of life (Wilunda *et al*., 2015), is sometimes compromised in some facilities (Matía, Trumper, Fures, & Orchuela, 2016). Perhaps due to poor quality of maternal care in some health facilities, utilization seems to have declined over the years (Singh *et al*., 2009). For instance, information available clearly suggest the continuous use of unskilled deliveries in communities (Nakua *et al*., 2015). This indicates that care is substandard and there is the need for improving the quality of care for better maternal survival (Magoma, Massinde, Majinge, Rumanyika, & Kihunrwa, 2015).

2.4 The proportion of clients who delivered with a skilled birth attendant

Preliminary literature reports that the perception of women on competences of skilled birth attendants at health centres, cripple their decision and willingness to access or use maternal health services (Feeley & Thomson, 2016), resulting mostly in low skilled delivery (Sheferaw et al., 2016). In several countries, the proportion of skilled delivery has been consistently reducing (Ganle, Parker, Fitzpatrick, & Otupiri, 2014), even though several governments have made efforts to promote the utilization of skilled delivery services (Kyei-Nimakoh et al., 2016). While reports indicate a growing facility based delivery in Nigeria, countries like Zambia (Henry et al., 2017), and Tanzania (Vermeulen et al., 2016) still record low skilled delivery of 52% and 47% respective. In Ghana, national surveys suggest that skilled delivery has increased over the past 7 years with a significant increase from 59% in 2008 to three-quarters of births (74 %) delivered with skilled health professionals (GSS., 2015).

2.5 Factors influencing Utilization of Skilled Delivery

Some factors have been reported to have had an influence on utilisation of skilled delivery (Pitt et al., 2016). Consequently, it was important to identify some of these factors that could contribute to utilization of skilled delivery based on existing literature.

2.5.1 Client factors influencing utilization of skilled delivery services

While changing patients' health care seeking behavior is an important policy concern in most countries, modifying patients' factors influencing skilled delivery among women seem particularly difficult (Ensor *et al*., 2014). This sometimes lead to increased complications during pregnancy and child birth (Dalaba *et al*., 2014). Patients' factors are defined as all determinants of maternal health care, which can facilitate or limit a pregnant woman from accessing skilled delivery services (Mengesha *et al*., 2013). The absence of skilled delivery can result in maternal and child complications (Oztas, Ozler, Caglar, & Yucel, 2016). Complications during

pregnancy and childbirth are known to be the leading cause of critical illness and death among women of reproductive age in many low-income countries (Litorp *et al*., 2014). The critically ill obstetric patient represents a challenge that usually requires a multidisciplinary approach (Monsalve *et al*., 2011). This is because each year, about one million obstetric patients accounts for acute hospitalization and transfer to skilled nursing facilities (Toles *et al*., 2012).

2.5.1.1 Partner support

Upon skilled nursing services being provided, patients' satisfaction is related to the person's characteristics (Belda & Gebremariam, 2016), desire for skilled delivery services and partner support (Galal & Al-Gamal, 2014). In addition, previous studies have also shown that husbands who support their wife's autonomy to make their own health decisions showed that an association exist with the accessing health facilities for delivery (Hasanpoor-Azghdy *et al*., 2014). Indicators such as partners not educated and belonging to the lower wealth groups (Semere Semere Belda & Gebremariam, 2016), are also cited as determinants of skilled delivery service. Similarly, information available showed that household wealth may have influence on access to a health facility for delivery (Arthur, 2012). Other nationwide surveys have suggested lack of partner support, absence of family aid during emergency delivery, and husband's own beliefs as major barriers to accessing skilled delivery services (GSS, 2015).

2.5.1.2 Parity

Findings of a study suggest that having a higher parity and experience of previous delivery decreased uptake of skilled delivery (Adjei, 2015)**.** Similarly, a study from Ethiopia showed that family size and parity were also associated with skilled delivery seeking behavior (Assfaw & Sebastian, 2010). Aside this, parity is known to have a complex impact upon ANC initiation (Pell *et al*., 2013). For example, unaccustomed to the experience of pregnancy, the associated signs and symptoms, some primigravidae were more likely to seek advice and assistance and

initiate ANC earlier (Pell *et al*., 2013). Additionally, Moyer & Mustafa (2013), posit that the number of children of a woman has and their birth order can greatly determine a woman's decision to access subsequent skilled delivery service.

2.5.1.3 Antenatal clinic visits

Studies in Ethiopia found that increased ANC visits (Abebe, Gebeyehu, Kidane, & Eyassu, 2016), women who do not go for ANC, and when there is inadequate counseling about pregnancy related services (Vallières *et al*., 2013), were some of the factors associated with low utilization of skilled delivery services (Vallières *et al*., 2013). However, literature suggest that it is very possible that women who receive antenatal care might not come to a health facility for delivery care (Rai, 2014). For example, general maternal health status strongly influencing a woman to go for delivery services when in labour is not limited to ANC visits (Tort, Rozenberg, Traoré, Fournier, & Dumont, 2015). This notwithstanding, evidence available indicates that the number of antenatal care visits are the factors most consistently associated with facility delivery (Moyer & Mustafa, 2013).

2.5.1.4 Maternal Education

It is evidently clear that majority of mothers have little education or at least limited knowledge of maternal health services (Mwaliko *et al*., 2014). Studies available suggest that women without secondary school-level education may not go to delivery in a health-care institution (Dhakal *et al*., 2011). Meanwhile, information about the recommended number of ANC visits is cited to influence increased use of ANC and skilled delivery service (Wilunda *et al*., 2015). Furthermore, other studies also found a relationship between education and maternal health care use (Arthur, 2012). Earlier studies elsewhere clearly suggest the woman's educational level may determine her ANC use (Asundep *et al*., 2013).

2.5.1.5 Religion

Consistently in literature, religion, family beliefs (Gebrehiwot, San Sebastian, Edin, & Goicolea, 2014), and traditions are noted as key determinants of home deliveries (Bohren et al., 2014). In other parts of Ghana, Esena and Sappor (2013), assessed the influence of religion on facility-based delivery and established an association with the utilization of skilled delivery. Religion, though not widely assessed in association with skilled delivery, has proved to have a significant impact on a woman's decision on home delivery (Amoakoh-Coleman *et al*., 2015). For instance, it is perceived that Islamic religion may influence a Muslim woman's reproductive health seeking behaviors, and despite other factors, access to and use of maternal health services will be influenced by Islamic religious beliefs and practices (Ganle, 2016).

Similarly, African tradition seems to suggest that children delivered at home have established a spiritual link with their ancestors (Onyeneho, Amazigo, Njepuome, Nwaorgu, & Okeibunor, 2016). The argument is however, different in some settings. In Nigeria for example, research indicate that irrespective of a woman's religious background, some women prefer the services of a skilled attendant (Antai, 2011).

2.5.1.6 Cost of services

Cost of access to health care include cost of transportation, medicines and supplies, opportunity cost of traveling and waiting time lost from productive activities. Families with tight budget cannot afford these costs and may not be able to use facilities for delivery **(**Gabrysch & Campbell, 2009). Costs of accessing delivery services may have influence on families decision to choose self-medication than going to the facility to deliver (Dalaba et al., 2014) Services provided by TBA's are usually perceived to be inexpensive for poor families, since payments are negotiable in terms of timing or in kind.

However, in communities where there are no health facilities, access to maternal health care may not be readily available, hence the ability to pay for such services may be hampered (Pitt et al., 2016). To promote skilled attendance at births and reduce maternal deaths, the government of Ghana introduced the free maternal care policy under the National Health Insurance Scheme (NHIS) in 2008, **(**Dalinjong, 2018**).** Recent studies have shown that NHIA, has not eliminated financial barriers associated with childbirth and its impact on women **(**Dalinjong, 2018).

2.5.2 Health provider factors influencing utilization of skilled delivery services

This section presents health provider factors that are assumed to be influencing utilization of skilled delivery services.

2.5.2.1 Availability of logistics and equipment

Over the years, efforts has been made to improve access and utilization of maternal and child health services (Hasanpoor-Azghdy *et al*., 2014). An enabling environment at various levels of the health system, adequate supplies, infrastructure and an efficient and effective referral system, must be backed by a supportive policy and regulatory framework (Moyer *et al.,* 2012). However, maternal health indicators have not improved in many nations especially Africa due to inadequate health facilities, equipment and logistics needed to improve access to obstetric care (Ensor *et al*., 2014). In view of this, most African countries have adopted the WHO guidelines on Pregnancy, Childbirth, Postpartum and Newborn Care (PCPNC) (WHO/UNICEF, 2014), to support health workers in clinical decision making for the improvement of the quality of maternal and neonatal care (Dalaba *et al.*, 2014).

Nationally, obstacles to appropriate maternal health care include the insufficiency of transport between district and rural referral levels (Sakeah & Mccloskey, 2014), delays in identifying

early complications (danger signs) and immediate referrals (Dalaba *et al*., 2014). Even in settings where these barriers are limited, most women still experience serious barriers to accessing services (Penfold, Harrison, Bell, & Fitzmaurice, 2007), or even if they do reach them, the services are often of insufficient quality or effectiveness (D'Ambruoso, Abbey, & Hussein, 2005)

Aside this, it is worth noting that most delivery referrals in Ghana are initiated via mobile phone for emergency transport (Stanton *et al*., 2012), causing further delays in the transportation of pregnant women with complications (Dhakal *et al*., 2011), leading to limited use of skilled birth attendants (Nakua *et al*., 2015).

The lack of emergency obstetric and newborn care services to deal with complications, and ineffective referral systems are associated with limited maternal utilization of skilled delivery services (Agaro *et al*., 2016).

Effective referral of patients from one health facility to another remains a challenge in most developing countries (Kim, Babcock, Barreix, & Bills, 2013). Meanwhile, literature have constantly reported the importance of rapid and equitable access to skilled birth attendance, improved referral systems and basic and comprehensive emergency obstetric care, as key principles underlying strategies to enhance utilization of skilled delivery services (Mesbah *et al*., 2013; Jaime-pérez *et al*., 2015; Jacob, Sawardekar, Gameel, & Al, 2016; Yego *et al*., 2013).

2.5.2.2 Availability of staff

The utilization of health services is associated with factors such as the accessibility of the facility, the availability of skilled providers and the effectiveness and efficiency of the services provided (Galal & Al-Gamal, 2014). The availability of a health worker with midwifery skills the time of child birth (Mpembeni *et al*., 2007), supported with transport in case of emergency

referral (Nakua *et al*., 2015), may be the most critical intervention for making motherhood safe (Abebe *et al*., 2016). The importance of skilled attendant at the time of delivery is considered to be the most effective and widely recommended strategies to reduce maternal and perinatal mortality, considering that obstetric complications cannot be predicted (Lund *et al*., 2012).

Indications are that, delays in accessing appropriate care (Graham, Themmen, Bassane, Meda, & De Brouwere, 2008) and provider factors such as poor quality of care associated with absence of skilled health personnel during pregnancy and childbirth (Arthur, 2012) influences a woman's perception towards skilled delivery. These are key parameters explaining why a woman will or will not access skilled delivery services in Kinshasa (Kabali, Gourbin, & Brouwere, 2011). Experts agree that access to skilled attendants at birth (doctors, nurses, midwives) is one way to decrease maternal deaths (Sakeah & McCloskey, 2014), and such access should be available to women in rural areas as well as urban areas (Tapia *et al*., 2016).

