FACTORS INFLUENCING UTILIZATION OF INSTITUTIONAL DELIVERY IN
THE OKAIKOI SUB-METRO OF THE GREATER ACCRA REGION

BY

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HEALTH DEGREE

JULY, 2018
DECLARATION

I declare that, apart from references made to works done by other authors which have been duly acknowledged, this work was independently done by me under supervision. I further declare that this work has not been submitted for the award of any degree in this University or elsewhere.

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(SUPERVISOR) .................................................. ..............................

SIGNATURE  DATE
DEDICATION

This dissertation is dedicated to the following dear ones: My supporting parents Mr. Joseph Ayerh and Mrs. Dora Ayerh; to my affectionate husband Dr. Richard Doe and our precious children Florentia, Philip and Alisha Doe; my brother and sister, in-laws and friends especially Paul Beson and loved ones whose contributions were invaluable to the success of this work.

I also dedicate it to the lovely members of my study group of the 2018 regular MPH class who assisted in diverse ways to make this work and my studies in general successful. Finally, to the members of ICGC Christ Temple and FGBMFI-Korle-Bu Chapter, I want to express my sincere appreciation for their spiritual support and guidance.
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<table>
<thead>
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<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ANC</td>
<td>Antenatal Care</td>
</tr>
<tr>
<td>BEmOC</td>
<td>Basic Emergency Obstetric Care</td>
</tr>
<tr>
<td>CEmOC</td>
<td>Comprehensive Emergency Obstetric Care</td>
</tr>
<tr>
<td>CWC</td>
<td>Child Welfare Clinic</td>
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<tr>
<td>DHMIS</td>
<td>District Health Management Information System</td>
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<tr>
<td>GDHS</td>
<td>Ghana Demographic and Health Survey</td>
</tr>
<tr>
<td>GHS</td>
<td>Ghana Health Service</td>
</tr>
<tr>
<td>GMHS</td>
<td>Ghana Maternal Health Survey</td>
</tr>
<tr>
<td>GSS</td>
<td>Ghana Statistical Service</td>
</tr>
<tr>
<td>LMIC</td>
<td>Low and Middle Income Country</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
</tr>
<tr>
<td>MMR-</td>
<td>Maternal Mortality Rate</td>
</tr>
<tr>
<td>SBA</td>
<td>Skilled Birth Attendant</td>
</tr>
<tr>
<td>SDG</td>
<td>Sustainable Development Goal</td>
</tr>
<tr>
<td>SSA</td>
<td>Sub-Saharan Africa</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
<tr>
<td>TBA</td>
<td>Traditional Birth Attendant</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
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<td>WHO</td>
<td>World Health Organization</td>
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DEFINITION OF TERMS

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

Institutional delivery: A delivery occurring in a health facility under the supervision of a trained and competent health personnel where there are availability of medical equipment and technology to handle complication and save the lives of both mother and baby.

Maternal mortality rate: This is the number of maternal deaths per 100,000 women in the 15-49 age group.

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

Skilled care: Care provided to a woman and her newborn during pregnancy, childbirth and immediately after birth by an accredited and competent health care provider who has at her/his disposal the necessary equipment and the support of a functioning health system, including transport and referral facilities for emergency obstetric care.

Traditional birth attendant (TBA): A community-based provider of care during pregnancy and childbirth.
ABSTRACT

Introduction: The place pregnant women choose to deliver is considered an important factor which has the potential to affect the health and well-being of the mother and the newborn. Obstetric care from a health professional during delivery is perceived as basic for the reduction of maternal and neonatal mortality. This is because evidence from research shows that most maternal deaths and obstetric complications cannot be easily predicted and occur around the time of delivery.

Objective: The objective of the study was to assess factors influencing utilization of institutional delivery among women in the Okaikoi Sub-metro of the Greater Accra Region.

Methods: A facility based analytical cross-sectional study involving 212 proportionately sampled mothers who had delivered within the past 1 year before the study (March 2017-February 2018) and were accessing selected postnatal clinic within the Okaikoi sub-metro were used. Data was collected using a validated standardized questionnaire and analysed using proportions, Pearson’s and Fisher’s exact chi-square test and simple and multiple logistic regression. The software used in the data analysis was STATA version 15.

Results: Findings from the study indicated a high proportion (90.1%) of the mothers utilized institutional delivery, while (9.9%) of them delivered at home. Factors associated with institutional delivery included partner’s educational level, marital status, possession of valid NHIS, birth place decision maker, perception of difficulty in delivering at home and perception of cost of delivery in a health facility.

Conclusion: The study showed that the use of institutional delivery among mothers assessing Child Welfare Clinic (CWC) in the Okaikoi Sub-metro was high and some of the factors that influenced it include; Women’s autonomy in decision making, Possession of valid NHIS card, partner support in pregnancy, cost of delivery, marital status and birth place decision maker. This study has shown that the utilization of institutions for delivery by mothers
assessing CWC in the Okaikoi sub-metro was influenced by interplay of economic and socio-cultural factors.
CHAPTER ONE

INTRODUCTION

1.1. Background

Globally, it was estimated that 289,000 maternal deaths occurred in 2013. This gives a maternal mortality rate (MMR) of 210 maternal deaths per 100,000 live births, of which, developing countries accounted for 99% (286,000) (Kebede et al., 2016). Most developing countries could not attain the Millennium Development Goal (MDG) five target to reduce maternal deaths by three-quarters between 1990 and 2015 (Enuameh et al., 2016). An estimated 66% of the global maternal mortality is attributed to Sub-Saharan African (SSA) countries (Sakeah et al., 2017). Current estimates from the WHO puts Ghana’s MMR at 319 maternal deaths per 100,000 live births (WHO, 2015; Gudu & Addo, 2017), falling short of MDG 5 target of 185 per 100,000 (Ghana Statistical Service, 2015).

Women who deliver in health facilities are in a better position to receive care and supervision of the delivery by a skilled birth attendant which has a positive outcome on the survival of the mother and baby (Feyissa & Genemo, 2014). This is evidenced from research indicating that most maternal morbidity and obstetric complications occur around the time of delivery which is not easily predictable (Kinney et al., 2010). As a result, the delivery day is described potentially as a high-risk day for both the mother and the baby (WHO, 2016). Hence, the care given to a woman at the time of delivery and in the immediate hours following delivery has vital health implications for both the mother and baby (Hagos et al., 2014). Institutional delivery is one of the proven and widely recognized interventions to prevent maternal mortality. It enables women to receive basic obstetric care, neonatal care, facilitate postpartum care and emergency care leading to improved, maternal and neonatal health.
outcomes (Crissman et al., 2013; Kirkwood 2012). As a result, WHO recommends and encourages all pregnant women to seek facility-based delivery (Moyer et al., 2014). However, institutional delivery continues to remain low in many low and middle-income countries (LMIC) including Ghana (Agha & Carton, 2011; Hagos et al., 2014). Improving the health of mothers through well-organized institutional delivery service is central to achieve reduced maternal and child morbidity and mortality (MDG 4 & 5).

Evidence shows that maternal health care service utilization varies between developed and developing countries. An estimated 97% of the pregnant women in developed countries receive ANC with almost all births (99%) using skilled obstetric service during delivery. Developing countries, on the other hand have only 52% of pregnant women having made four or more ANC visits during their pregnancy with skilled health personnel attending to 68% of deliveries in 2012. In Sub-Saharan Africa, only 53% of women have skilled delivery attendance, this is the lowest coverage of skilled delivery service utilization (UN, 2014).

Kidanu, Degu, & Tiruye, (2017) found that more than 20 million women worldwide become pregnant annually, and about 15% of whom are likely to develop complications. The risk of death from complications relating to pregnancy and childbirth over the course of a woman’s lifetime is higher in the developing countries compared to the developed world which is one in 76, and one in 8000 respectively. Therefore, women are encouraged to deliver their babies in health facilities as a strategy to improve maternal health outcomes (Laurel et al., 2007; Elizabeth et al, 2009; Assfaw, 2010).

In Sub-Saharan Africa (SSA), the probability of a woman dying from pregnancy-related causes is one out of 39 but that of high-income countries is as low as 1 in 3700 (UNICEF,
About three-quarters of all maternal and perinatal deaths in Sub-Saharan Africa occur at the time of delivery and the immediate hours following post-partum (Enuameh et al., 2016). These deaths are attributed to preventable causes such as sepsis, obstructed labor, eclampsia, and post-partum hemorrhage (United Nations Population Fund, 2014). However, when a woman receives skilled care and assistance during delivery from a skilled birth attendant (SBA) such as basic obstetric care, neonatal care, and emergency care, the likelihood of maternal and neonatal deaths are largely minimized and leads to improved, maternal and neonatal health outcomes (Moyer et al., 2014).

A skilled birth attendant (SBA) as defined by the WHO is “an accredited health professional such as a midwife, doctor or nurse who has been educated and well trained in the skills needed to manage normal (uncomplicated) pregnancies, childbirth, and the immediate postnatal period, and in the identification, management and referral of complications in women and newborn” (World Health Organization, 2004). Skilled birth attendance (SBA) is noted to be associated with a decrease in maternal and perinatal deaths as well as improved outcome relative to maternal and perinatal health (Anyait, Mukanga, Oundo, & Nuwaha, 2012). Therefore, as the delivery process is unpredictable and can result in unexpected complications (Enuameh et al., 2016), institutional delivery is crucial to enable women receive care from a well-trained health personnel who are regularly present in health institutions (Penfold, Harrison, Bell, & Fitzmaurice, 2007; Wang, Alva, Wang, & Fort, 2011).

It is predictable that receiving care from a skilled attendant during labor, delivery and the initial post-partum period might contribute in reducing maternal deaths by an estimated 13-33% (Baral, Lyons, Skinner, & Van Teijlingen, 2010). However, in SSA countries, including
Ghana, studies have revealed that there is often low institutional delivery, despite high use of antenatal care services (Hasanpoor-Azghdy et al., 2013; GSS, 2011; WHO, 2014). Current data shows that in Ghana, the proportion of births attended by skilled health personnel is only 71% as compared to 100% in Argentina and 94% in South Africa (WHO, 2017). The Ghana Maternal Health Survey (2017) found that skilled birth delivery for the country was 69% and 91% for rural and urban area respectively. Several programs have been designed in Ghana towards increasing and sustaining increase usage of institutional delivery. These include training and retention of health workers especially, nurses and midwives particularly in underserved communities (MOH 2011).

Institutional delivery is thus recognized as a universal and one of the most effective interventions available to decrease maternal and neonatal mortalities and help improve on maternal and neonatal outcomes (Moyer et al., 2014). In low and middle-income countries such as Ghana, institutional delivery is a prerequisite for a woman to receive skilled birth attendance during delivery due to the scarcity of resources (Hagos et al., 2014; Crissman et al., 2013).