2.5.2.3 Staff attitude

Utilization of skilled delivery services can also be explained by attitude of health service providers (Kabali *et al*., 2011). Additionally, poor attitudes of health workers suggest the existence of challenges in achieving increased facility delivery (Esena & Sappor, 2013). This is particularly, critical among rural nurses and remains a challenge, hindering women from accessing maternity services in rural areas (Sakeah & McCloskey, 2014). Literature has also suggested the importance of positive attitude of midwives toward mothers delivering at health facilities on repeated use of skilled delivery service (Hasanpoor-Azghdy *et al*., 2014).

Even though the relevance of provider attitude is emphasized, Asweto *et al*. (2014), suggest that access to and use of skilled birth attendants can also be determined by a woman's own attitude towards the service. Though different writers have argued in favor of staff attitude (Moyer *et*

al., 2012; Ganle & Dery, 2015; Onyeneho *et al*., 2016), poor staff attitude has not been mentioned in other studies as a barrier to women accessing health care (Koster *et al*., 2016).

2.5.2.4 Competency of staff

According to literature, the utilization of skilled birth services can partially be attributed to competence of the service providers (Bhutta, Darmstadt, Haws, Yakoob, & Lawn, 2009). In fact, hospital based delivery in Malawi improved between 2013 and 2014 due to competency based practice of skilled delivery (Thorsen, Sundby, Meguid, & Malata, 2014). In addition, evidence suggests that competency-based training and education was widely used as a mechanism to improve the utilization of skilled delivery (Deller et al., 2015). In other parts of Australia, cultural competency in health delivery also improved utilization of skilled delivery services by Aboriginal mothers (Bar-Zeev, Kruske, Barclay, Bar-Zeev, & Kildea, 2013).

2.5.2.5 Quality of counseling

ANC is essential for assessing the health status of the mother, the treatment of complications, and counseling in support of the health status of the mother and child (Sado, Spaho, & Hotchkiss, 2014). Studies in Ethiopia indicate that mothers who received comprehensive counseling during ANC subsequently used the services of a skilled birth attendant (Semere Semere Belda & Gebremariam, 2016).

Furthermore, the quality of counseling provided to pregnant women was considered as a major determinant of facility based delivery (Miltenburg, Roggeveen, Yadira, van Roosmalen, & Smith, 2017). Because of the importance of counseling, both parent groups and practitioners have encouraged preconception counseling (Fockler, Ladhani, Watson, & Barrett, 2017). To increase compliance with referrals there is the need to review the referral indications and strengthen counseling on birth preparedness and complication readiness (Pembe et al., 2010).

2.5.3 Community factors influencing utilization of skilled delivery services

This part presents analysis of literature related to community factors that could influence utilization of skilled delivery service. The significance of community attitude towards maternal health service has also been suggested to determine utilization of delivery facilities (Mushi, Mpembeni, & Jahn, 2010).

2.5.3.1 Autonomy to decide place of delivery (Decision making on place of delivery)

A study conducted on determinants of the place of delivery identified economic accessibility and purchasing power as the most relevant barriers to accessing skilled delivery service (Mwaliko *et al*., 2014). In addition, the position of women and decision-making power in the family are also predictors of the place of birth (Dhakal *et al*., 2011). More particularly, it is noted that women without direct access to cash often rely on their husbands or relatives to meet costs and are usually challenged with access to skilled delivery services (Pell *et al*., 2013). Meanwhile, opposing literature see accessibility factors such as perceived need and socio-cultural factors as important drivers of a woman's decision making on place of delivery (Moyer & Mustafa, 2013). In the area of maternal health, several dimensions of women's empowerment have been found to be important determinants of utilization such as participation in household decision-making (Pell *et al*., 2013), financial autonomy (Ononokpono & Odimegwu, 2014), and freedom of movement (Sado et al., 2014).

2.5.3.2 Location of facility

The factors that influence the use of skilled attendants at birth include facility location within the community and other characteristics of the woman and her family (Gabrysch, Cousens, Cox, & Campbell, 2011), many women are still left without care as a result of physical and geographical access (Esena & Sappor, 2013), particularly in rural areas (Assfaw & Sebastian, 2010). As a result, many deliveries take place at home due to community related factors (Dhakal

et al., 2011). The reasons are many and understanding these factors is important to identifying gaps in the existing research (Moyer & Mustafa, 2013).

Barriers such as vicinity of the delivery facility and health system conditions still hinder utilization of skilled delivery services (Galal & Al-Gamal, 2014). National surveys suggest that more importantly, the introduction of free maternity services and locating Community-based Health Planning Services(CHPS) compounds closer to where people live are major efforts that have been made to remove barriers to accessing skilled maternity care and reducing maternal mortality (GSS, 2009). This is because, access to health facilities during pregnancy and especially at delivery seems to be the crucial factor in explaining the disparity in maternal mortality and morbidity (Mwaliko *et al*., 2014).

2.5.3.3 Road network

Good road network is considered an important component of the health service delivery system (Arthur, 2012). This is particularly important because improved health determinants such as transport and road can strongly influence maternal health outcomes (Graham *et al*., 2008), especially in rural health delivery (Kyei-Nimakoh *et al*., 2016). In rural areas, a lack of access roads to villages poses a serious problem (Ganyaglo, Chb, & Hill, 2012), indicating that alternative approaches should be developed to better protect women's health (Asweto, 2014).

Rural roads particularly get flooded when it rains and easily become non-motorable even with the availability of a transport system (Le, Heng, Nou, So, & Ensor, 2016). These factors are seen to reflect in several health delivery systems and cause deficiency in social structure and efforts to improve utilization of skilled delivery (Antai, 2011). As indicated earlier, in situations where transport can be found and payments can be done, traveling to the nearest facility is mostly a distance travel on a rough road (Kalter *et al*., 2011). In providing maternal health

service, transportation and road infrastructure are considered consistent barriers to improving utilization of skilled delivery (Phiri *et al*., 2014).

2.5.3.4 Transport system

In many low-income countries, distances to health facilities can be a considerable barrier (Pell *et al*., 2013), particularly in rural areas, and vehicles for transport are rarely available (Lohela, Campbell, & Gabrysch, 2012). Distance is a major determinant in the decision to seek skilled delivery service (Wilunda *et al*., 2015). Additionally, although reasons for low utilization vary, commonly cited one include: women living in rural areas that are far away from a health facility (Mwaliko *et al*., 2014).

2.5.3.5 Cultural beliefs

Diversities in socio cultural beliefs hinder women's ability to access maternal health services, for instance, certain cultures view pregnancy and delivery as a test for pain, which the woman needs to tolerate and this may prevent her to deliver at health facility (Henry et al., 2017).

Various reasons exist that influence a woman's preference for alternative care or home birth, this include the use of herbal medicines believed to hasten the delivery process and the freedom to use various delivery positions of choice (Munguambe et al., 2016).

Certain cultural beliefs and practices influence a woman ability to seek maternal health service especially for women with first pregnancies (Yanagisawa, onum & wakai, 2006).

Based on the above literature reviewed, the conceptual framework for the study was developed as shown below.

2.6 Conceptual framework of factors influencing Utilisation of Skilled Delivery

The figure 2.1 presented below is a pictorial conceptualization of the variables that determine utilization of skilled delivery services, herein referred to as independent variables.

The Variables conceptualized in this study are literature based, but not exhaustive of all determining factors of skilled delivery utilization. For example, client factors including educational level and attainment (Amoakoh-Coleman *et al*., 2015), religious affiliation (Thorsen, Sundby, Meguid & Malata, 2014), and place of residence are known in literature to influence utilization of skilled delivery among women (Say & Raine, 2007). In addition, women who are married, those who have friends with fair knowledge of the importance of skilled delivery and family support may also influence utilization of skilled delivery. Additionally, the number of times a woman attends ANC, and her previous experience of skilled delivery are also client factors that can determine the use of skilled delivery services.

On the other hand, health delivery/provider factors are also significant determinants of skilled delivery services. For example, the attitude of some health care providers, their availability and competence in providing skilled delivery services can directly influence a woman's satisfaction and interest to use skilled delivery services. The quality of counseling during ANC and the availability of essential services at the facility can collectively influence the use of skilled delivery services.

Location of health facilities within communities in the district also affects a woman's decision to deliver at the facility that is the nearness to the community. Barriers such as vicinity of the delivery facility and health system conditions still hinder utilization of skilled delivery services (Galal & Al-Gamal, 2014). Lack of access roads may increase time in accessing skilled delivery

services due to lack of transportation network (Lohela et al., 2012). Access to such facilities should be that, the quality of roads to and from the facility is easily accessible. Easy accessibility of roads attracts more vehicles and reduces cost on transportation, hence enabling clients to access health facility in times of need such as during labor. (Assfaw &Sebastian 2010). The above points directly or indirectly affect accessibility of women to skilled health care during pregnancy and during delivery (Ensor, 2014).

Independent variables **Dependent variables**

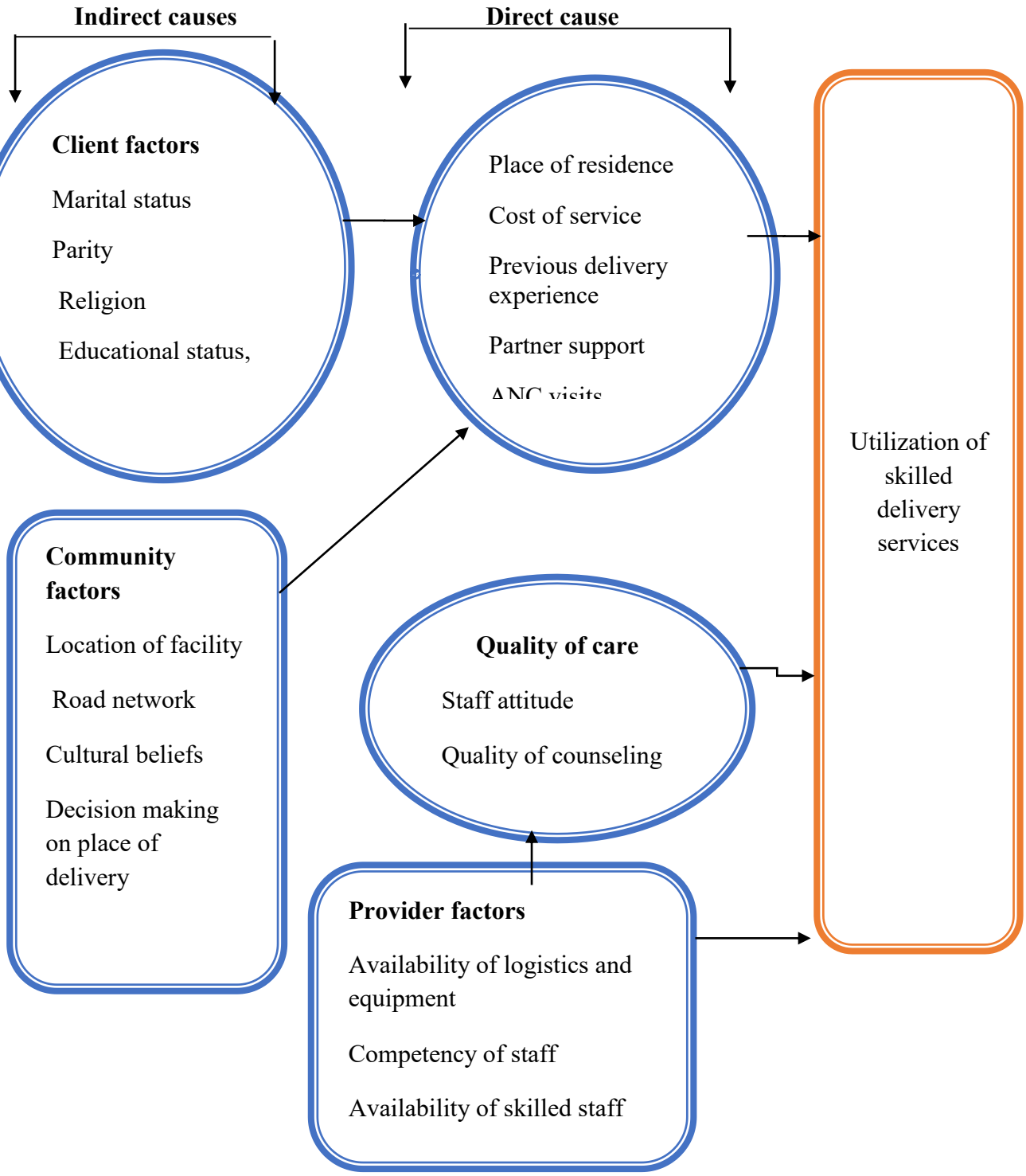

Figure 2.6: Conceptual framework of factors influencing Utilisation Skilled Delivery.

Source: Author's conception based on review of literature, 2017.

Summary of the chapter

The chapter reviewed literature on factors that influence utilization of skilled delivery services.

The review suggested that, although literature exist on maternal healthcare, there are limited studies that looked at both client and healthcare provider factors that influence the use of skilled delivery in Ghana. The next chapter presents the methodology of the study.

CHAPTER THREE

METHODS

3.0 Introduction

This chapter presents the methods that was applied to collect data for analysis in the study. It is divided into twelve sections.

3.1 Study design

A descriptive cross-sectional study was conducted using quantitative methods. A descriptive cross-section study examines the relationship between exposure and outcome prevalence in a defined population at a single point in time. (Setia 2016). This study type is advantageous because it is less time-consuming than case-control or cohort studies, also it is inexpensive, and gives a quick picture of prevalence of exposure and prevalence of outcome (Setia 2016). Additionally, the method allows researchers to summarize vast sources of data and correlate independent and dependent variables in order to determine causality within a study framework (Setia 2016).

This study design and methods were used because they were able to help the researcher identify the factors that influence utilization of skilled delivery services in the Fanteakwa District. The strategy also gave the researcher the advantage to study a cross section of the population and make generalization of findings. The study was carried out between April 2018 and July 2018.

3.2 Study Area

The survey was conducted in the Fanteakwa District which is one of the 26 administrative districts in the Eastern Region of Ghana. The district has a hilly topography and is located in the central part of the Eastern Region of Ghana (Amoah, Pergaud, Luiza, Leite, & Weber, 2014).

Begoro is the political seat of the district where the District Assembly is located and it is headed by District Chief Executive supported by other decentralized departmental heads including the District Health Directorate.

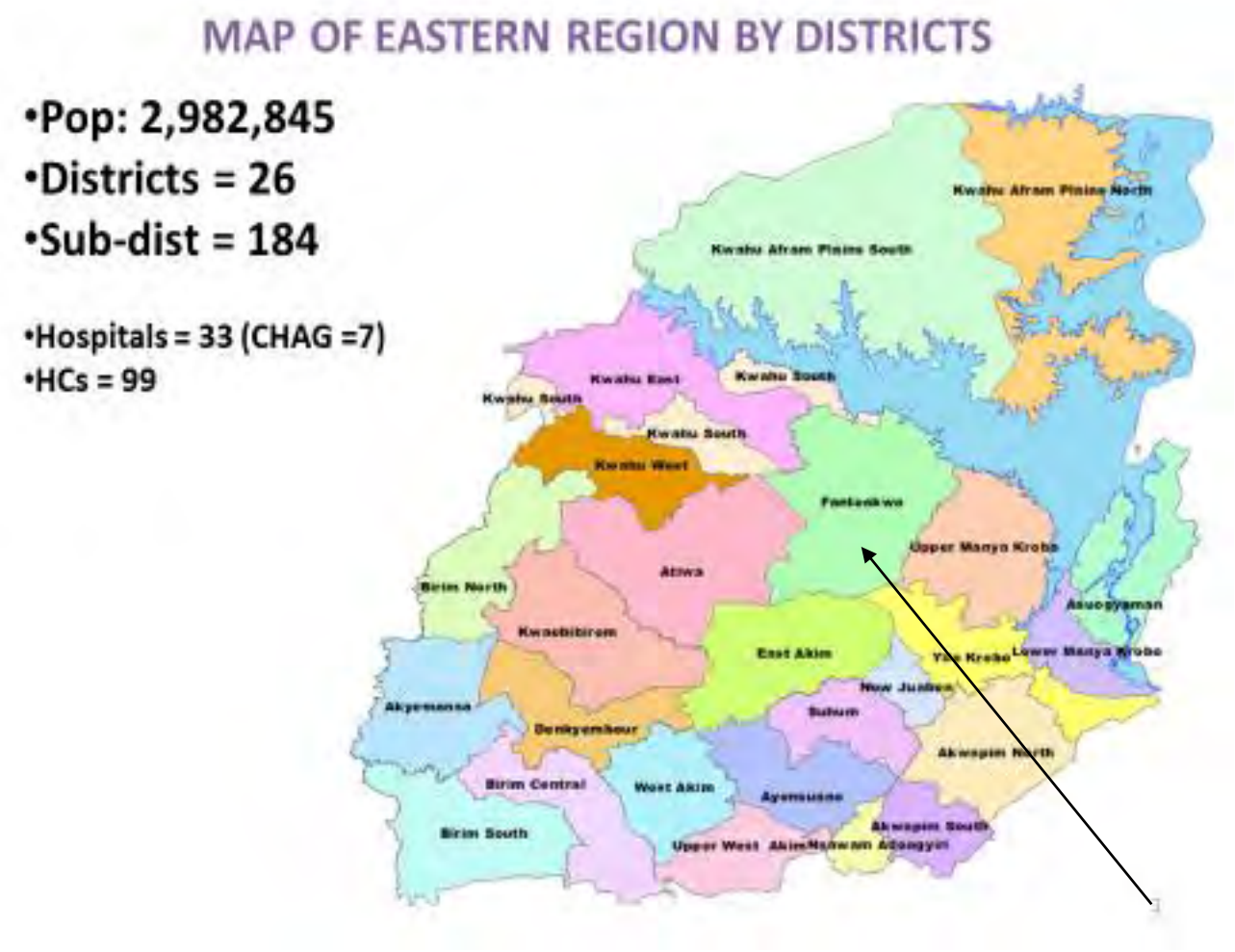

Figure 3.2: Map of Eastern Region showing the 26 Administrative Districts

Source: Eastern Regional Health Directorate

3.2.1 Demographic characteristics of the district

The district has a projected total population of 127, 349, with a growth rate of 2.1% based on the 2010 population census (GSS, 2015). A total 64948 (51%) are females and 62401 (49%) being males with WIFA (15-49 years) 30, 564 (24%). The total population has been zoned into seven sub-districts including Begoro, Osino, Bosuso, Asiribuso and Ahomahomaso (GSS, 2010). The seven sub-districts comprise 162 communities.

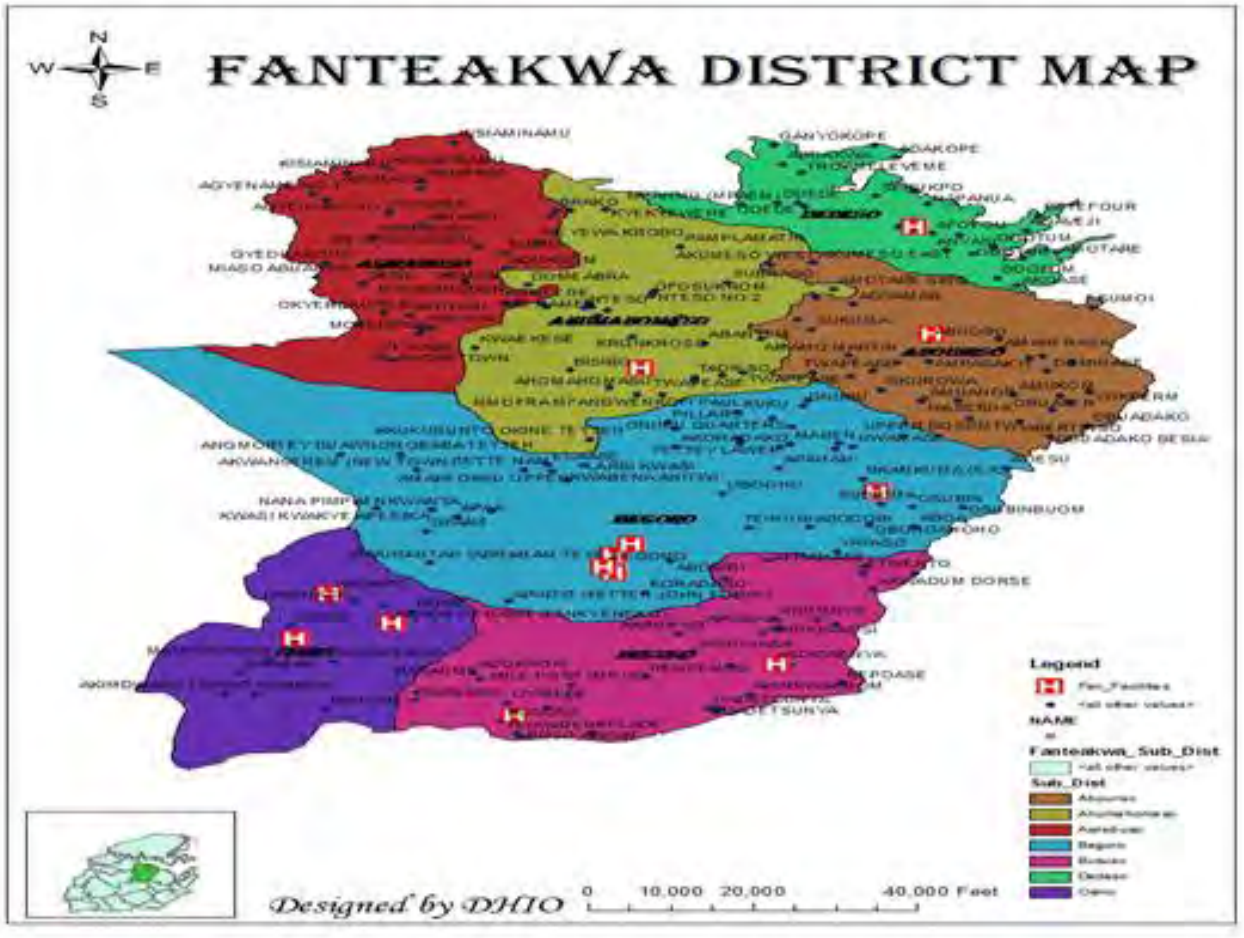

Figure 3.3: Map of Fanteakwa district showing the various sub district and health facilities

Source: Fanteakwa District Health Directorate

The greater proportion of the people are made up of Akans and Krobos with few Ewe and Frafras. Christianity and Islam are the dominant religions in district, with a small percentage of people practicing traditional religion. The predominantly high female population of 51% is likely to get pregnant and therefore the need to use skilled delivery but there is likely to be challenges if not used. This in addition to proximity informed the decision to choose Fanteakwa district for the study among others districts.