Previous studies have identified the educational status of both mothers and husbands as factors influencing the use of institutional delivery service (Gudu & Addo, 2017; Kebede, Hassen, & Teklehaymanot, 2016; Yaya, Bishwajit, & Ekholuenetale, 2017). Work done by Kebede (2016), identified the following; educational level of both mothers and their partners, previous pregnancy experience, ANC visits, age of mothers, and the nearness of the health facility as having significant associations with institutional delivery usage among women living in urban areas (Kebede et al., 2016).
The Okaikoi district of the Greater Accra region has 18 communities in the sub-metro with an estimated population of 373,239. Okaikoi sub-metro has one government hospital (Achimota Hospital), one polyclinic (Kaneshie Polyclinic) and thirty-four (34) private clinics responsible for the health care needs of the local population. Okaikoi has about 30% of its population being women in their fertile age (WIFA). The Okaikoi district of the Greater Accra is one of the districts with consistently low institutional delivery utilization (GSS, 2012) yet no study has assessed the factors contributing to the low utilization of institutional delivery. In the year 2017, the Okaikoi Sub-metro, recorded a 75% Antenatal attendance but only 49.4% were by SBA (DHMIS 2. 2017). Regardless of the fact that institutional delivery service use is crucial for further enhancement of maternal and child health, little is known about the factors influencing the use of institutional delivery in the Okaikoi sub-metro. Understanding the factors influencing the utilization of institutional delivery is essential for suggesting remedial measures directed at reducing maternal mortality.

1.2 Problem statement

Evidence shows that maternal health care service utilization varies between developed and developing countries. An estimated 97% of pregnant women in Developed countries receive ANC with almost all births (99%) using SBA. But in Developing countries, only 52% of pregnant women made four or more ANC visits during their pregnancy with skilled health personnel attending to just 68% of deliveries in 2012(UN, 2014). In developed countries, proportion of institutional delivery has been reported to be between 95% and 98% (WHO, 2012). In developing countries however, proportion of institutional delivery has been
reported to be very low. For instance, between 48 – 70% are reported to deliver in health institutions (Amano et al. 2012; Feyissa & Genemo, 2014; GSS, 2014; Kidanu et al., 2017).

In Sub-Saharan Africa, only 53% of women have skilled delivery attendance, this is the lowest coverage of skilled delivery service utilization (UN, 2014). Ghana has high maternal mortality rate of 380 per 100,000 live births (Enuameh et al., 2016). The World Health Organization (WHO) recognizes that one key step to take in order to reduce maternal morbidity and mortality is to ensure that every baby is delivered in a healthcare institution where the opportunity exists for the delivery to be done with the assistance of a skilled birth attendant but this is yet to be the reality in many developing countries. Therefore, to reduce maternal deaths, it is essential for lower-income countries to promote utilization of institutional delivery services such that complications arising during delivery can be handled swiftly and avert deaths (WHO, 2012).

According to the Ghana Maternal Health Survey (2017) the skilled birth delivery for the country was 69% and 91% for rural and urban area respectively. Mothers who delivered at home (52.2%), were assisted by their families or relatives whiles only 23 (3.1%) delivered without any assistance. Of those who went to health facilities, 66 (62.9%) and 27 (25.6%) delivered at health centers and hospital respectively, and the rest (11.5%) delivered at private clinics (Amano, Gebeyehu, & Birhanu, 2012). These findings point to low utilization of institutional delivery. This has the potential to cause high maternal and neonatal deaths since deliveries outside of healthcare institutions are linked with poor maternal and neonatal outcomes and birth is profoundly affected by the environment in which it takes place (Feyissa & Genemo, 2014).
Skilled assistance during childbirth is a critical strategy to reduce maternal mortality, yet the proportion of deliveries taking place within health facilities where such assistance is provided is very low in Ghana, with huge disparity between urban and rural women. Generally, experts agree that about 20.0% of stillbirths or deaths due to intra partum-related complications can be reduced if births are attended to by skilled personnel. In Ghana about 27.0% of women did not utilize health facilities, but rather for reasons such as cost, distance to health facility and concerns about quality of care delivered at home. Several studies in many SSA countries, including Ghana, have revealed that there is often low institutional delivery, despite high use of antenatal care services (Hasanpoor-Azghdy et al., 2013; GSS, 2011; WHO, 2014).

The 2008 Ghana Demographic Health Survey (GDHS) report shows that, over nine in ten mothers (95%) receive antenatal care from a health professional however only 59% of deliveries were assisted by skilled personnel. In 2017 trends of skilled delivery services assessed in the Okaikoi sub-metro area of the Greater Accra Region of Ghana revealed that although antenatal services utilization is at an appreciable level of 75%, skilled deliveries however is as low as 49.4%. This is below the national and global targets of 60% and 85% respectively. Thus maternal mortality still remains a risk factor for women in Ghana. Yet limited study has assessed the factors contributing to the low utilization of institutional delivery in Okaikoi sub-metro. This study seeks to examine the factors influencing utilization of institutional delivery services in the Sub-metro.

1.3. Objectives of the Study
The objectives of the study are divided into general and specific objectives as follows.
1.3.1. General objectives
The general objective of the study is to assess the factors that influence utilization of institutional delivery in the Okaikoi sub-metro

1.3.2. Specific objectives
1. To determine the proportion of women in Okaikoi sub-metro who utilized institutional delivery

2. To assess health service related factors influencing utilization of institutional delivery.

3. To determine the economic, socio-cultural and the reproductive factors influencing the use of institutional delivery among women assessing CWC in the Okaikoi sub-metro.

1.4. Conceptual framework
The conceptual framework (Figure 1.1) shows the factors that influence a woman’s utilization of institutional delivery based on Anderson’s model of health care utilization. These factors were categorised under predisposing, need, enabling, economic and health service related factors. Use of institutional delivery is affected by a number of factors including availability of skilled birth attendants, distance to health facility, cost and quality of health service, socioeconomic factors, and personal health beliefs (WHO, 2011; Ahmed, 2010). As shown in the framework, there are predisposing factors that can influence utilization of institutional delivery. These factors include age, parity, educational level, the partner’s educational level, woman’s autonomy, in terms of decision making with regards to the place of delivery and the age at first pregnancy. These predisposing factors exert dual influence as they also influence enabling factors for institutional delivery such as place of residence, knowledge on benefits of institutional delivery, proximity to a health facility, attitude towards institutional delivery, and partner support. There are also need factors such
as antenatal care attendance, type of pregnancy, problems during pregnancy and the frequency of antenatal visit which influence utilization of institutional delivery. These need factors are equally influenced by the enabling factors enumerated above.

Additionally, health service related factors such as the attitude of staff, availability of functional theatre, counseling and education on the utilization of institutional delivery can influence a woman’s decision to choose health facilities as place of delivery. Economic factors such as possession of valid NHIS card, type of employment and monthly income levels can influence utilization of institutional delivery. Other socio-demographic factors such as religion and ethnicity can influence women’s decision in choosing health care facilities for delivery. The interplay of these factors contributes to determining the ultimate decision of a woman to use institutional delivery during childbirth.
Figure 1 Conceptual frame work of factors influencing utilization of institutional delivery

(Source: Adapted from Kebebe, Hassen, & Teklehaymanot, 2016 based on Anderson model of health care utilization).
1.5 Justification

Decreasing maternal morbidity and mortality is a global aim particularly in developing countries like Ghana and one of the key strategies for attaining such goal is by expanding institutional delivery service utilization (Gebretsadik et al., 2016). Utilization of institutional delivery offers women the opportunity to be cared for by skilled birth attendants who have the skills that can deal with normal delivery, identify complications, and refer in due time to avert the occurrence of maternal and neonatal mortality (De Allegri et al., 2011). Thus, reasons that impact the use of institutional delivery should be explored, particularly in areas like Okaikoi sub-metro.

Regardless of the fact that institutional delivery services use is crucial for further enhancement of maternal and child health, little is well-known about the factors influencing the use of institutional delivery in the Okaikoi sub-metro. Hence it is imperative to assess and find the various factors that influence the use of institutional delivery in order to put the needed interventions in place. Additionally, understanding the factors that influence women’s choice of health facilities for delivery in Okaikoi sub-metro will help in policy development and program design of maternal health services by the Okaikoi Sub-metro Health Directorate of the Ghana Health Service.

1.6 Thesis Structure

This thesis is organized in six chapters. The first chapter introduces the whole study. It captures the general background of factors influencing utilization of institutional delivery. The problem statement, general and specific objectives of the study as well as conceptual framework and justification are stated in this chapter. Chapter two reviews related literature based on the thesis objectives and preferred models to be used in achieving these objectives.
Chapter three describes the methods used in collecting the data for the study. The study area, dependent and independent variables, study population as well as the inclusion and exclusion criteria. Data storage and usage are also discussed in this chapter. The results and analysis are presented in chapter four. Chapter five discusses the results. In Chapter six, the summary of the major findings, conclusion, recommendations and the limitations of the study are discussed.
CHAPTER TWO

LITERATURE REVIEW

2.1. Institutional delivery utilization

This refers to the choice of a health facility for delivery by women. It is well-known that most obstetric complications occur essentially at the time of delivery and may lead to the death of both the woman and the neonate. This can however be averted with good care in the health facilities when women choose the health facility as a place for delivery (Kebede et al., 2016). Use of institutional delivery is documented as one of the keys and recognized interventions to decrease maternal death because it guarantees safe birth, reduces both genuine and potential complications and maternal death, and expands the survival of most mothers and newborns.

Evidence shows that maternal health care service utilization varies between developed and developing countries. An estimated 97% of the pregnant women in developed countries receive ANC with almost all births (99%) using skilled obstetric service during delivery. Developing countries, on the other hand have only 52% of pregnant women having made four or more ANC visits during their pregnancy with skilled health personnel attending to 68% of deliveries in 2012. In Sub-Saharan Africa, only 53% of women have skilled delivery attendance, this is the lowest coverage of skilled delivery service utilization (UN, 2014).

Moreover, Kidanu, Degu, & Tiruye, (2017) found that more than 20 million women worldwide become pregnant annually, 15% of whom are likely to develop complications and the risk of death from complications relating to pregnancy and childbirth over the course of a woman’s lifetime is higher in the developing compared to the developed world which is one in 76, and one in 8000 respectively. These differences are largely due to the extent to which
women utilize institutional delivery. Several studies have demonstrated that delivery is a risk producing event hence timely and adequate medical care for women who experience obstetric complication is an option for mitigating the risk. Therefore, women are encouraged to deliver their babies in health facilities as a strategy to implement maternal health outcomes (Elizabeth, Alison, Bondan, Wayan, 2009; Laurel et al., 2007; Carolyn et al., 2007; Assfaw, 2010).