3.2.2 Economy

In the Fanteakwa District, the employed population is made up of the skilled agriculture, forestry and fishery workers which formed the major occupation with 60.2%, this is followed by the service and sales workers, which represent 14.3% and the third occupation being craft and related trade workers, which account for 10.7%. Others such as technicians, clerical support workers, among others represent 8.7% (GSS, 2013). Majority of the workforce in the district are unemployed reflecting a high poverty level and for that reason their inability to pay for the health care services offered. The district has three (3) major markets which are located at Begoro, Ahomahomasu and Ehiamankyene which are organized on weekly basis (GHS, 2013).

3.2.3 Health Care and staffing

The health delivery system in the district is carried out by staff working in forty (40) public and private health institutions with staff strength of two hundred and thirty-five (235). The district has only one district hospital which serve as a referral centre, two health centres, 35 Community –based Health Planning and Services (CHPS) zones which are all government establishments except the Salvation Army clinic which is a Christian Health Association of Ghana (CHAG) institution and His Grace maternity home (GHS, 2013). The health facilities provide basic obstetric care services and submit report monthly to the district health directorate.

Poor accessibility to health facilities in terms of affordability and transportation have been a key problem in the district affecting health seeking behaviour. However, about 95% of the residents access the health facilities without upfront payment through National Health Insurance Scheme and only a few made use of out of pocket payment (GHS, 2013). The study considered the first four Sub-districts with the highest deliveries within the district. These are Begoro, Osino, Bosuso and Ahomohomaso sub district. The delivery profile of the district is presented in table 3.1 below.

Table 3.1: Delivery profile of Fanteakwa District

Sub District	**Expected Pregnancy/deliveries**	**Skilled deliveries**	**TBA Deliveries**	**Total**
Begoro Sub-district	1595	1061	167	1228
Osino Sub-district	1205	312	59	371
Bosuso Sub-district	730	198	12	210
Ahomahomaso Sub-district	440	67	65	132
Dedeso Sub-district	356	0	10	10
Abourso Sub-district	360	19	84	103
Asirebuso Sub-district	409	36	91	127
District total	5094	1693	488	2181

Source: Fanteakwa District Health Directorate (2017).

3.3 Study Variables

The variables of the study have been categorized into dependent variable and independent variables as indicated below.

3.3.1 Dependent variable

The dependent variable was utilization of skilled delivery services. Thus whether the women delivered at the health facility or elsewhere.

3.3.2 Independent variable

The independent variables are described below:

Socio-demographic characteristics of women: Age, educational status, religion, marital status.

Client factors: Parity, place of residence, cost of access, ANC visits, autonomy to decide place of delivery, previous delivery experience, partner support.

Health care provider factors: Staff attitude, availability of staff and equipment/drugs, availability of logistics, competency of staff, quality of counseling.

Community factors: Cultural beliefs, transport system, location of facility, road network.

3.4 Study Population

The study sampled nursing mothers who delivered between January and December 2017 and who resided in the Fanteakwa District between January and December 2017. This population was selected because they would have experienced delivery and their opinions were representing the real situation of utilization of skilled delivery in the Fanteakwa District.

Women in fertility age (WIFA) are said to be women in the 15 to 45-year age group who were likely to become pregnant and give birth.

3.4.1 Inclusion criteria

The study included nursing mothers who have delivered between January 2017 and December 2017 and have resided in the Fanteakwa District within the same period.

3.4.2 Exclusion criteria

The study excluded women who are not within fertility age or who have not resided in the Fanteakwa District within the period of consideration or have delivered before January 2017 or after December 2017.

3.5 Sampling Procedure

A multi-stage sampling technique was used in sampling respondents. A multi-stage sampling involves the use of different sampling methods to enable a researcher select a representative sample from a larger population. The procedure involved putting large population into clusters or groups and dividing into smaller groups in order to make primary data collection more manageable. A multi sampling technique was preferable to other methods because it is highly flexible, inexpensive and less time consuming. In addition, the sampling process is more practical and conducive in collecting data from geographically dispersed areas.

The Fanteakwa district is divided into seven sub-district which is already in a form of cluster. Four sub-districts were selected out of the seven (7) sub-districts based on their delivery profile. See table 3.1.

Balloting was done to select the communities in each sub-district by writing the names of all the communities on different pieces of paper. These pieces of paper were then folded and placed in a box, mixed thoroughly and two of them picked at random. This procedure was repeated for

all the other sub- districts. This resulted in the selection of eight (8) communities within the four sub-districts. The selection of the eight communities in the four sub-districts helped to achieve maximum coverage and representativeness of the entire district.

In selecting respondents for each community, the district's delivery report for 2017, was collected from the district health directorate. This gave a total delivery of 2181. The total deliveries of each sub-district example, Begoro sub district (1228) was divided by the total deliveries of the district (2181) and then multiplied by the sample size (356) to obtain the sample proportion of the sub district (236). The figure obtained was then divided into two equal parts for each community. The results are indicated in table 3.

As one enters each community the research assistants identified opinion leaders or volunteers to assist them locate the center of the community. A sharpened pencil was spun and where the pointed end turns to then become the first house to start the interview. Women who have children up to one-year-old within the study period were interviewed. In households where more than one qualified respondent was present, the number of respondents who were willing to participate were engaged in a ballot and one of them was selected.

Where one cannot find any qualified respondent that is a recently delivered mother, the research assistants moved to the next household until a qualified respondent was found. This was repeated in each community until the total sample size of 356 was attained. Data was collected over a period of one month.

Similar studies have used this method in assessing skilled deliveries (Iyer *et al., 2017)*, and some writers have adopted it as an appropriate method of assessing utilization of skilled delivery (Islam, Islam, Bharati, Aik, & Hossain, 2016).

3.5.1 Sample Size determination

The sample size was calculated using Cochran's (1977), formula considering the 2017 skilled delivery rate of 33% (0.33%) in the Fanteakwa District (GHS, 2017), a confidence interval of 95% and a threshold of error of 0.05%. The sample size calculation is as follows:

$n = (Z^2 \times PQ)/d^2$

where,

n = represents the desired sample size,

Z = is the normal standard deviate, whose value at 95.0% confidence level is 1.96,

P = current skilled delivery rate; (33%)

Q = 1-P

d = the set margin of error; 0.05

Substituting, gave:

33% (0.33), *Q* = 1-P = 0.69, and *d* = the set margin of error; 0.05.

$$= \frac{(1.96_{1-\alpha/2})^2\ 0.33(1-0.33)}{0.05^2}$$

$$\mathrm{N} = \frac{3.84 \text{ x } 0.33\text{x } 0.67}{0.0025}$$

N = 339.6

N=340

Thus, minimum sample size, n=340. The figure was upwardly adjusted by 10% to cater for possible non-respondents or recording errors. The resultant sample size was 374.

3.5.2 Determination of Sample proportion for the sub-districts

Using researchers own estimation single, the sample proportion was estimated as shown below:

$$\frac{\text{Total sub-district deliveries} \times \text{estimated sample size}}{\text{Total district deliveries}}$$

Eg: Begoro = $\frac{1228 \times 374}{1941}$

$=236$

Table 3.2: Sample Proportions

Sub-districts	Deliveries	Total study population	Sample Size sub district	Sample size per community
Begoro	1228	Deliveries (1941)	236	118
Osino	371		71	36
Bosuso	210		40	20
Ahoman	132		25	13
Total	1941	1941	374	374

Source: Fanteakwa District Health Directorate (2017).

3.6 Data Collection, Techniques and Tools

A structured questionnaire was designed to collect data for subsequent analysis on this study. The questionnaire was divided into sections. Section A sought to get responses to socio-demographic characteristics of women: age, educational status, religion, marital status, employment status, and ethnicity, level of family income, residential status and used skilled delivery services.

Section B asked for information on a client factors: parity, place of residence, cost of access, ANC visits, previous delivery experience, and partner support. In section C, questions asked were related to health care provider factors: staff attitude, availability of staff and equipment/drugs, availability of logistics, competency of staff, and quality of counseling. The questions in section D covered issues relating to community factors: cultural beliefs, autonomy to decide place of delivery, transport system, location of facility, and road network. The

questionnaires were administered by the researcher with the support of four trained research assistants. Each questionnaire was administered within a period of 15 to 20 minutes. The questionnaire used for the study was partially adapted from the Ghana Demographic and Health Survey (GSS, 2015).

3.7 Quality Control

Before the start of the data collection, four research assistants who had varying experience and skills in data collection and one supervisor were recruited from the district. A day's training was conducted for the supervisor and the interviewers. The training covered overview of the study objectives, community entry skills and house hold selection techniques. They were taken through interviewing techniques and skills, administration of complete questionnaires without coercion, and handling of nonresponsive interviewees. The training session also included language training and translation of the questionnaires into local languages (Krobo and Twi).

On daily basis, the principal researcher ensured the compilation of all administered questionnaires and replacement of incomplete questionnaire to be administered the next day. All administered questionnaires were kept by the principal researcher and confidentiality was ensured throughout the research process.

3.8 Pre-testing of Questionnaires

The study instruments were pretested in the Kwaebibirem District of the Eastern Region of Ghana. The Kwaebibirem District has similar demographic characteristics as the study area. The pretesting gave opportunity to test the sensitivity of the questionnaire, accuracy and completeness. It also ensured that questionnaires are useful for this type of study and modifications were done before the main study.

3.9 Data Analysis

Data collected in the form of answered questionnaires were checked on the field to ensure completeness and were kept securely in a locked bag pending analysis. The data was checked again for internal consistency and then coded. Statistical Package for Social Sciences (SPSS v.20) was used for data entry and cleaning. Data were exported into STATA, and STATA v.15 used. Descriptive analysis was done and results were then presented in means, standard deviations, percentages and bar charts. Bivariate analysis (Chi-square test) was done to test for association between outcome variable and other categorical independent variables at a significance level of $p<0.05$. Logistic regression was used to determine the strength of association of the independent variables and the outcome variable (skilled delivery).

3.10 Ethical Consideration

Ethical clearance was sought from the Ethics Review Committee of the Ghana Health Service. Permission was also granted by the Eastern Regional Health Directorate and the Fanteakwa District Health Directorate. The study participants include nursing mothers who have delivered within 12 months prior to the study. Aside these, other activities were carried out to ensure that ethical rules are followed. These have been explained below.

Participants' Consent

Informed consent was sought from all participants of the study, either orally or in written form.. (See Appendix A).

Compensation to participants

The researcher does not anticipate giving any compensation to participants of the study.

Voluntary participation

Respondents were assured that participation in the study is purely voluntary and one can withdraw from the study if she is unwilling to participate.

Privacy and confidentiality

Participants were interviewed in confidentiality and no names were mentioned. Participants were also assured that all information provided were used for purely academic purposes.

Data storage and usage

Data gathered from the field each day were kept under lock and key by the principal investigator. The data will be discarded after a period of five years.

Risk and benefits

Participants were assured that the study was not lead to any risk or harm. Information and outcome of the study was made available to participants and health centers in the Fanteakwa District for decision making which improved maternal health services for community members. The researcher does not anticipate giving any financial or material benefits to participants.

Protocol amendments

In the event of any necessary changes to the data collection methodology within this study, the necessary amendment was sought from Ghana Health Service, Ethical Review Committee before proceeding with the study.

Declaration of conflict of interest

The researcher has no competing interest in the conduct of the study.

Funding information

The research was self-financed by the principal investigator.

Summary of the chapter

This chapter described the study methods, it focused on the study design, study population and sampling procedure that helped to collect accurate data for analysis. The next chapter present the statistical analysis and results of the study.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the characteristics of reproductive aged women who assessed skilled delivery at health facilities or unskilled delivery from other source. Thus, it presents result on factors that influence utilization of skilled delivery services in the district. There are ten (10) sections therein.

4.1 Socio-demographic characteristics of respondents

A total of 356 women aged between 15 and 45 years participated in the study with a 95% response rate. Overall, majority (51.4%) of the respondents were between 26 and 35 years of age, more than half of them were married, 201 (56.5%) and about a third, 132 (37.1%) had attained Junior High school education. Again, 190 (53.4%) were of the Akan ethnicity, 83 (23.3%) were Krobo, and the least ethnic group was Ga, 6 (1.7%). Eight in every ten, 315 (88.5%) were Christians, a little over half, 191 (53.7%) were self-employed, 128 (36%) were not employed and 163 (45.8%) were traders. Similarly, 228 (64%) had a household income of less than GHs 500and six in every ten lived in a semi-urban setting. See Table 4.1.

Table 4.1: Socio-demographic characteristics of respondents (N=356)

Attribute	Frequency	Percentage
Age categories		
15 – 25	130	36.5
26 – 35	183	51.4
36 – 45	43	12.1
Marital status		
Married	201	56.5
Not married	155	43.5
Educational level		
Junior High	132	37.1
Not educated	53	14.9
Primary	53	14.9
Senior High	78	21.9
Tertiary	30	8.4
Vocational/Technical	10	2.8
Ethnicity		
Akan	190	53.4
Ewe	33	9.3
Ga	6	1.7
Guan	12	3.4
Krobo	83	23.3
Northern extraction	32	9
Religion		
Christian	315	88.5
Muslim	35	9.8
Traditionalist	6	1.7
Employment		
Full time	24	6.7
Not employed	128	36
Part-time	13	3.7
Self employed	191	53.7
Occupation		
Civil servant	49	13.8
Farmer	100	28.1
Housewife	44	12.4
Trader	163	45.8
Income		
Above GHC 1000	22	6.2
Between GHC 500 and GHC 1000	106	29.8
Less than GHC 500	228	64
Residence		
Rural	107	30.1
Semi-urban	249	69.9

4.2 Client factors influencing utilization of skilled delivery

From the results, 238 (66.9%) used skilled delivery service, 294 (82.6%) of the respondents are able to financially access skilled delivery services, 202 (56.7%) had more than 4 ANC visits, and 89 (25%) had 2 to 3 ANC visits, whiles 37(10.4%) did not attend ANC during their last pregnancy. In assessing autonomy to decide place of delivery, 124(34.8%) decided by themselves to deliver their child, 102(28.7%) said they took a joint decision with their husband/partner, and 66 (18.5%) said such decisions were taken by other family members. More than two in five160 (44.9%) of the respondents had support from their husbands/partners on accessing skilled delivery, and 242(68%) had given birth to between 1 and 4 children. Close to third 96 (27.0%) of the respondents had delivered their last child at the hospital**,** 118 **(**33.1%) had home delivery for their last child, 189 (53.1%) of all deliveries started in the night, and 317(89.0%) said they would use skilled delivery in future. The results are shown in table 4.2.

Table 4.2: Client factors influencing utilization of skilled delivery

Attributes	Frequency	Percentage
Deliver in health facility		
No	118	**33.1**
Yes	238	**66.9**
Able to financially access skilled delivery		
No	62	17.4
Yes	294	82.6
ANC visits		
2 - 3 times	89	25
More than 4	202	56.7
None	37	10.4
Once	28	7.9
Person deciding place of delivery		
Family member	66	18.5
Husband and wife	102	28.7
Husband/partner	64	18
Self	124	34.8
Husband supports skilled delivery		
No	196	55.1
Yes	160	44.9
Number of children		
1-4	242	68
5+	114	32
Place last child was delivered		
Clinic	64	18
Health center	69	19.4
Hospital	96	27
House	118	33.1
Maternity home	9	2.5
Labour onset		
Day	167	46.9
Night	189	53.1
Delivery experience		
Average	187	52.5
Bad	76	21.3
Good	93	26.1
Future use of skilled delivery		
No	39	11
Yes	317	89

4.3 Service provider factors influencing utilization of skilled delivery

The results suggest that 187 (78.6%) of all respondents ever received injection (oxytocin) during their last delivery, 209 (87.8%) received intravenous infusion, 211 (88.7%) received a blood pressure check and 219(92.0%) had a bed during and after their last delivery. In addition, 146 (61.3%) of the respondents confirmed that health providers were available during delivery, 128 (36.0%) of such deliveries were conducted by a midwife, 55(15.4%) were conducted by doctors, 55 (15.4%) conducted by nurses and 118 (33.1%) of the deliveries were conducted by relatives/ TBAs. About 114(47.9%) rated the attitude of health workers as good, another 97(40.8%) ranked as average quality and 27(11.3%) rated as poor. Additionally, 155 (43.5%) of respondents said the health center was far from their place of stay and 302(84.8%) had to travel for less than an hour to access skilled delivery service. Close to half 158 (49.5%) of the respondents rated the quality of counseling during ANC as normal quality, good quality 106 (33.2%) and only 55 (17.2%) rated counseling as poor quality. Similarly, the quality of counselling during delivery was rated by respondents as either good quality 82 (34.5%), normal 134 (56.3%), or poor quality22 (9.2%). Overall maternal health service was rated as good quality 100(30.6%), average 204 (62.4%), and poor 23 (7.0%). The results are indicated in table 4.3.

Table 4.3: Service provider factors influencing utilization of skilled delivery (Patient perspective)

Attribute	Frequency	Percent
Received injection (oxytocin) during last delivery		
No	51	21.4
Yes	187	78.6
Received intravenous infusion		
No	29	12.2
Yes	209	87.8
Received blood pressure check		
No	27	11.3
Yes	211	88.7
Given a bed during last delivery		
No	19	8
Yes	219	92
Health providers were available during delivery		
No	92	38.7
Yes	146	61.3
Person who assisted during delivery		
Doctor	55	15.4
Midwife	128	36
Nurse	55	15.4
Relative/ TBA	118	33.1
Health providers are supportive during delivery		
No	69	29
Yes	169	71
Rate of health providers attitude		
Average	97	40.8
Good	114	47.9
Poor	27	11.3
Health center /facility too far to access		
No	201	56.5
Yes	155	43.5
Travel time from home to health center		
Less than 1 hour	302	84.8
More than 1 hour	54	15.2
Quality of counseling during ANC		
Good quality	106	33.2
Normal	158	49.5
Poor quality	55	17.2
Quality of counseling during delivery		
Good delivery	82	34.5
Normal	134	56.3
Poor quality	22	9.2
Quality of maternal services provided		
Average	204	62.4
Good quality	100	30.6
Poor	23	7

4.4 Community factors influencing utilization of skilled delivery service

The study also assessed community related factors that influenced utilization of skilled delivery. Almost six in every ten, 212 (59.6%) of the respondents said the road network to the community health center was somehow accessible, 50(14%) said it was very accessible and 94 (26.4%) said the road network was not accessible. Means of access during health emergency, 318(89.3%) used vehicles, 10 (2.8%) used motorbikes and 28 (7.9%) accessed health center by foot. Almost all respondents 300 (84.3%) confirmed that the community allows hospital delivery and no cultural or traditional barriers exist to skilled delivery 350 (98.3%). The results are detailed in table 4.4.

Table 4.4: Community factors influencing utilization of skilled delivery

Attribute	Frequency	Percent
Nature of road network to health center		
Not accessible	94	26.4
Somehow accessible	212	59.6
Very Accessible	50	14
Means of health access during emergency		
By foot	28	7.9
Motor	10	2.8
Vehicle	318	89.3
Community allows hospital delivery		
No	56	15.7
Yes	300	84.3
Cultural/traditional barriers exist to skilled delivery		
No	350	98.3
Yes	6	1.7

4.5 Associations between socio-demographic characteristics and utilization of skilled delivery services

In testing the association between socio-demographic characteristics and utilization of skilled delivery service, only Educational level ($p<0.001$) of respondent was significantly related with the use of skilled delivery service. On the other hand, maternal age, marital status of

respondents, employment, occupation, level of family income, religious affiliation and residential status were all not significant (See Table 4.5).