However, low utilization of institutional deliveries has been reported widely in different parts of the world. For example, in a study to assess factors influencing institutional delivery service utilization, a total of 674 out of 700 women who gave birth within the last two years were interviewed with a response rate of 96.3%. The results showed that out of 674 interviewed mothers who gave birth within the last two years, 229 (34%; 95% CI: 29.8%–37.9%) of them utilized health institutions for their last delivery and the rest, 445 (66%) were delivered at home. Further analysis revealed that among mothers who utilized health institutions for their last delivery, their most visited place of delivery was health center 171 (74.7%) (Kidanu et al., 2017).

Also in a community-based cross-sectional study, 855 mothers who gave birth in the last 12 months were interviewed to assess institutional delivery service utilization. The findings showed that out of the total respondents, only 105 (12.3%) gave birth at health facilities (hospitals and health centers), whiles majority (87.7%) delivered at home. Mothers who delivered at home (52.2%), were assisted by their families or relatives whiles only 23 (3.1%) delivered without any assistance. Of those who went to health facilities, 66 (62.9%) and 27 (25.6%) delivered at health centers and hospital respectively, and the rest (11.5%) delivered at private clinics (Amano, Gebeyehu, & Birhanu, 2012). These findings point to low
utilization of institutional delivery. This has the potential to cause high maternal and neonatal deaths since deliveries outside of healthcare institutions are linked with poor maternal and neonatal outcomes and birth is profoundly affected by the environment in which it takes place (Feyissa & Genemo, 2014).

The World Health Organization (WHO) recognizes that one key step to take in order to reduce maternal morbidity and mortality is to ensure that every baby is delivered in a healthcare institution where the opportunity exists for the delivery to be done with the assistance of a skilled birth attendant. Therefore, to reduce maternal deaths, it is essential for lower-income countries to promote utilization of institutional delivery services such that complications arising during delivery can be handled swiftly as timely management and treatment can avert deaths (WHO, 2012).

According to the Ghana Maternal Health Survey (2017) the skilled birth delivery for the country was 69% and 91% for rural and urban area respectively. Several programs have been designed in Ghana towards increasing and sustaining increase usage of intuitional delivery. The MOH (2011) has pursued several interventions, targeting improve coverage and quality of care. These include training and retention o of health workers especially, nurses and midwives particularly in underserved communities (MOH 2011).

Currently, every region in Ghana has one midwifery and nurses’ training school. Graduates of these colleges are posted to communities within the region including remote areas in accordance with the “train and retain” policy instituted by the health ministry (MOH 2013; GHS 2011). Expansion of existing infrastructure and building of new health facilities to
provide Basic Emergency Obstetric Care (BEmOC) and Comprehensive Emergency Obstetric Care (CEmOC) have also received adequate priority. This conforms to the overall goal of the MOH, which is, having a high proportion of births attended to by SBAs in Ghana. However, the healthcare-seeking behavior of women is still limited in the area of utilization of institutional deliveries in health facilities and most deliveries occur outside of healthcare institutions. Births occurring outside health facilities are mostly supervised by Traditional Birth Attendants (TBA), older women in the community or by self-assisted delivery (GSS et al. 2009).

Over the past years, uptake of ANC has remained high in Ghana. In 2011, about 98.2% of pregnant women had at least one ANC visit and 77.0% made four or more ANC visits (GHS/RCH 2014). This, therefore, indicates the significance women place on attending a health facility when pregnant. However, this does not translate into the proportion of institutional deliveries in the country. According to the 2008 Ghana Demographic and Health Survey (GDHS), only 57% of births occurred in health facilities (GSS et al. 2009). Some studies have reported on disparities in the proportion of births occurring in health facilities versus at home in Ghana. Akazili (2011) found that only 25% of births occur in health facilities in Northern Ghana with about 75% home deliveries. This is worrying especially in a country where skilled delivery services can easily be accessed even at the primary health care level.

2.2. Factors influencing utilization of institutional delivery

There are numerous factors that influence utilization of health service including utilization of institutional delivery services. Research findings point to the fact that utilization of institutional delivery services is affected by multitude of factors including availability,
distance, cost, and quality of service, and also personal health beliefs (Ahmed, 2010; Kidanu, Degu, & Tiruye, 2017). As illustrated in the Anderson’s model of health service utilization (conceptual framework adapted from Kebebe, Hassen, and Teklehaymanot 2016), these factors are categorized into predisposing factors, enabling factors, need factors, health services related factors and economic factors.

2.2.1. Predisposing factors

2.2.1.1 Maternal age

It was found that women delivering at younger age were more likely to use antenatal care, receive skilled attendance at delivery and use postnatal care (Habtom, 2017). However, a study by Aremu et al., (2011) concluded that maternal age was not significantly associated with the use of institutional delivery.

In a pooled sample of women from 34 SSA countries including Ghana, 52.1% of women aged 15–19 had a facility-based delivery for their first birth, as against 64.9% of those aged 20–24 years and 78.7% of those aged ≥25 (Dunlop et al., 2018). The older the age of the pregnant woman at first birth, the increased likelihood of the use of facility based delivery for sub-Saharan Africa (Dunlop et al., 2018). A study conducted in Ghana by Manyeh and colleagues also found that younger women were least likely to use skilled birth care at delivery (Manyeh et al., 2017). This therefore infers that maternal age during childbirth is an essential indicator for a take-up of institutional delivery service.

2.2.1.2. Parity

A number of studies have recognized the association of parity with a women’s choice of place of delivery (Gabrysch & Campbell, 2009; Moyer et al., 2014; Tey & Lai, 2013; Boah et al., 2018). Boah and his colleagues also established that in the Upper East Region of Northern Ghana, a woman with one child was more likely to use a health facility for delivery
compared to a woman with two or more children (Boah et al., 2018). Similarly lower rates of health facility usage for delivery were recorded among women who had over four births in an across-sectional study conducted in Uganda by Anyait et al (2012). A study conducted in Pakistan showed that 50% of women utilized the services of SBAs during their first birth but only 28% did use SBAs after their fifth birth (Agha & Carton, 2011). The low usage of institutions for delivery by women with multiple births has been attributed to their past maternity knowledge and also because they feel more confident (Tey & Lai, 2013).

2.2.1.3. Maternal education

Women’s educational level has been shown in systematic reviews as an important predictor for utilization of skilled delivery service (Moyer et al., 2014). The GDHS also reported the usage of a health facility for delivery to be as high as 90.9% among women who had attained secondary education and beyond but only 34.6% for women without formal education (GSS et al., 2009a).

A study conducted in Ghana by Esena and Sappor (2013) established an important association between mother’s level of education and delivery in institutions. Women with a higher level of education had an increased likelihood of delivering in health facilities than their counterpart without formal education (Esena & Sappor 2013). Improving the girl child education can go a long way in increasing the usage of SSA and hence reduce MMR.

2.2.1.4. Partner’s education

A review done by Gabrysch and Campbell (2009) has shown that husband’s level of education is an influential factor for the spouse choice of place of birth. A more educated husband is likely to understand the essence of skilled birth attendance and may engage health providers to obtain quality maternal health care for his spouse. Also, he may be less inclined to impose a restrictive environment for his wife to decide on her reproductive and health issues (Gabrysch and Campbell, 2009).
In Ghana, the roles of husbands are enormously spanning from decision making to breadwinning. The choices made by women require their husband’s approval and this is not different in selecting a place of birth. A multivariate analysis done in rural Ghana noted that, women married to educated husbands are more likely to use SBAs for delivery (Sakeah et al., 2014).

A similar finding has been reported in other SSA countries. For instance, in Zambia, women who employed the services of TBAs for deliveries were found to be wives of husband’s who had less than secondary education (Nwaliko 2014). However, no association was found between husband’s education and the use of skilled delivery services in a study in Nigeria (Chubike & Constance 2013).

2.2.1.5. Women’s autonomy

Some linkage has been established with respect to women’s autonomy and use of skilled delivery services (Byford et al., 2013; Moyer and Mustafa, 2013). Women who have the freedom to make decisions pertaining to their health are more likely to utilize maternal delivery care (Ononokpono & Odimegwu 2013).

Esena and Sappor (2013) found in Ghana that, the decision of couples on the place of birth was made collectively by both partners. However, a study by Moyer et al. (2013) in Northern Ghana reported that decisions on the place of birth of women were made in consultation with husbands, mother-in-law and compound head. The study revealed that the compound head, usually the grandfather holds the final say and this is after he has consulted the spiritual leaders (Moyer et al., 2013). The role of mothers-in-law and other family relatives in deciding on where women deliver has also been reported in other countries such as Nepal (Baral et al., 2010). These obviously contribute to delay in decision making for the expectant mother.
2.2.2. Enabling factors

2.2.2.1. Distance to a health institution

Studies have shown that availability and accessibility of a health facility to women increases institutional delivery (Wilunda et al., 2014; Gebrehiwot et al., 2014; Treacy et al., 2018). Adequate physical infrastructure is essential to create an encouragement for women to have an institutional delivery and consequently decrease MMR (Patel and Ladusingh 2015).

Caulfield et al., (2016) also identified distance to health as being a big challenge for women in the rural areas and hence they decide to deliver at home mostly delivered by a Traditional Birth Attendant (TBA). Studies in Northern Nigeria by Adewemimo et al., (2014) as well established that, the long distance pregnant women had to cover to reach a health facility coupled with the lack of transportation was responsible for the low utilization of skilled birth attendance (Adewemimo et al., 2014).

2.2.2.2 Knowledge on benefits of institutional delivery and availability of services

Utilization of services is more often than not preceded by an awareness of the services. In Ghana, mass media is the most common means to access information. It is argued that people’s lives are more likely to be influenced by the kind of information presented or made available to them. No literature was found in Ghana on the influence of information on the use of skilled delivery services during the review, however other studies in SSA have reported on this subject.

Worku et al., (2013) pointed out in a research done in Ethiopia that, women who were aware of existing health facilities for delivery utilized it during childbirth. On the other hand, Onasoga et al. (2014) in their study found that in spite of high awareness level of women about existing maternal health services, only a few of the respondents were abreast with the
main components of the service. This information gap is more likely to have an influence on utilization of the health facilities. Furthermore, a study done in Mali, Kenya, and Tanzania established that, women who were informed about family planning through mass media utilized a health facility for delivery (Stephenson et al. 2006). Women’s awareness of existing services can influence their choice of place of birth.

2.2.3. Need factors

2.2.3.1. Antenatal care visit

Antenatal Care visit is proven to be associated with the use of institutional delivery services (Mehari 2014; Teferra et al. 2012) and also act as a window for uptake of skilled birth attendance. A minimum of four ANC visits is recommended for every pregnant woman without complications (UN 2011) and Ghana has adopted this protocol.