Table 4.5: Associations between background characteristics and utilization of skilled delivery services

Variables	Skilled Delivery				
	No N (%)	Yes N (%)	Total N	chi	p-value
Age Group (in years)				0.8673	0.648
15 – 25	47 (36.2)	83 (63.8)	130		
26 – 35	57 (31.1)	126 (68.9)	183		
36 – 45	14 (32.6)	29 (67.4)	43		
Marital status of respondent				0.6771	0.411
Married	63 (31.3)	138 (68.7)	201		
Not married	55 (35.5)	100 (64.5)	155		
Level of Education				**35.1126**	**0.000**
Junior High	37 (28)	95 (72)	132		
Not educated	35 (66)	18 (34)	53		
Primary	20 (37.7)	33 (62.3)	53		
Senior High	19 (24.4)	59 (75.6)	78		
Tertiary	5 (16.7)	25 (83.3)	30		
Vocational/Technical	2 (20)	8 (80)	10		
Ethnicity of Respondent				9.1154	0.105
Akan	51 (26.8)	139 (73.2)	190		
Ewe	15 (45.5)	18 (54.5)	33		
Ga	3 (50)	3 (50)	6		
Guan	6 (50)	6 (50)	12		
Krobo	30 (36.1)	53 (63.9)	83		
Northern extraction	13 (40.6)	19 (59.4)	32		
Religious Affiliation of Respondents				1.6562	0.437
Christian	101 (32.1)	214 (67.9)	315		
Muslim	15 (42.9)	20 (57.1)	35		
Traditionalist	2 (33.3)	4 (66.7)	6		
Employment Status				1.4605	0.691
Full time	6 (25)	18 (75)	24		
Not employed	46 (35.9)	82 (64.1)	128		
Part-time	5 (38.5)	8 (61.5)	13		
Self employed	61 (31.9)	130 (68.1)	191		
Occupation of Respondents				1.5701	0.666
Civil servant	13 (26.5)	36 (73.5)	49		
Farmer	36 (36)	64 (64)	100		
Housewife	16 (36.4)	28 (63.6)	44		
Trader	53 (32.5)	110 (67.5)	163		
Level of Family Income				0.2146	0.898
Above Ghs 1000	7 (31.8)	15 (68.2)	22		
Between Ghs 500 and Ghs 1000	37 (34.9)	69 (65.1)	106		

Less than Ghs 500	74 (32.5)	154 (67.5)	228		
Residential status				0.1296	0.719
Rural	34 (31.8)	73 (68.2)	107		
Semi-urban	84 (33.7)	165 (66.3)	249		

4.6 Bi-variate analysis: Associations between client factors and utilization of skilled delivery service

Table 4.6 contains results on the association between client factors and utilization of skilled delivery. From the results, number of ANC visits (p<0.001) and number of children delivered (p<0.001) were significant. All other variables such as, ability to financially access skilled delivery, person deciding place of delivery, support from husband/partner, place last child was delivered, time of onset of labor and experience from previous delivery were not significantly related with the use of skilled delivery.

Table 4.6: Bi-variate analysis: Associations between client factors and utilization of skilled delivery.

Association between client factors	No- did not N (%)	Yes-delivered at facility N (%)	Total N	X^2	P VALE
Able To Financial Access Skilled Delivery				1.7449	0.187
No	25 (40.3)	37 (59.7)	62		
Yes	93 (31.6)	201 (68.4)	294		
Number of ANC visit in last pregnancy				**65.9090**	**0.000**
2 - 3 times	41 (46.1)	48 (53.9)	89		
More than 4	35 (17.3)	167 (82.7)	202		
None	29 (78.4)	8 (21.6)	37		
Once	13 (46.4)	15 (53.6)	28		
				0.2751	0.965
Person Deciding Place of Delivery					
Family member	23 (34.8)	43 (65.2)	66		
Husband and wife	32 (31.4)	70 (68.6)	102		
Husband/partner	22 (34.4)	42 (65.6)	64		
Self	41 (33.1)	83 (66.9)	124		
Husband Support Skilled Delivery				1.2635	0.261
No	60 (30.6)	136 (69.4)	196		
Yes	58 (36.3)	102 (63.7)	160		
Number of Children				**34.1417**	**0.000**
1-4	56 (23.1)	186 (76.9)	242		
5+	62 (54.4)	52 (45.6)	114		
Place Last Child was Delivered				356.0000	0.000
Clinic	0	64	64		
Health center	0	69	69		
Hospital	0	96	96		
House	118	0	118		
Maternity home house	0	9	9		
Time of Onset of Labour				0.0064	0.936
Day	55 (32.9)	112 (67.1)	167		
Night	63 (33.3)	126 (66.7)	189		
Experience of Last Delivery				5.1220	0.077
Average	68 (36.4)	119 (63.6)	187		
Bad	28 (36.8)	48 (63.2)	76		
Good	22 (23.7)	71 (76.3)	93		
Will you use skilled delivery in future				3.3443	0.067
No	18 (46.2)	21 (53.8)	39		
Yes	100 (31.5)	217 (68.5)	317		

4.7 Bi-variate analysis: Associations between service provider factors and utilization of skilled delivery service

Information in table 4.7 show the association between service provider factors as indicate by respondents and how they relate to utilization of skilled delivery service. Factors that were significant were only quality of counseling during ANC (p<0.026) and person who assisted in delivery (p<0.000), were significant. All other factors such as access to oxytocin, intravenous infusion, blood pressure check and access to bed during last delivery were not significant. Additionally, availability of health providers, support from health workers during delivery, health provider attitude, travel time from home to a health centre quality of counseling during delivery and quality of maternal service provided were all not significant variables.

Table 4.7: Bi-variate analysis: Associations between Service provider factors and utilization of skilled delivery

Attribute	No- did not N (%)	Yes – delivered at facility N (%)	Total N	X^2	P value
Received injection (Oxytocin) during last delivery				-	-
No	-	51	51		
Yes	-	187	187		
Received Blood Pressure Check				-	-
No	-	27	27		
Yes	-	211	211		
Given a Bed during Delivery				-	-
No	-	19	19		
Yes	-	219	219		
Health providers Availability				-	-
No	-	92	92		
Yes	-	146	146		
Person who assisted during delivery				356.0000	0.000
Doctor	0 (0)	55	55		
Midwife	0 (0)	128	128		
Nurse	0 (0)	55	55		
Relative/TBA	118	0 (0)	118		
Rate Of Health Providers Attitude				-	-
Average	-	97	97		
Good	-	114	114		
Poor	-	27	27		
Health Centre/Facility is too far to Access				0.1359	0.712
No	65 (32.3)	136 (67.7)	201		
Yes	53 (34.2)	102 (65.8)	155		
Travel Time from Home to Health Center				1.6569	0.198
Less than 1 hour	96 (31.8)	206 (68.2)	302		
More than 1 hour	22 (40.7)	32 (59.3)	54		
Quality of Counseling during ANC				**7.2997**	**0.026**
Good quality	28 (26.4)	78 (73.6)	106		
Normal	50 (31.6)	108 (68.4)	158		
Poor quality	26 (47.3)	29 (52.7)	55		
Quality of counseling during delivery				-	-
Poor quality	-	82	82		
Normal	-	134	134		
Good quality	-	22	22		
Quality of maternal services provided				4.7733	0.092
Good	60 (29.4)	144 (70.6)	204		
Average	20 (20)	80 (80)	100		
Poor	9 (39.1)	14 (60.9)	23		

4.8 Associations between community factors and utilization of skilled delivery service

From table 4.8, the results suggest that nature of road network (p<0.004) and means of health access during emergency (p<0.030) were significant variables. The existence of cultural/traditional barriers to skilled delivery and whether community allows hospital delivery were all not significant.

Table 4.8: Bi-variate analysis: Associations between Community factors and utilization of skilled delivery

Association Between Community Factors	No - didnot N (%)	Yes- Delivered at facility N (%)	Total N	X^2	P value
Road				**10.8995**	**0.004**
Not accessible	44 (46.8)	50 (53.2)	94		
Somehow accessible	61 (28.8)	151 (71.2)	212		
Very Accessible	13 (26)	37 (74)	50		
Means of Health Access During Emergency				**7.0201**	**0.030**
By foot	11 (39.3)	17 (60.7)	28		
Motor	7 (70)	3 (30)	10		
Vehicle	100 (31.4)	218 (68.6)	318		
Community Allows Hospital Delivery				0.5685	0.451
No	21 (37.5)	35 (62.5)	56		
Yes	97 (32.3)	203 (67.7)	300		
Cultural / Traditional Barriers Exist to Skilled Delivery				3.0258	0.082
No	118(33.7)	232 (66.3)	350		
Yes	0 (0)	6	6		

4.9 Logistic regression: Predictors of utilization of skilled delivery

A multiple logistic regression model was also built to test the strength and direction of the association between the outcome variable and independent variables. The model was also used to control for confounders and included all variables that were significant at $p<0.05$ during the chi-square test. The results suggest that compared with the women who were not educated, women who had Junior High education had four times higher the odds of using skilled delivery (OR 4.474 Cl: 1.746 -11.469), Senior High education had five time higher odd (OR 5.551 Cl: 1.968 -15.656), tertiary educated women were nine times higher the odds (OR 9.374 Cl: 2.036 -43.155) and women who were educated up to vocational/ technical level were ten times more likely to use skilled delivery services (OR 10.495 Cl: 1.007 -109.367).

Comparing respondents who attended ANC with those who had no ANC visits at all, those who had more than 4 ANC visits (AOR 12.971 Cl: 4.489 – 37.481) had twelve times higher odds and those who made two to three ANC visit (AOR: 3.054 Cl: 0.998 -9.341) had three times higher odds of accessing skilled delivery services compared with those who had not attended ANC.

The results further suggest that women who had five or more children (AOR 0.305 Cl: 0.157-0.591) had 69.5% less odds of using skilled delivery services compared with those who had between one and four children. In addition, having a poor quality of counselling at ANC was found to have 60% decrease odds (COR 0.400 Cl: 0.202-0.793) of accessing skilled delivery services as compared with having a good quality ANC counselling.

The road network was found to be significantly associated with accessing skilled delivery services. Respondents who perceived the nature of road to be very accessible were found to increase the odds of using skilled delivery services by up to five times (OR 5.327 CI: 1.739 –

16.317) as compared with those who said the road were not accessible. Means of transport during emergencies was not found to be significantly associated with accessing skilled delivery services when the logistics regression model was applied. The results are found in table 4.9.

Table 4.9: Multiple logistic regression: Predictors of utilization of skilled delivery service:

Variable	COR	P > z	[95% CI]	AOR	P > z	[95% CI]
Education						
Not educated	(Ref)			(Ref)		
Junior High	4.992	**0.000**	2.52 - 9.891	4.474	**0.002**	1.746 - 11.469
Primary	3.208	**0.004**	1.449 - 7.103	2.779	0.059	0.961 - 8.037
Senior High	6.038	**0.000**	2.8 - 13.02	5.551	**0.001**	1.968 - 15.656
Tertiary	9.722	**0.000**	3.185 - 29.674	9.374	**0.004**	2.036 - 43.155
Vocational/Technical	7.778	**0.015**	1.493 - 40.518	10.495	**0.049**	1.007 - 109.367
ANC visits						
None	(Ref)			(Ref)		
2 - 3 times	4.244	**0.001**	1.748 - 10.301	3.054	**0.050**	0.998 - 9.341
More than 4	17.296	**0.000**	7.295 - 41.012	12.971	**0.000**	4.489 - 37.481
Once	4.183	**0.009**	1.422 - 12.304	3.985	0.052	0.988 - 16.073
Number of children						
1-4	(Ref)			(Ref)		
5+	0.253	**0.000**	0.157 - 0.406	0.305	**0.000**	0.157 - 0.591
ANC Counsel						
Good quality	(Ref)			(Ref)		
Normal	0.775	0.362	0.449 - 1.339	0.711	0.343	0.352 - 1.438
Poor quality	0.400	**0.009**	0.202 - 0.793	0.495	0.130	0.199 - 1.23
Road						
Not accessible	(Ref)			(Ref)		
Somehow accessible	2.178	3.040	1.318 - 3.601	1.736	0.120	0.866 - 3.483
Very Accessible	2.505	2.400	1.182 - 5.306	5.327	**0.003**	1.739 - 16.317
Access in emergency						
By Foot	(Ref)			(Ref)		
Motor	0.277	0.105	0.059 - 1.307	0.174	0.086	0.024 - 1.280
Vehicle	1.411	0.396	0.637 - 3.122	1.024	0.964	0.371 - 2.829

4.10 Summary of the chapter

The chapter presented the various statistical analysis done. First presented the demographic characteristic of respondents, followed by chi - square analysis to test for association between variable and finally bivariate and logistics regression analysis to detect the strength of association on variables that were significant. The next chapter discuss the result and it relation to literature.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Introduction

This chapter presents the analysis of the findings of the study in relation to extant literature. There are four sections in the chapter.