From the Ghana Maternal Health Survey, women who had attended four or more ANC visits had high (63.7%) uptake of skilled delivery services. This was followed by those who had between one and three visits (25.7%). A very low (6.3%) uptake of facility deliveries was reported among women who did not attend even one ANC visit during the entire pregnancy period (GSS et al. 2009).

Additionally, the timing of ANC registration has also been documented as a predictor for seeking skilled delivery. A study by Abeje et al. (2014) found that women who registered for ANC during the first trimester were about five times more likely to give birth at a health facility, twice as likely when registered during the second trimester as compared to those who reported in the third trimester. In Ghana, only 45.1% of pregnant women visited ANC within the first trimester of their pregnancy in 2013. The majority (>50%) reported for ANC during their second and third trimester (GHS/RCH 2014).
2.2.3.2. Perception of risk and safe delivery

In many societies, delivery is perceived as a “normal activity” with less consideration of the possible complications that could arise at any point in time during the delivery process. This perception influences women to take the risk of delivering at home without SBAs. The result of the Ghana Maternal Health Survey indicates that among approximately half of the respondents who failed to use a health facility for delivery, 32% indicated that it was needless to give birth at the health facility (GSS et al. 2009a).

Buzzano et al. (2008) also noted that women who had a home birth in the Brong-Ahafo region of Ghana, were considered as “achievers” and were recognized and respected in their society. Women with perceived risk and had experienced complications during previous pregnancies, delivery or post-delivery were more likely to utilize skilled delivery care in their subsequent pregnancy (Olayinka 2013; Kebebe 2012).

2.2.4. Health services related factors

2.2.4.1. Attitude of service providers

Health provider’s attitude has been documented to influence client health-seeking behavior, particularly for delivery services. A Lancet series found that, services provided in a respectful manner accompanied by good interpersonal skills from their health providers, met the expectations women (Renfrew et al., 2014). Health care providers who displayed a positive attitude and were not rude, spoke encouraging words, reassured, and were polite to women and did not shout or demoralize recorded an increase in skilled birth attendance for delivery (Baral et al., 2010).

A research conducted in Ghana to explore the perception of midwives and maltreatment of the expectant mothers during labor and delivery exposed various forms of abuse suffered by pregnant women in labor wards. Midwives achieve the positive delivery outcome (deliver a
live baby) by employing different forms of unprofessional actions such as beating, shouting and disregard of complaints of the women in labour (Yakubu et al., 2014).

Studies conducted in other SSA countries such as, in Kenya, established that poor attitude of health personnel gave TBA’s a reasonable advantage over the skilled midwives, thus increasing the number of births outside health institutions. The study also realized that TBAs were defined by expectant mothers as having a non-judgmental attitude, provided encouragement, and had a good interpersonal relationship with the mothers hence their desired option (Byford-Richardson et al., 2013).

2.2.4.2. Availability of SBAs

In most countries and Ghana not being an exception, shortage of workforce was found to be a major issue (Witter 2007). WHO recommends that, every country has an average of two (2.3) essential health workers in every 1000 population. Ghana however is estimated to have only 1.24 health workers in every 1000 population (Selah 2013). Health personals are unequally distributed in Ghana, favouring the urban over the rural areas as well as also to hospitals over clinics (MOH 2010). Greater Accra and Ashanti regions record the greatest number of SBAs, whiles the three Northern regions recorded least numbers of SBAs (Selah 2013; GHS 2011).

Ghana has improved in the number of health workers per population ratio over the years, however, there is still much to be done. This can be attributed to the establishment of midwifery schools in all the regions of Ghana and the high production of these cadres every year. In 2011, midwife per women in fertile age (WIFA) population stood at 1: 1,478 (GHS 2011). In spite of these, the aging population of health workers, particularly midwives, is still a challenge (Selah 2013).
2.2.4.3. Cost of services

Cost of health services has been identified as a predictor for utilization of skilled delivery (Koblinsky et al., 2006). Ghana has gone through policy reforms aimed at improving institutional delivery. In 2003, three regions were used for a pilot of free delivery care and later enrolled in the remaining seven regions in 2005. The challenge was that pregnant women were supposed to be a registrant of the insurance scheme before benefiting from the services which were a huge barrier to the poor (Koblinsky et al.2006). In July 2008, the Government of Ghana through the National Insurance Authority introduced free maternal health care program as a measure to remove financial barriers to maternal services. Some of the difficulties mostly reported by health facilities accredited by the National Health Insurance is persistent late reimbursement of the cost of service provided (Witter 2013).

2.2.4.4 Perception of quality of services

The kind of care received by women at health facilities influences subsequent use of health services. According to a Lancet series publication, maternal health service is poor in many countries (Koblinsky et al. 2006).

In Ghana, clinical practice was found to be below standard in most health institutions. Only 17% of primary health care facilities met the criteria for good quality (Hussein et al. 2004). Also, studies have shown gaps in the information offered to expectant mothers during ANC visits. A cross-sectional study conducted in primary health care facilities in Ghana, Burkina Faso, and Tanzania by Duysburgh et al. (2013), revealed that a third of the respondents had not received education on pregnancy and its complications. Nearly a quarter of the Ghanaian pregnant women, were unable to state a single danger sign of pregnancy (Duysburgh et al., 2013).

It was further realized that, less than one in five women had received direction on danger signs in pregnancy during their ANC visits (Duysburgh et al., 2013). The difficulty in
releasing midwives for refresher courses on the current health issues have been shown to affect their service provision, and their quality of service (Bachani and Tenkorang, 2014). The Continues Medical Education (CME) given to health providers in Ghana are less periodic and inadequate to build enough capacity for the midwives to enable them significantly improve current practice (Bachani and Tenkorang, 2014).

On the other hand, women’s perception of quality care is an important factor of health service utilization. A study conducted in Tanzania revealed that, women did not mind undertaking long journeys in order to seek quality care in facilities far away from their homes bypassing the local health centres closest to their homes as a result of their perception of sub standard care being rendered at the nearby health centre (Kruk et al. 2009).

2.2.5. Economic factors

2.2.5.1. Transportation cost

Transportation challenges to a health facility which span from unavailability to affordability may influence the decision of women on the place to seek delivery services. A study conducted in Ghana by Esena & Sappor (2013), revealed that about 43% of the respondents who delivered at home, mentioned transportation as their main challenges. These were similar to what was found in Zambia by Lerberg et al (2014).

Cost of transportation to a health facility is estimated to be almost 50% of total expenditure for a normal delivery cost in Nepal and Tanzania (Borghi et al., 2006). The cost of transportation was identified to be a key obstacle for majority of women in Nepal and has led to the implementation of newer policies (Borghi et al., 2006). Economic and transportation
challenges can lead to delay in reaching health facilities even when the decision is made by the woman to access skilled delivery care (Roro et al., 2014; Ganle et al., 2015)

2.2.5.2 Possession of valid NHIS
Health insurance is documented as an effective payment mechanism that has contributed significantly to the uptake of facility-based delivery. This is more visible in countries that have implemented free exemption policies for maternal health services (Hatt et al. 2013). Ghana is one of the countries in SSA that has enrolled free maternal and child health care nationwide. Few studies have evaluated the impact of health insurance on facility based delivery in the country. A study by Dzakpasu et al., (2012) in Brong Ahafo region of Ghana found an increase in utilization of health facilities for delivery by 2.3% and 7.5% after introduction of the free maternal care policy in 2005 and 2008 respectively. The implementation of the exemption policy has also been linked to the high ANC attendance in the country (Dixon et al. 2014).

However, Chrissman et al., (2013) reported that some women still choose to give birth at home in spite of the waived user fee for delivery in Ghana. Costs that are incurred by women out of compulsion by the health facilities such as baby’s clothing, soap, napkins rubber mackintosh, bed sheets, antiseptic agents were noted to be a deterrent for institutional delivery (Chrissman et al., 2013).

2.2.5.3. Monthly income level
Household wealth is indicated as an important resource that can either enable or impede utilization of skilled delivery services in many settings. In Ghana, it is evidenced from a survey finding that a more satisfactory health seeking behavior is observed among women that come from the wealthiest households (GSS et al. 2009b). It, therefore, suggests that women who have the required financial support are able to afford the cost of health services,
transport, and another opportunity cost. However, the husband’s employment status is important when it comes to family income in Ghana.

The relationship between household wealth and women’s choice of place of birth has been shown in studies from another part of the world. In Kenya and Nigeria, studies have shown that women from the richest household were four times more likely to use skilled delivery services (Kitui, Lewis, & Davey, 2013). These findings are therefore suggestive of household wealth as a predictor for skilled care use across many settings and Ghana is not an exception.
CHAPTER THREE

METHOD

3.1. Study Design

The study was an analytical cross-sectional design using quantitative tools to describe the factors that influence the use of institutional delivery in the Okaikoi Sub-metro.

3.2. Study Area

The study was conducted in Okaikoi sub-metro which forms part of 13 constituencies of the Accra Metropolis of the Greater Accra Region of Ghana. The district is situated at the western part of the city of Accra. The sub-metro covers an area of 24 square kilometres. Okaikoi is bounded to the North by the Okaikoi north municipal District, South by Osu Clottey, Graphic road, the Kaneshie Mallam Highway and Obetsebi Lamptey Circle, West by Darkuman-Kokompe Road, through Bubiashie to join the George Walker Bush high way and to the East by Ayawaso Sub-metro (National Development Planning Commission, 2014).

There are 18 communities in the sub-metro with an estimated population of 373,239. Okaikoi sub-metro has one government hospital (Achimota Hospital), one polyclinic (Kaneshie Polyclinic) and thirty-four (34) private clinics responsible for the health needs of the local population. Okaikoi has about 30% of its population being women in their fertile age (WIFA). About 73% of the population in the sub-metro are Christians while 14% are Muslims, 12% Traditionalist and 3% covering other religious groups (Accra Metropolitan Health Directorate, 2017).
3.3. Variables

This study measured the dependent and independent variables to be able to establish relationships between them.

3.3.1. Dependent variable

The dependent variable in this study is Utilization of institutional delivery. The answers were multinomial. This was re-categorised to "yes" for all mothers who used institutional delivery with a score of "1" and those who did not "no" were given a score of "0".