5.1 Proportion of clients who delivered with a skilled birth attendant

From the study, it was found that 67% of women delivered with a skilled birth attendant, most of whom delivered in hospitals. Similarly, a report from the Ghana Maternal Health Survey also found the proportion of women using skilled delivery services in rural Ghana to be 68% (Ghana Statistical Service (GSS)/Ghana Health Service (GHS)/ICF International, 2018). This value was also found to be statistically similar to what was found in this study. Another research done in the Jomoro district found out that, 61.6% of women use skilled delivery services (Nyarko, 2017). This value was statistically similar to what was found in this study. The similarity between the two studies could be because both studies were carried out in rural areas in the same country.

Contrary to this study, another research done in the Brong Ahafo region found the proportion of women who delivered with a skilled birth attendant to be 58% (Nesbitt et al., 2016). This value was statistically different from what was found in this study. This difference could be a result of the differences in the study area and the time interval between the two studies. Another research done in Uganda reported that 58% of women accessed skilled delivery services (Anastasi et al., 2015). Also, another study carried out in Kenya found a high proportion of women were likely to use skilled delivery services. The study found out that about 94.8% of the

women were likely to use skilled delivery services (Nyongesa et al., 2018). The difference in the proportion found in the current study and the Kenyan study could be attributable to the difference in the countries in which the researches were carried out and the mode of data collection. For example, the Kenyan study used secondary data, unlike this study which used primary data. Also, Molindi, Ngari and Mbakaya (2016) found in Kenya that 74% of their respondents accessed skilled delivery services. This value was statistically different from what was found in this study.

5.2 Client factors influencing utilization of skilled delivery

The results from this study suggested that 51.4% of respondents were between age 26 and 35 years. This finding agrees with studies conducted elsewhere among a similar population which suggested that maternal age is an important predictor for uptake of skilled delivery services (Racape, Schoenborn, Sow, Alexander, & De Spiegelaere, 2016)**.** This is however, in contrast with previous studies where most of the respondents were between ages 35 and 45 years (Henshall, Taylor, & Kenyon, 2016).

Overall, maternal education was observed as an important factor that influences women's decision on the use of health facility for birth. Educational level of respondents from the study that is junior high, senior high, tertiary as well as vocational/technical education were found to be significantly associated to the use of skilled delivery.

This is similar to results from a study in Kenya which found out that educational level primary education and above and ANC visit had strong association to skilled delivery utilization (Nyangesi, Hall, 2018). Studies available also suggest that women without secondary school-level education are likely not go to deliver in a health-care institution (Dhakal *et al*., 2011).

Results from this study showed that women having 5 or more children were less likely to use skilled delivery. This results is comparable to results from studies conducted which stated that mothers who have given birth to 3 or more children were more likely to give birth at home compared to those who are giving birth for the first time (Gurung et al., 2018). This is also similar to a study in India that showed that skilled delivery is common for first births compared to subsequent births (Kesterton et al., 2010). Moyer & Mustafa (2013), have also reported that the number of children of a woman has and their birth order can greatly determine a woman's decision to access subsequent skilled delivery service. This could be as a result of multiparous women relying on themselves having perceived maternity experience and confidence thus the less likelihood of utilizing skilled delivery as compared to first time mothers (Adjei, 2015).

ANC attendance was found to be significantly associated with the use of skilled delivery ($p<0.001$). A similar situation was reported in research done in rural Ghana (Gudu & Addo, 2017). They found that ANC attendance, frequency of ANC visits were some of the factors that were associated with the use of skilled delivery services. This similarity could be because both studies were done in largely rural parts of the same country.

About 17.3% of the women who attended ANC for more than four times did not use skilled delivery services ($p<0.001$). This finding was similar to another research in which a fifth of the women who attended ANC at least four times during their pregnancy did not use skilled delivery services (Magoma et al., 2010).

5.3 Service provider factors influencing utilization of skilled delivery

Essential services, including drugs provided to mothers during pregnancy and after delivery are important determinants to the use of skilled delivery services among women. In the current study, 78.6% of respondents who used skilled delivery ever received an injection and 88.7%

reported that their blood pressure was checked during or after delivery. Also from the study 89% of the respondents indicated that they will use skilled delivery in the future. Also, 84.7% of women who delivered at home confirmed they will choose to use skilled delivery in the future instead. A woman's access to essential services during delivery are likely to determine their future use of skilled delivery services.

In earlier studies, findings were suggestive that almost all women who delivered had received one form of injection or the other (Onah *et al.*, 2014). Similar studies concluded that mothers who received injections and other essential services were more likely to use skilled delivery (Jiang *et al*., 2016). This finding was possible because most women who had their blood pressure cheeked or other essential services assumed maternal health service to be of quality and would repeat the practice of using skilled delivery service in future. Another study in Ethiopia found that women prefer facilities where medicines and supplies are available (Beam, *et al.,* 2018).

In the current study, 92% of women who used skilled delivery had access to beds during delivery and this significantly associated with their use of skilled delivery services. This is not in agreement with studies conducted among a similar population on maternal health exemptions where most mothers had access to beds during delivery but subsequently delivered at home (Witter et al., 2009). This may be because if mothers do not consider other services as important or satisfactory, revisiting the facility for skilled delivery may be limited. The results further suggested that 42.4% of the respondents had access to healthcare providers at the time of delivery in a health facility**,** this significantly linked with their use of skilled delivery services. In studies conducted in Uganda (Tweheyo *et al*., 2010) and Zambia (Henry *et al*., 2017), the importance of access to healthcare providers during ANC and delivery were found to significantly influence utilization of skilled delivery services. Contrary to findings of this study,

only a quarter of respondents in previous studies had access to healthcare providers (Borghi, Ensor, Neupane, & Tiwari, 2006).

This study also found out that mothers who received counseling during ANC would choose to use skilled delivery services depending on how well the counselling went. Women who felt the counseling given at ANC was bad had lower odds of going for skilled delivery compared to those who felt the counselling was good. This finding concurs with what was found in another study which suggests that providing birth preparedness plan during ante-natal counseling is a factor that improves the use of skilled delivery services (Miltenburg, Roggeveen, Roosmalen, & Smith, 2017).

In a study done in Ethiopia, it was established that, comprehensive counseling during ANC subsequently resulted in the use of the services of skilled birth attendants by the women who received these counsels (Belda & Gebremariam, 2016). Similarly, this research found that ANC counseling was a significant factor that was associated with the use of skilled delivery services ($p< 0.026$)

5.4 Community factors influencing utilization of skilled delivery service

The study also assessed the community related factors that influence skilled delivery services among mothers. In several studies, the impact of community factors had been outlined to determine utilization of skilled delivery services. In the current study the respondents confirmed that the road access to the health centre was motorable. The road network in the current study was significant determinant of utilization of skilled delivery service ($p< 0.004$), studies had reported the relevance of road access to the outcome of maternal health and skilled delivery (Kitui *et al*., 2017; Nakua *et al*., 2015).

The importance of physical access to health care was considered paramount and almost universally accepted as a contributor to the utilization of maternal health services. Overall, 89.3% of the respondents used vehicles to access health care services during an emergency. Even though the means to healthcare service in emergency situations was not significant with logistics regression, it showed association with mothers' use of skilled delivery services (p<0.030). In other studies, only 42% of respondents had access to vehicles during emergency health situations (Henshall *et al*., 2016), but contrary findings from other studies suggest that this did not influence the utilization of skilled delivery services among women (Shimazaki, Honda, Dulnuan, Chunanon, & Matsuyama, 2013). Meanwhile, access to vehicle was considered important in providing healthcare service and this could explain why other studies had found this relevant.

5.5 Summary of the chapter

The chapter discussed the results of the survey, including associations found using chi square tests and their strengths found using binary linear logistic regressions and multiple logistic regressions. Predictors that could influence the use of skilled birth attendants were educational level of the woman, parity, the number of ANC visits, and quality of counselling at ANC and the road network to the nearest health facility.

The next chapter provides some summary, conclusions, contribution to knowledge, recommendations for action including policy and further Research.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This chapter presents the summary, conclusions, recommendations, limitations to the study and future research.

6.1 Summary of the study

This chapter presents the summary of the study based on the general objectives. Skilled delivery services utilisation is known to be an important intervention to reduce maternal deaths (Sakeah *et al*., 2014). This study sought to assess factors that influence utilization of skilled delivery services. To achieve this objective, a community based quantitative cross sectional study was conducted and a multi stage sampling employed to select respondents.

A structured questionnaire was administered to mothers who had children within one year of delivery preceding the study. Descriptive and analytical statistics were used to analyze the data. Generally, the study concluded that 66.9% of the respondents were found to have used skilled delivery. Major factors identified to have influenced skilled delivery were the level of education of the woman, parity, the number of ANC visits, quality of counselling at ANC and the road network.

6.2 Conclusions of the study

This section presents the key conclusions of the study based on the specific objectives as explained below.

6.2.1 Proportion of women who delivered in health facilities.

The study revealed that about three- thirds (66.9%) of women used skilled delivery services in health facilities in the Fanteakwa district, which was a little below the national maternal health survey report, which found that 68% of women in rural areas delivered in health facilities (GSS, GHS & ICF., 2018).

6.2.2 Client factors influencing utilization of skilled delivery

The study showed that educational level of a women had a significant association with the use of skilled delivery. This finding was in-line with another study which suggests that women without secondary school-level education are likely not go to deliver in a health-care institution (Dhakal *et al*., 2011).

The study also concludes that ANC visits, that is women attending ANC more than four times, were significant in predicting the use of skilled delivery service. This is in line with studies that showed that the number of ANC attendance influence a woman's decision to deliver in the health centre (Abebe *et al*., 2016)

6.2.3 Service Provider Factors Influencing Utilization of Skilled Delivery

The study argues that most mothers had access to essential services, including blood pressure status check and having access to a bed during delivery.

Quality of counselling at ANC was found to be a significant determinant of the use of skilled delivery services. The study found out that, women who had bad counselling during their ANC visits were less likely to use the services of a skilled birth attendant compared with those who had good counselling during their ANC visits. This finding was similar to what was found in a research done in Ethiopia which showed that comprehensive counselling at ANC resulted in the use of skilled birth attendants (Belda & Gebremariam, 2016).