3.3.2. Independent variables

The following are the independent variables expected to influence utilization of institutional delivery.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Operational Definition</th>
<th>Scale of Measurement</th>
<th>Type of Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Age at Last Birthday</td>
<td>Discrete</td>
<td>Numerical</td>
</tr>
<tr>
<td>Maternal education</td>
<td>Last institution attended i.e. Primary, Secondary, Tertiary and none</td>
<td>Ordinal</td>
<td>Categorical</td>
</tr>
<tr>
<td>Marital status</td>
<td>Single/Married</td>
<td>Nominal</td>
<td>Categorical</td>
</tr>
<tr>
<td>Parity</td>
<td>No of children alive</td>
<td>Discrete</td>
<td>Numerical</td>
</tr>
<tr>
<td>Occupation</td>
<td>Actual work done on daily basis</td>
<td>Nominal</td>
<td>Categorical</td>
</tr>
<tr>
<td>Income</td>
<td>(Amount in Cedis) Personal income at the end of every month</td>
<td>Continuous</td>
<td>Numerical</td>
</tr>
<tr>
<td>Place of delivery</td>
<td>Delivery occurring in health facility/home</td>
<td>Nominal</td>
<td>Categorical</td>
</tr>
<tr>
<td>ANC attendance</td>
<td>Women who visit ANC providers during pregnancy will be considered to have used Antenatal care.</td>
<td>Nominal</td>
<td>Categorical</td>
</tr>
<tr>
<td>Attitude of health personnel</td>
<td>Patient perceived friendliness or unfriendliness of health worker</td>
<td>Nominal</td>
<td>Categorical</td>
</tr>
<tr>
<td>Health education on benefits of institutional delivery</td>
<td>Regular advice on benefits of institutional delivery by health workers</td>
<td>Nominal</td>
<td>Categorical</td>
</tr>
<tr>
<td>Educational level of partner</td>
<td>Last institution attended be it primary, secondary or tertiary or none</td>
<td>Ordinal</td>
<td>Categorical</td>
</tr>
<tr>
<td>Birth place decision maker.</td>
<td>The main individual that make the decision of where the mother should give birth.</td>
<td>Ordinal</td>
<td>Categorical</td>
</tr>
</tbody>
</table>
3.4. Sample size determination

A sample size of 212 was used. A minimum sample size of 141 was derived using Cochran’s sample size formula as shown below (Cochran, 1972)

\[ n = \frac{z^2 \times p \times (1 - p)}{d^2} \]

Where,

n = sample size required.

Z = confidence level (95% level of confidence - 1.96).

P = Reported prevalence of skilled delivery = 90.9% (Ghana Statistical Service (GSS), Ghana Health Service (GHS), 2018)

d = Margin of error (5% =0.05).

Substituting,

\[ n = \frac{1.96^2 \times 0.909 \times (1 - 0.909)}{0.05^2} = 127.11 \approx 128 \]

Adding 10% to make up for non-response and wrongly filled questionnaire gave a total sample size of approximately 141.

3.5. Sampling method

A total of 13 CWC sites from 13 different health facilities in the Okaikoi Sub metro was selected for the study. An estimated average monthly attendance was obtained from the various postnatal clinics. Proportional sample size allocation method was used in allocating sample size to each facility after the study sample size was determined. For each facility, daily attendants were estimated by dividing the average monthly attendants by number of CWC sections held in a month. Number of data collection days for each facility was
determined based on daily CWC attendance rate. For each data collection day, a sampling frame comprising of list of all registered attendant for the day was obtained. Simple random selection procedure was employed to select study participants for the day. A total of 212 respondents were recruited for the study, table 3.2 shows the allocation of the 212 samples collected for the study.

**Table 3.2: sample size allocation to the various postnatal clinic**

<table>
<thead>
<tr>
<th>Facility name</th>
<th>Sample size allocated</th>
<th>Percentage of sample size allocated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achimota hospital</td>
<td>25</td>
<td>11.8</td>
</tr>
<tr>
<td>Kaneshie polyclinic</td>
<td>20</td>
<td>9.4</td>
</tr>
<tr>
<td>Fadama</td>
<td>19</td>
<td>8.8</td>
</tr>
<tr>
<td>Avenor CHPS</td>
<td>11</td>
<td>5.4</td>
</tr>
<tr>
<td>Avenor Rails</td>
<td>10</td>
<td>4.7</td>
</tr>
<tr>
<td>Bubiashie</td>
<td>17</td>
<td>7.9</td>
</tr>
<tr>
<td>Alogboshie</td>
<td>12</td>
<td>5.8</td>
</tr>
<tr>
<td>Apenkwa</td>
<td>15</td>
<td>7.0</td>
</tr>
<tr>
<td>Opmann</td>
<td>13</td>
<td>6.3</td>
</tr>
<tr>
<td>Kaneshie market</td>
<td>15</td>
<td>6.9</td>
</tr>
<tr>
<td>Motorway</td>
<td>22</td>
<td>10.2</td>
</tr>
<tr>
<td>Nkoraasusuaa</td>
<td>11</td>
<td>5.3</td>
</tr>
<tr>
<td>Achimota market</td>
<td>22</td>
<td>10.5</td>
</tr>
</tbody>
</table>

**Total**              | **212**               | **100**                             |
3.6. Study population

The study population included women who had delivered within the past 1 year (March 2017 to February 2018) and were living in the Okaikoi Sub-metro at the time of the study and were accessing child welfare clinics.

3.7. Inclusion and exclusion criteria

All mothers who had delivered within the past one year (March 2017 to February 2018) and were assessing child welfare clinics at any health facility in Okaikoi Sub-metro at the time of the study were included. Only those who were willing to participate in the study were selected.

3.8. Exclusion criteria

All mothers who fell within the category but were not willing to participate in the study were excluded. Also, mothers who were not living in Okaikoi sub-metro were excluded from the study.

3.9. Data collection tool/technique

A structured questionnaire was developed by the researcher and interviewer administered to study respondents who were then assessing child welfare clinic in the Okaikoi Sub-metro. The questionnaire was in 4 sections. In the first section data on socio-demographic characteristics of respondents and socio-cultural factors were captured. Section two was on reproductive factors influencing use of institutional delivery. Section three on economic factors influencing utilization of institutional delivery, four on health services related factors influencing use of institutional delivery. Items on the questionnaire were read and explained to individual respondents to decide on the most applicable responses. The questionnaire was administered with the help of two trained research assistants. A maximum of ten to fifteen minutes was used to administer each questionnaire based on the educational level of
respondents hence requiring translation or not. The data collection was done between 4\textsuperscript{th} and 15\textsuperscript{th}June 2018.

3.10. Quality control

The questionnaire was made easy to understand. Two research assistants were engaged and trained to administer questionnaire effectively. Also the research assistants were monitored throughout the data collection process. Pre-testing of the questionnaire was done in Mamprobi polyclinic with parallel features as the study area. After each day’s field work, data collected was cross checked for accuracy, completeness and appropriately filled information.

3.11. Data processing and analysis

The data collected was manually edited correcting any repetitions and wrongful entries. The edited data was then coded and statistically analysed using STATA software version 15. Basic descriptive statistics were run and the results were presented using tables depicting frequencies, percentages, and proportions on maternal age, parity, and marital status, level of education, occupation, religion, and distance from health facility. Data were presented in tables, and pie charts. Standard deviation was computed for mean age and mean income.

Pearson’s chi-square test and Fisher’s exact test was performed to determine any relationship existing between the dependent and independent variables. The dependent variable institutional delivery was categorised (mothers who delivered in health institutions were given a score of „1‟ and those who did not were given a score.
The proportion of women who utilized institutional delivery was determined using percentages while Simple and Multiple Logistic regression models was employed to test for strength of association between the dependent and independent variables.

3.12. Ethical considerations

An authorization was sought after from the Ghana Health Service Ethical Review Committee (GHS-ERC065/02/18) Research and Development Division, Accra. Informed consent was obtained from participants before they participated in the study.

3.12.1. Access to study area

Consent was obtained from the Metropolitan Health Directorate before commencing this study. A letter of introduction was also obtained from the Head of Department for Health Policy, Planning and management, School of Public Health, College of Health Sciences, and University of Ghana. Copies of the approval letters were sent to the heads of the various health facilities. A copy of the proposal was submitted to the District Health Directorate to enable them disseminate information about the study.

3.12.2. Privacy, Confidentiality and Anonymity

Coding of the questionnaire was done, and names of respondents were left out in filling each questionnaire, thus ensuring confidentiality. Privacy for each respondent during the interview was ensured. Names of participants were omitted from the study results and information gathered was kept highly confidential between the researcher and the study participants. Electronic version of data was stored using password secured format known to only the principal investigator and completed questionnaires were kept under key.

3.12.3. Compensation

No compensation was given to study participants and they were accordingly informed before they decided to partake in the study.
3.12.4. Risk and benefits
Study respondents used between ten (10) minutes and fifteen (15) minutes of their time in answering the questionnaires. Consequently, there were neither liabilities nor direct benefits for taking part in the study. Nonetheless, it’s likely that the results of the study would contribute towards policy development and implementation process in order to improve future health service delivery.

3.12.5. Voluntary withdrawal
Participants had the freedom to voluntarily withdraw from the study at any point in time and this didn’t cause any interference between the principal investigator and the participant. On the other hand, participants were admonished and encouraged to participate fully to ensure the results from the study were a true reflection of the factors influencing use of institutional delivery in the study area. Any participant who withdrew from the study had her information deleted.

3.12.6. Consenting process
All participants had the objectives of the study explained to their understanding and signed a written consent (two copies) and a copy was given to each participants.

3.12.7. Data storage and usage
Data collected was kept safe with passwords on electronic media and locked in boxes and used strictly for research purposes. Anonymity was ensured in dissemination of findings from this study since participants were not identified by their names.

3.12.8. Declaration of conflict of interest
The principal investigator declares no conflict of interest in this study
CHAPTER FOUR

RESULTS

4.1. Demographic characteristics of respondents

A total of 212 postnatal mothers participated in the study. Majority 124 (58.5%) of them were aged from 26 to 34 years. Majority of the women 91 (42.92%) had at least primary level education; also the proportion of mothers who had no form of education and tertiary education was 26 (12.2%) and 25 (11.79%) respectively. The dominant religion was Christianity 172 (81.1%). About half 106 (50%) of mothers were from the Akan ethnic group. More than half 134 (63.2%) of the women were married during the survey. (Table 4.1).

Table 4.1: Socio-demographic characteristics of respondents

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency (N=212)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-25 years</td>
<td>38</td>
<td>17.92</td>
</tr>
<tr>
<td>26-34 years</td>
<td>124</td>
<td>58.49</td>
</tr>
<tr>
<td>35-44 years</td>
<td>50</td>
<td>23.58</td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>26</td>
<td>12.26</td>
</tr>
<tr>
<td>Primary</td>
<td>91</td>
<td>42.92</td>
</tr>
<tr>
<td>JHS</td>
<td>52</td>
<td>24.53</td>
</tr>
<tr>
<td>SSS</td>
<td>18</td>
<td>8.49</td>
</tr>
<tr>
<td>Tertiary</td>
<td>25</td>
<td>11.79</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christian</td>
<td>172</td>
<td>81.13</td>
</tr>
<tr>
<td>Muslim</td>
<td>37</td>
<td>17.45</td>
</tr>
<tr>
<td>Traditionalist</td>
<td>3</td>
<td>1.42</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ga</td>
<td>25</td>
<td>11.79</td>
</tr>
<tr>
<td>Akan</td>
<td>106</td>
<td>50</td>
</tr>
<tr>
<td>Ewe</td>
<td>43</td>
<td>20.28</td>
</tr>
<tr>
<td>Northern tribes</td>
<td>27</td>
<td>12.74</td>
</tr>
<tr>
<td>Others</td>
<td>11</td>
<td>5.19</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>38</td>
<td>17.92</td>
</tr>
<tr>
<td>Married</td>
<td>134</td>
<td>63.21</td>
</tr>
</tbody>
</table>
4.2. Socio-economic characteristics of respondents

Majority 182 (85.6%) of the mothers were employed, with close to half 99 (46.7%) of them earning a monthly income of less than GH₵ 500.00. About half of the respondents had their partner’s having an SHS 103 (48.6%) education and 48 (22.3%) had tertiary education whiles only 14 (6.6%) had no formal education. Most of the respondent’s partner’s occupation were trading and artisans 88 (41.5%) and 83 (39.2%) respectively. A high majority of 191(90.1%) of the participants had an active NHIS card. (Table 4.2)

Table 4.2: Socio-economic characteristic of respondents

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency (N=212)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-economic characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>30</td>
<td>14.15</td>
</tr>
<tr>
<td>Employed</td>
<td>182</td>
<td>85.85</td>
</tr>
<tr>
<td><strong>Monthly income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No income</td>
<td>30</td>
<td>14.15</td>
</tr>
<tr>
<td>≤ GH₵ 499</td>
<td>99</td>
<td>46.7</td>
</tr>
<tr>
<td>GH₵500-1000</td>
<td>65</td>
<td>30.66</td>
</tr>
<tr>
<td>&gt; GH₵ 1000</td>
<td>18</td>
<td>8.49</td>
</tr>
<tr>
<td><strong>Partner’s Educational level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>14</td>
<td>6.6</td>
</tr>
<tr>
<td>Primary</td>
<td>21</td>
<td>9.91</td>
</tr>
<tr>
<td>JHS</td>
<td>26</td>
<td>12.26</td>
</tr>
<tr>
<td>SHS</td>
<td>103</td>
<td>48.58</td>
</tr>
<tr>
<td>Tertiary</td>
<td>48</td>
<td>22.64</td>
</tr>
<tr>
<td><strong>Partner’s occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trader/Business</td>
<td>88</td>
<td>41.51</td>
</tr>
<tr>
<td>Artisan</td>
<td>83</td>
<td>39.15</td>
</tr>
<tr>
<td>Salaried worker</td>
<td>41</td>
<td>19.34</td>
</tr>
<tr>
<td><strong>Have active NHIS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td>9.91</td>
</tr>
<tr>
<td>Yes</td>
<td>191</td>
<td>90.09</td>
</tr>
<tr>
<td><strong>Perception of cost of delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>60</td>
<td>29.13</td>
</tr>
<tr>
<td>Moderate</td>
<td>75</td>
<td>36.41</td>
</tr>
<tr>
<td>Expensive</td>
<td>71</td>
<td>34.47</td>
</tr>
</tbody>
</table>
4.3. Maternal and birth characteristic

About a quarter of the mothers had more than three pregnancies 57 (26.9%), while an equal proportion had between 1 and 2 children 92 (43.4%) alive. About two-thirds 139(65.6%) of the respondents reported to have attended antenatal clinics during their time of pregnancy and majority of them 193 (95%) perceived home delivery to be difficult. A good number 78 (36.8%) of mothers decide on place of delivery by themselves followed by 61 (28.8%) of them making a decision with their partners and only 20 (9.4%) had their partners deciding for them. (Table 4.3).

Table 4.3: Maternal and birth characteristics of respondents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (N=212)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of previous pregnancies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>43</td>
<td>20.28</td>
</tr>
<tr>
<td>Two</td>
<td>58</td>
<td>27.36</td>
</tr>
<tr>
<td>Three</td>
<td>54</td>
<td>25.47</td>
</tr>
<tr>
<td>More than three</td>
<td>57</td>
<td>26.89</td>
</tr>
<tr>
<td><strong>Parity (Number of children alive)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>92</td>
<td>43.4</td>
</tr>
<tr>
<td>Two</td>
<td>92</td>
<td>43.4</td>
</tr>
<tr>
<td>Three</td>
<td>18</td>
<td>8.49</td>
</tr>
<tr>
<td>More than three</td>
<td>10</td>
<td>4.72</td>
</tr>
<tr>
<td><strong>Who decides place of delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>78</td>
<td>36.79</td>
</tr>
<tr>
<td>Partner</td>
<td>20</td>
<td>9.43</td>
</tr>
<tr>
<td>Self &amp; Partner</td>
<td>61</td>
<td>28.77</td>
</tr>
<tr>
<td>Others</td>
<td>53</td>
<td>25</td>
</tr>
<tr>
<td><strong>Attended ANC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>73</td>
<td>34.44</td>
</tr>
<tr>
<td>Yes</td>
<td>139</td>
<td>65.57</td>
</tr>
<tr>
<td><strong>Ever done abortion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>144</td>
<td>67.92</td>
</tr>
<tr>
<td>Yes</td>
<td>68</td>
<td>32.08</td>
</tr>
<tr>
<td><strong>Perception of difficulty in home delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>5.39</td>
</tr>
<tr>
<td>Yes</td>
<td>193</td>
<td>94.61</td>
</tr>
</tbody>
</table>
4.4. Proportion of institutional delivery

A high proportion 191 (90.1%) of the mothers reported to have utilized institutional delivery in their last pregnancy and only approximately 21 (10%) delivered at home. (95% CI: 85.3% - 93.8%). (Figure 2)

![Place of Delivery Pie Chart]

**Figure 2** Proportion of place of delivery

4.5. Factors associated with utilization of institutional delivery

The Pearson’s and Fishers’ exact chi-square tests were used to examine the factors that have relationship with institutional delivery in particular and place of delivery in general. Here, the dependent variable is place of delivery, which is categorized into two; institutional delivery and home delivery. There was a statistically significant association between marital status (p<0.001) and place of delivery. However, age, educational level, religion, and ethnicity had no association with institutional delivery. (Table 4.4).
Table 4.4: Association between socio-demographic characteristics and institutional delivery

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total n (%)</th>
<th>No n (%)</th>
<th>Yes n (%)</th>
<th>$\chi^2$-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>38(17.92)</td>
<td>4(19.05)</td>
<td>34(17.8)</td>
<td>0.41</td>
<td>1</td>
</tr>
<tr>
<td>26-34</td>
<td>124(58.49)</td>
<td>11(52.38)</td>
<td>113(59.16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-44</td>
<td>50(23.58)</td>
<td>6(28.57)</td>
<td>44(23.04)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
<td></td>
<td></td>
<td></td>
<td>$\Phi$</td>
<td>0.865</td>
</tr>
<tr>
<td>None</td>
<td>26(12.26)</td>
<td>4(19.05)</td>
<td>22(11.52)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>91(42.92)</td>
<td>8(38.1)</td>
<td>83(43.46)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JHS</td>
<td>52(24.53)</td>
<td>5(23.81)</td>
<td>47(24.61)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHS</td>
<td>18(8.49)</td>
<td>2(9.52)</td>
<td>16(8.38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>25(11.79)</td>
<td>2(9.52)</td>
<td>23(12.04)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
<td></td>
<td>$\Phi$</td>
<td>0.08</td>
</tr>
<tr>
<td>Christian</td>
<td>172(81.13)</td>
<td>14(66.67)</td>
<td>158(82.72)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muslim</td>
<td>37(17.45)</td>
<td>6(28.57)</td>
<td>31(16.23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditionalist</td>
<td>3(1.42)</td>
<td>1(4.76)</td>
<td>2(1.05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td>$\Phi$</td>
<td>0.897</td>
</tr>
<tr>
<td>Ga</td>
<td>25(11.79)</td>
<td>3(14.29)</td>
<td>22(11.52)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Akan</td>
<td>106(50)</td>
<td>11(52.38)</td>
<td>95(49.74)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ewe</td>
<td>43(20.28)</td>
<td>5(23.81)</td>
<td>38(19.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern tribes</td>
<td>27(12.74)</td>
<td>2(9.52)</td>
<td>25(13.09)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>11(5.19)</td>
<td>0(0)</td>
<td>11(5.76)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18.9</td>
</tr>
<tr>
<td>Single</td>
<td>38(17.92)</td>
<td>11(52.38)</td>
<td>27(14.14)</td>
<td>&lt;0.001***</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Married</td>
<td>134(63.21)</td>
<td>7(33.33)</td>
<td>127(66.49)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cohabitating/separated</td>
<td>40(18.87)</td>
<td>3(14.29)</td>
<td>37(19.37)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2$: Pearson’s chi-square test. $\phi$: Fisher’s exact test. *: p-value<0.05. **: p-value<0.01. ***: p-value <0.001

4.6. Association between socio-economic characteristics and institutional delivery

Partner’s educational level (p< 0.013), and the access to active NHIS (p< 0.041) were factors that showed significant association with the place of delivery. On the other hand,
employment, income, partner’s occupation, showed no association with place of delivery. (Table 4.5).

Table 4.5: Association between socio-economic characteristics and institutional delivery

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total n(%)</th>
<th>Used institutional delivery</th>
<th>( \chi^2 )-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No n(%)</td>
<td>Yes n(%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td>( \varphi )</td>
<td>0.745</td>
</tr>
<tr>
<td>Unemployed</td>
<td>30(14.15)</td>
<td>2(9.52)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>182(85.85)</td>
<td>19(90.48)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>( \Phi )</td>
<td></td>
<td>0.432</td>
<td></td>
</tr>
<tr>
<td>No income</td>
<td>30(14.15)</td>
<td>2(9.52)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;499</td>
<td>99(46.7)</td>
<td>8(38.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>500-1000</td>
<td>65(30.66)</td>
<td>10(47.62)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;1000</td>
<td>18(8.49)</td>
<td>1(4.76)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner’s educational level</td>
<td>( \Phi )</td>
<td></td>
<td>0.013*</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>14(6.6)</td>
<td>5(23.81)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>21(9.91)</td>
<td>4(19.05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JHS</td>
<td>26(12.26)</td>
<td>1(4.76)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHS</td>
<td>103(48.58)</td>
<td>8(38.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>48(22.64)</td>
<td>3(14.29)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partners occupation</td>
<td></td>
<td></td>
<td>5.6</td>
<td>0.061</td>
</tr>
<tr>
<td>Trader/business</td>
<td>88(41.51)</td>
<td>11(52.38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artisan</td>
<td>83(39.15)</td>
<td>10(47.62)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaried worker</td>
<td>41(19.34)</td>
<td>0(0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have active NHIS</td>
<td>( \Phi )</td>
<td></td>
<td>0.041*</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>21(9.91)</td>
<td>5(23.81)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>191(90.09)</td>
<td>16(76.19)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( \chi^2 \): Pearson’s chi-square test. \( \varphi \): Fisher’s exact test. *: p-value<0.05. **: p-value<0.01. ***: p-value <0.001

4.7. Association between socio-cultural, health service related characteristics and institutional delivery

From Table 4.7, birthplace decision maker (p< 0.008), perception of difficulty in delivery at home (p< 0.001), and perception of cost of delivery at health facility (p< 0.008) were other major factors that were significantly associated with place of delivery. Conversely, number of pregnancies, number of children alive, ANC attendance, history of abortion, perception of
qualified health staff and waiting time were not significantly associated with place of delivery.