6.2.4 Community factors influencing utilization of skilled delivery service

In the current study seven in every ten (46.8%) of the respondents confirmed that the road access to the health centre was not motorable. This was found to predict their use of skilled delivery services (p<0.004). In agreement with the findings in this study, other studies have reported the relevance of road access to the outcome of maternal health and skilled delivery (Kitui *et al*., 2017; Nakua *et al*., 2015).

6.3 Contributions to Knowledge

The findings of this study made some relevant contribution to policy and practice, management of healthcare institutions and methodology. These have been explained below.

6.4 Contribution to policy and practice

This study contributes to policy in the sense that, policy makers and implementers will have to take a second look at the implementation of the free maternal health care services policy (Dalinjong, Wang, & Homer, 2018)**.** Policy makers should reinforce the policy as free and to cover all services in all facilities to enable women have access to affordable healthcare.

The Minister of health should have a policy to train TBAs at the district level since their training will help them better manage maternal health services and refer women to trained healthcare providers.

The Ministry of Education should ensure that all women have at least basic level of formal education.

6.5 Contribution to Management of healthcare institutions

The study has demonstrated that availability of essential services significantly influenced skilled delivery use. The study recommends that management of healthcare institutions should attempt to enhance access to basic essential obstetric emergency drugs and supplies, at all levels, as well as help assure quality of service provision.

- The study revealed that the frequency of ANC visits were predictors for women to deliver with skilled birth attendants. Therefore, there is the need for management of healthcare institutions to develop strategies that aim at intensifying a focused ANC.
- There was the need for counseling on birth preparedness plan at ANC, for women to decide in advance where to deliver.
- Train health workers on counselling skills for them to be able to provide better counsel on the obstetric need of women.
- The District Health Management Team (DHMT) should organize community durbars to educate women on the importance of ANC attendance and skilled delivery to both mother and baby.

6.5.1 Contribution to methodology

The cross sectional strategy used by the researcher has helped to quantify the factors that influence the problem/skilled delivery, thus a contribution to methodology. It also helped to collect data from a larger population that could be a representative of the entire district. The multistage sampling method employed in the study allowed women in each community to have an equal chance of participation. It was flexible, cost and time effective and was able to solicit information from women in different sub-districts.

The analysis used also helped to detect the strength of association between the independent variables and the outcome variable, which helped to predict the factors that influenced skilled delivery utilization. The study will be added to the number of research that have been done to bring more attention to quality of skilled delivery in the healthcare system.

The report of the study can be used as a reference for future researches.

6.6 Recommendations

Taking account of the findings of this study, the following recommendations are made:

Considering that close to a third (33.1%) of women still delivered at home, it is recommended that programs, which include education on the importance of skilled delivery service to both mother and child should be championed at earlier stages of pregnancy and should be a home based education.

Generally, the quality of counseling during ANC and before delivery was considered by respondents to be of poor quality. The study therefore, recommends that health workers and other service providers are taken through in-service and induction training on patient counseling on maternal health and skilled delivery services.

The District Chief Executive should ensure accessibility to healthcare facilities by way of making it easier for transportation into these facilities; and in case of emergencies, provide community ambulances.

The Minister for Health should have a policy to train TBAs at the district level since their training will help them better manage maternal health services and refer women to trained healthcare providers.

6.7 Limitations to the study

Using the structured questionnaire alone to elicit information from women about their views of skilled delivery service might have impaired the clients' ability to explicitly express their feelings about the study. This implies that further qualitative study might be required to supplement preliminary quantitative work. Secondly, the study focused on clients' perspectives but did not seek health providers' view on the issue. This made it difficult to establish the quality of the services from providers' perspectives.

6.8 Future Research

The study recommends that future research should use qualitative research methods to assess views of women on barriers to the utilization of skilled delivery services.

The research also recommends that the current research be extended to other regions and to cover other study populations on the use of skilled delivery services. Furthermore, the study also recommends that future studies be conducted on the activities of TBAs and the effects on maternal healthcare.

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APPENDICES

APPENDIX A: PARTICIPANT INFORMATION SHEET

Title: Factors Influencing Utilization of Skilled Delivery Services in Fanteakwa District, Eastern Region.

Institution: University of Ghana, School of Public Health, Department of Health Policy, Planning and Management.

Background

Dear participant, my name is Margaret Nyarko. I am a student from the School of Public Health, University of Ghana, Legon. The purpose of the study is to assess the factors influencing skilled delivery services in the Fanteakwa District. This will guide the district health director in the quest to improve quality of maternal health care.

Procedure

Women of reproductive age (15 to 45 years) will be interviewed and appropriate information recorded on their use of skilled delivery services (January to December 2017)

Potential risks and benefits

The procedure is non-invasive and therefore it does not pose any known risk or discomfort to participants. The participant will only be asked to fill a questionnaire which will take about 20 minutes to complete. However, any participant who feels uncomfortable about the study process has the right to stop the process.

Right to refuse

Participating in the study is absolutely voluntary. You are at liberty to refuse to answer any question or withdraw from the study at any time without any consequences. Participation is encouraged since it allows your health needs to be known.

Data storage and use

Data gathered will be stored in folder with a protected password on a microcomputer. Any hard copy will safely kept to prevent other people from having access to it.

Privacy and confidentiality

Any observation made and information recorded would be respected and kept confidential. Information recorded would be used purposely for the study.

Ethical approval

This study has been approved by the ethical review board of Ghana health services.

NB: Are there any questions you may wish to ask before consenting to the study? If yes, indicate below

……

……...

APPENDIX B:

CONSENT FORM

I ……, declare that the purpose, procedures', risks and benefits have been explained thoroughly to me. All questions and doubts have been answered and I have understood. I hereby agree to participate.

…… ……..

(Signature/thumbprint of participant) (Date)

I verify that the purpose, procedures', risk and benefits have been explained thoroughly to the participant. All questions and doubts have been answered and participant has understood. The participant has willingly agreed to part-take in the study.

…… ……

(Signature of interviewer) (Date)

Margaret Nyarko

School of Public Health.

P O Box LG 13

Legon

Tel no: 0244417062/ 0502757649

You can also contact the researcher for any further clarification on the above address.

Or

Ms. Hannah Frimpong

The Administrative Secretary

Ghana health Service,

Ethical Review committee

Tel no: (0507041223 024323522

APPENDIX C: DATA COLLECTION TOOLS / QUESTIONNAIRE

UNIVERSITY OF GHANA

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

(Department of Health Policy Planning and Management)

The researcher is a student of the School of Public Health pursing Masters in Public Health program and conducting a survey on "Factors Influencing Utilization of Skilled Delivery Services in Fanteakwa District". Kindly respond to the following questions accordingly. Your responses will be appreciated and treated with confidentiality.

APPENDIX III: DATA COLLECTION TOOLS / QUESTIONNAIRE

SECTION 1: TO BE COMPLETED BY INTERVIEWER [for office use]

SECTION 1: TO BE COMPLETED BY INTERVIEWER [for office use]			
Q001	Questionnaire Number	☐☐☐	
Q002	Date of interview	..../..../..... dd/mm/yyyy	
Q003	Name of Interviewer	…….	
Q004	Language in which interview is conducted	English Ga adangbe Twi Ewe Krobo Others, specify……	1 2 3 4 5 6

SECTION A: Socio-Demographic Information on Respondent

NO.	QUESTIONS AND FILTERS	CODING CATEGORY	
Q1	How old are you? (Age in completed years)		☐☐
Q2	What is your current marital Status?	Married Not Married	1 2
Q3	What is the highest level of education completed?	Not educated Primary Junior High Senior High Voc./Technical Tertiary	1 2 3 4 4 6
Q4	Ethnicity?	Akan Ga Krobo Guan Ewe Northern extraction Others, specify…… …	1 2 3 4 5 6 7
Q5	What is your religious denomination?	Christian Muslim Traditional Others……	1 2 3 4
Q6	What is your employment status?	Full time Part time Not employed Self employed	1 2 3 4
Q7	What is your occupation?	Civil servant Farmer Trader House wife	1 2 3 4
Q8	What is your family's total earnings?	Less than Ghs 500 Between Ghs 500 and 1000 Above Ghs 1000	1 2 3
Q9	Place of residence?	Semi- Urban Rural	1 2
Q10	Did you deliver at the health facility?	Yes No	1 2

SECTION B: Client Factors Influencing Utilization of Skilled Delivery Services

Q11	Are you able to financially access skilled delivery services?	Yes No	1 2
Q12	How many times did you attend ANC during your last pregnancy?	Less than 4 more than none	1 2 3
Q13	Who decides where to deliver or access ANC services?	Self Husband/ partner Husband and wife Family member	1 2 3 4
Q14	Do you have your husband's support to use skilled delivery service?	Yes No N/A	1 2 3
Q15	How many children do you have?	1-4 +5	1 2
Q16	Where did you deliver your last child	Clinic/ CHPS Health center Hospital Maternity home House/TBA	1 2 3 4 5
Q17	What time was the onset of the labor?	Day time Night N/A	1 2 3
Q18	How would you describe your experience with the previous delivery?	Good Average Bad N/A	1 2 3 4
Q19	Would use skilled delivery with subsequent pregnancy?	Yes No	1 2

SECTION C: Service Provider factors influencing utilization of skilled delivery (patient perspective)

Please skip Q 20 to 25 if answered No to Q 10

Q20(a)	Did you receive any of these drugs and supplies during and after delivery? (oxytocin)	Yes No	1 2
Q20 (b)	Did you receive any of these drugs and supplies during and after delivery? (intravenous infusion)	Yes No	1 2
Q20 (c)	Was your blood pressure checked during and after delivery?	Yes No	1 2
Q21	Did you get a bed during and after delivery	Yes No	1 2
Q22	Were the health providers (Midwife, Doctor, Nurses) available when you went got there to deliver your baby?	Yes No	1 2
Q 23	Who assisted you during delivery	Midwife Doctor Nurses	1 2 3
Q24	Are the Health Providers helpful and supportive in providing delivery service?	Yes No	1 2
Q25	How would you rate the attitude of health providers?	Good Average Poor	1 2 3
Q 26	Would you say the health centre is too far to access for delivery?	Yes No	1 2
Q27	How long did you take to get to the nearest health facility	Less than 1 hour More than 1 hour	1 2
Q28	How would you rate the quality of counselling provided during ANC (Identifying danger sign and birth preparedness)	Good quality Normal Poor quality	1 2 3
	Please skip question 29 you answered No to Q 10		
Q29	How would you rate the quality of counselling provided during and after delivery (counseling on the care of mother and baby)	Good quality Normal Poor quality	1 2 3
Q30	How would you rate the overall quality of maternal health service provided, (ANC, deliver &, postnatal)?	Good Average Poor	1 2 3

SECTION D: Community factors influencing utilization of skilled delivery (patient perspective)

Q31	How will you describe the road network to health centers?	Very accessible Somehow accessible Not accessible	1 2 3
Q32	How do you get to the health facility in case of emergency or referral?	Vehicle Motor By foot	1 2 3
Q33	Do your community allow women to go to the hospital to deliver their baby?	Yes No	1 2
Q34	Are there cultural/traditional barriers that hinder access to skilled delivery?	Yes No	1 2

Thank you for your participation.