Table 4.6: Association between socio-cultural, health services related characteristics and institutional delivery

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total n (%)</th>
<th>No n (%)</th>
<th>Yes n (%)</th>
<th>$\chi^2$-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No. of pregnancies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>43(20.28)</td>
<td>4(19.05)</td>
<td>39(20.42)</td>
<td>6.35</td>
<td>0.096</td>
</tr>
<tr>
<td>Two</td>
<td>58(27.36)</td>
<td>9(42.86)</td>
<td>49(25.65)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three</td>
<td>54(25.47)</td>
<td>1(4.76)</td>
<td>53(27.75)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than three</td>
<td>57(26.89)</td>
<td>7(33.33)</td>
<td>50(26.18)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Number of children alive</strong></td>
<td></td>
<td></td>
<td></td>
<td>$\Phi$</td>
<td>0.798</td>
</tr>
<tr>
<td>One</td>
<td>92(43.4)</td>
<td>11(52.38)</td>
<td>81(42.41)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two</td>
<td>92(43.4)</td>
<td>9(42.86)</td>
<td>83(43.46)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three</td>
<td>18(8.49)</td>
<td>1(4.76)</td>
<td>17(8.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than three</td>
<td>10(4.72)</td>
<td>0(0)</td>
<td>10(5.24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attended ANC</strong></td>
<td></td>
<td></td>
<td></td>
<td>1.17</td>
<td>0.280</td>
</tr>
<tr>
<td>No</td>
<td>73(34.43)</td>
<td>5(23.81)</td>
<td>68(35.60)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>139(65.57)</td>
<td>16(76.19)</td>
<td>123(64.40)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Birthplace decision maker</strong></td>
<td></td>
<td></td>
<td></td>
<td>11.8</td>
<td>0.008**</td>
</tr>
<tr>
<td>Self</td>
<td>78(36.79)</td>
<td>13(61.9)</td>
<td>65(34.03)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner</td>
<td>20(9.43)</td>
<td>4(19.05)</td>
<td>16(8.38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self &amp; partner</td>
<td>61(28.77)</td>
<td>3(14.29)</td>
<td>58(30.37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>53(25)</td>
<td>1(4.76)</td>
<td>52(27.23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ever done an abortion</strong></td>
<td></td>
<td></td>
<td></td>
<td>1.82</td>
<td>0.178</td>
</tr>
<tr>
<td>No</td>
<td>144(67.92)</td>
<td>17(80.95)</td>
<td>127(66.49)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>68(32.08)</td>
<td>4(19.05)</td>
<td>64(33.51)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perception of difficulty in home delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td>26.32</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>No</td>
<td>11(5.39)</td>
<td>6(30)</td>
<td>5(2.72)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>193(94.61)</td>
<td>14(70)</td>
<td>179(97.28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perception of cost of delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td>9.62</td>
<td>0.008**</td>
</tr>
<tr>
<td>Average</td>
<td>60(29.13)</td>
<td>0(0)</td>
<td>60(31.41)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>75(36.41)</td>
<td>5(33.33)</td>
<td>70(36.65)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expensive</td>
<td>71(34.47)</td>
<td>10(66.67)</td>
<td>61(32.05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perception of qualified health staff</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.55</td>
<td>0.458</td>
</tr>
<tr>
<td>Qualified</td>
<td>115(54.25)</td>
<td>13(61.90)</td>
<td>102(53.40)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unqualified</td>
<td>97(45.75)</td>
<td>8(38.10)</td>
<td>89(46.60)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Waiting time</strong></td>
<td></td>
<td></td>
<td></td>
<td>2.21</td>
<td>0.137</td>
</tr>
<tr>
<td>Short</td>
<td>93(43.87)</td>
<td>6(28.57)</td>
<td>87(45.55)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.8. Quantifying the major factors that influence the utilization of institutional delivery

The simple and multiple logistic regression model was further used to quantify the factors that influence mother’s choice of place of delivery. After extensive selection procedures (the backward elimination and forward selection procedures) were taken into account of selecting the best adjusted model of deciding factors that influence mother’s choice of delivering in a health facility, table 4.8 presents both crude and adjusted odds ratios of the factors that influence choice of place of delivery.

From the crude odds ratio, a mother who possessed a valid NHIS card had a 3.42 times odds of utilizing institutional delivery compared to a mother who had no NHIS card. (UOR: 3.42, 95% CI: 1.11-10.55, p-value: 0.033) while the adjusted odds ratio showed that mothers with active NHIS cards had a 4.71 odds of utilizing institutional delivery compared to those mothers who did not have active NHIS cards (AOR: 4.71, 95% CI: 1.22-18.17, p-value: 0.024). Thus possession of a valid NHIS card showed significant association of a pregnant woman utilizing institutional delivery both from the crude and adjusted odds ratio.

Marital status also showed a significant influence on the utilization of institutional delivery as married women had 5.5 time increased odds of utilizing institutional delivery. Also, mothers whose partners had higher educational level had increased odds of utilizing institutional delivery compared with single both from the crude and adjusted odds ratio (p-value <0.05) (Table 4.8).
Table 4. 7: Factors influencing institutional delivery

<table>
<thead>
<tr>
<th>Variable</th>
<th>Simple logistic model</th>
<th>Multiple logistic model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UO R</td>
<td>95% CI</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Employed</td>
<td>0.61</td>
<td>(0.14-2.78)</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>ref</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Married</td>
<td>7.39</td>
<td>(2.33-24.32)</td>
</tr>
<tr>
<td>Cohabitating/separated</td>
<td>5.02</td>
<td>(1.15-30.12)</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td>0.37</td>
</tr>
<tr>
<td>No income</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>&lt;499</td>
<td>0.81</td>
<td>(0.16-4.05)</td>
</tr>
<tr>
<td>500-1000</td>
<td>0.39</td>
<td>(0.08-1.92)</td>
</tr>
<tr>
<td>&gt;1000</td>
<td>1.21</td>
<td>(0.1-14.43)</td>
</tr>
<tr>
<td><strong>Have active NHIS</strong></td>
<td></td>
<td>0.033*</td>
</tr>
<tr>
<td>No</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Yes</td>
<td>3.42</td>
<td>(1.11-10.55)</td>
</tr>
<tr>
<td><strong>Partner's occupation</strong></td>
<td></td>
<td>0.223</td>
</tr>
<tr>
<td>Trader</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Artisan</td>
<td>1.04</td>
<td>(0.42-2.54)</td>
</tr>
<tr>
<td>Salaried worker</td>
<td>12.3</td>
<td>(0.71-214.29)</td>
</tr>
<tr>
<td><strong>Partner's educational level</strong></td>
<td></td>
<td>0.018*</td>
</tr>
<tr>
<td>None</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Primary</td>
<td>2.36</td>
<td>(0.5-11.05)</td>
</tr>
<tr>
<td>JHS</td>
<td>13.9</td>
<td>(1.42-135.54)</td>
</tr>
<tr>
<td>SHS</td>
<td>6.60</td>
<td>(1.78-24.45)</td>
</tr>
<tr>
<td>Tertiary</td>
<td>8.33</td>
<td>(1.68-41.29)</td>
</tr>
<tr>
<td><strong>Birth place decider</strong></td>
<td></td>
<td>0.028*</td>
</tr>
<tr>
<td>Self</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Partner</td>
<td>0.80</td>
<td>(0.23-2.78)</td>
</tr>
<tr>
<td>Self &amp; Partner</td>
<td>3.87</td>
<td>(1.05-14.25)</td>
</tr>
<tr>
<td>Others</td>
<td>10.4</td>
<td>(1.32-82.12)</td>
</tr>
</tbody>
</table>

UOR: unadjusted odds ratio. AOR: adjusted odds ratio. CI: confidence interval. Ref: reference category. *: p-value<0.05. **: p-value<0.01. ***: p-value <0.001
CHAPTER FIVE

DISCUSSION

5.0. Introduction

This chapter presents discussions of the findings within the contexts of relevant literature and ways of encouraging institutional delivery and hence improving maternal health. The findings are synthesized around the objectives of the study.

5.1. Demographic characteristics of respondents

A total of 212 mothers were interviewed with a structured questionnaire. Majority of the respondents were between the ages of 26-34 years representing 124(58.5%) and a high proportion 113(59.2%) of this age group utilized institutional delivery. There was however no significant association between women’s age and institutional delivery. This is in agreement with studies done by Aremu et al., (2011) which also concluded that maternal age was not significantly associated with the use of institutional delivery.

The study also showed that most of the respondents were married (66.5%) and marital status was significantly associated with the use of institutional delivery. This finding is consistent with a qualitative study done in Zambia by Tey & Lai, 2013) which concluded that marital status has a significant influence on use of health care services during pregnancy. Thus married women were more likely to deliver in a health institution than unmarried women. This study revealed that a high proportion of the mothers (85.9%) were employed in the informal sector mostly trading. This can be due to the fact that majority of participants had attained only junior high education and lacked the requisite skills for formal employment.
5.2 Proportion of women who utilized institutional delivery

Findings from the study showed that 90.1% of the mothers utilized institutional delivery while only 9.9% of them delivered at home. This finding agrees with the 90.9% delivered by a skilled birth attendant in urban area (Ghana Statistical Service, 2015) and is seen as the best way of addressing maternal mortality and improving maternal health. It is therefore encouraged that pregnant women use health institutions to prevent complications associated with home delivery.

In developed countries, proportion of institutional delivery has been reported to be between 95% and 98% (WHO, 2012). In developing countries however, proportion of institutional delivery has been reported to be very low. For instance, between 48 – 70% are reported to deliver in health institutions (Amano et al. 2012; Feyissa & Genemo, 2014; GSS, 2014; Kidanu et al., 2017). Comparatively, the findings in the current study shows high proportion of mothers within the Okaikoi sub-metro utilized institutional delivery in line with what has been reported the urban areas. This can be attributed to availability and accessibility of health facilities coupled with good road networks in the Okaikoi sub-metro.

5.3 Economic factors that affect institutional delivery

Findings from the study showed that the economic factors that were associated with place of delivery were possession of valid NHIS, cost and perception of cost incurred at delivery. 90.1% of the mothers possessed a valid NHIS card and hence had the confidence to visit the health institution especially during labour. The NHIS scheme has proven to be a vital element in the health system of Ghana. This has also been shown to be more visible in countries that have implemented free exemption for maternal health care. Studies have shown that access to
the NHIS by pregnant women has tremendously promoted the uptake of maternal, neonatal and child continuum of care service which has a direct link to utilization of institutional delivery in Ghana (Browne et al., 2016). This study has showed that, it is possible to increase access to institutional delivery for pregnant women by removing financial barriers via the provision of Health Insurance. However, Chrissman et al., (2013) reported that some women still choose to give birth at home in spite of the waived user fee for delivery in Ghana. Every barrier that makes it impossible or difficult for the pregnant woman to have access to an NHIS card will have to be removed as part of efforts in improving institutional delivery and maternal and newborn outcomes.

5.3.1. Partner’s level of education

There were higher odds of utilization of institutional delivery for women with partners whose education were in higher levels compared to those with no formal education from the results of this study. The results indicated that women with partners whose level of education were high were utilizing institutional delivery as indicated by other studies in Nigeria (Access, 2015). Husband”s level of education is an important factor for the spouse choice of place of birth (Gabrysch and Campbell, 2009).

A more educated husband is likely to understand the essence of skilled birth attendance and may engage health providers to obtain quality maternal health care for his spouse. Also, he may be less inclined to impose a restrictive environment for his wife to decide on her reproductive and health issues (Gabrysch and Campbell, 2009) In Zambia, women who delivered at home were found to be the wife of husband”s who had less than secondary education (Nwaliko 2014). However, no association was found between husband”s education
and the use of skilled delivery services in a study in Nigeria by (Chubike & Constance, 2013).

In Ghana, the roles of husbands are enormously spanning from decision making to breadwinning. A multivariate analysis done in rural Ghana noted that, women married to educated husbands are more likely to use SBAs for delivery (Sakeah et al., 2014). The more the men are educated the higher the likelihood of their spouses to use institutional delivery.

5.3.2. Perception of cost of delivery at health facility

The study showed that all of the mothers who delivered at home in the Okaikoi sub-metro (21{9.9%}) thought that cost of delivering at the health facility was expensive and this was an important factor in deciding to deliver at home. It was also noted that those who delivered at home did not have a valid NHIS card. These findings are in agreement with other studies where the perception of cost of delivery showed significant association with place of delivery (Hatt et al., 2013; Lerberg et al., 2014). The cost of delivery has been a major barrier for women to utilize institutional delivery (Lerberg et al., 2014). Cost of facility delivery services and transportation cost has been found to be fundamental to accessing healthcare, especially among low income individuals (Chrissman et al., 2013). The economic status of a family does influence the use of institutional delivery and these can be averted by the processing of valid NHIS that absorbs most of the cost.

5.4. Reproductive factors influencing institutional delivery

Findings from the study showed that the number of previous pregnancies, parity (number of children alive), Number of ANC attendants and history of abortion of the respondents did not show any significant association with use of institutional delivery. However, Boah and his
colleagues also established that in the Upper East Region of Northern Ghana, a woman with one child was more likely to use a health facility for delivery compared to a woman with two or more children (Boah et al., 2018). A study conducted in Pakistan showed that 50% of women utilized the services of SBAs during their first birth but only 28% did use SBAs after their fifth birth (Agha & Carton, 2011). The low usage of institutions for delivery by women with multiple births has been attributed to their past maternity knowledge and also because they feel more confident (Tey & Lai, 2013). The difference is most likely due to the difference in the areas of study. This study was conducted in the Okaikoi Sub-Metro predominantly an urban area.

5.5. Socio-cultural factors that influence institutional delivery

Findings from the study showed that the socio-cultural factors that were significantly associated with place of delivery were marital status and the decision maker for choice of place of birth. It was showed that married women (66.5%) in the Okaikoi sub metro were more likely to utilize institutional delivery when compared to single (14%) or cohabitating women (19%). Also the findings showed that 34% the women decided on the place of delivery by them self, 30% in consultation with their partners, 8% by their partners only and 27% had the decision made for them by others-midwifes mother- in A law or neighbors. This agrees with the study by Ononokpono & Odimegwu, (2013) that women who have the freedom to make decisions pertaining to their health are more likely to utilize maternal delivery care.

Similarly, a study done in Ghana (Esena and Sappor, 2013) found that, the decision of couples on the place of birth was made collectively by both partners. However, a study by Moyer et al. (2013) in Northern Ghana reported that decisions on the place of birth of women
were made in consultation with husbands, mother-in-law and compound head. The role of mothers-in-law and other family relatives in deciding on where women deliver has also been reported in other countries such as Nepal (Baral et al., 2010).

5.6. Health service related factors

Findings from the study revealed that there was no significant association between health service factors and institutional delivery. Most of the mothers reported receiving quality care 102 (53%) and good interpersonal relationship from SBA at the health facilities. Although the Okaikoi Sub-Metro has 34 health facilities and hence mothers have easy access to these health facilities, a high proportion of the mothers (54.5%) believed the waiting time was long. This could be due to the low Health personnel to patient ratio. These findings are in conformity with other studies.

A Lancet series found that, services provided in a respectful manner accompanied by good interpersonal skills from their health providers, met the expectations of women (Renfrew et al., 2014). Health care providers who displayed a positive attitude and were not rude, spoke encouraging words, reassured, and were polite to women and did not shout or demoralize recorded an increase in skilled birth attendance for delivery (Baral et al., 2010). However, there have been reports in rural Ghana of some midwives maltreating women in the Labour ward (Yakubu et al. 2014). Also studies conducted in other SSA countries such as, in Kenya, established that poor attitude of health personnel gave TBA’s a reasonable advantage over the skilled midwives, thus increasing the number of births outside health institutions (Byford-Richardson et al. 2013).
CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Conclusion

The study basically explored the multiple and complex factors that influenced place of delivery services among mothers assessing child welfare clinic (CWC) in the Okaikoi sub-metro. Place of delivery was categorized into institutional delivery „1” (involving all health facilities within the sub-metro) and home delivery „0” the study was purely quantitative and data was collected using survey and was analysed using STATA version 15.

The study showed that use of institutional delivery in the Okaikoi Sub-metro was high and the factors that influenced it were; Women’s autonomy in decision making, Possession of valid NHIS card, partner support in pregnancy, cost of delivery, marital status and Birth place decision maker. Majority of the mothers were married and had at least primary level education.

6.1 Recommendations for policy and research

This section presents recommendations based on the findings from the study.

i. Efforts to ensure that every pregnant woman in the Okaikoi sub-metro possesses a valid NHIS card will further increase institutional delivery rate.

ii. Education on the benefits of utilizing institutional delivery to both mother and partners should be encouraged in the sub-metro.

iii. Women should be empowered to make decisions concerning their health choices by themselves.
iv. A wider study on male involvement in institutional delivery uptake should be conducted to understand other factors that are not addressed in this study.

6.4. Limitations of the study

This study has some limitations and it is important to enumerate the key ones.

**Sampling bias:** The study involved only urban women while most women in the rural area may not have access to health facilities. Also since the study was a facility-based study, only women who were assessing child welfare clinics were interviewed, there could be mothers in the community who did not deliver in institution and hence did not attend the child welfare clinics. Furthermore, only women above 18 years were enrolled in this study. The probability that there were teenage mothers who may have delivered at home may have been missed. The respondents were only women. The male factors may have been downplayed. Also the respondents were interviewed in the facility and hence may have been biased about their delivery experience.

**Recall bias:** The recall period in the study was maintained at 1 year (12 months), but this was still a sufficiently long period to be affected by recall bias.

**Study design:** The cross-section study design could not allow cause effect relationship of the variables to be made clearly.

Additionally, generalizability of the study findings to the entire Greater Accra population is limited as the study was conducted in the Okai Koi Sub-Metro however; the findings of the study are encouraged.
REFERENCES


cost of skilled attendance”, International Journal of Gynecology and Obstetrics, no. 102, pp. 91–94


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Durburgh, E, Ye, M, Williams, A, Massawe, S, Si, A, William, J et al. 2013, “Counselling on and women's awareness of pregnancy danger signs in selected rural health facilities in Burkina Faso, Ghana and Tanzania”, Tropical Medicine and Int. journal vol. 18, no 12 pp. 1498-1509


Ghana Statistical Service (GSS)b, Ghana Health Service (GHS), and Macro International 2009, Ghana Maternal Health Survey 2007, Calverton, Maryland, USA: GSS, GHS, and Macro International

Ghana Statistical Service (GSS)a, Ghana Health Service (GHS), and ICF Macro. 2009. Ghana Demographic and Health Survey 2008, Calverton, Maryland, USA: GSS, GHS, and Macro International


Karnwendo, LA, Bullough, C 2006, “Insight into skilled attendance a birth in Malawi- the findings of a structured documents and literature review” Malawi Med J, no. 16, pp. 40-2


Ononokpono, DN, Odimegwu OC., “Determinants of Maternal Health care utilization in
Nigeria: a multilevel approach”, Pan Afr Med J. vol. 17, no. 2


Selah, K 2013, “A health sector in transition to universal coverage in Ghana” Final draft World Bank Study” World Bank, Washington, DC


APPENDICES

Appendix A: Participants’ informed consent form

School of Public Health
College of Health Sciences
University of Ghana

Research Topic: Factors influencing utilization of institutional delivery in Okaikoi Sub-metro, Greater Accra Region.

Introduction

I am FLORENCE NAA ASHORKOR AYERH, a student pursuing Masters in Public Health in the School of Public Health, University of Ghana. I am the principal investigator in this study and together with my research assistants we are conducting a study on the above subject.

You are warmly invited to take part in the study. But before you make a decision to take part in the study or not, we would like you to read this consent or let someone read it to you to guide you in making your decision.

There will be no costs for participating in this research and there will be no payments awarded for participating in this research. The only cost you will incur will be the time taken to answer the questionnaire.

Confidentiality

Every single information you provide will be held in absolute confidence and data collected in this study are strictly for research purposes and will be stored with passwords on electronic media and in safely locked boxes. Access to the data will be limited strictly to the researcher and supervisor. Anonymity will be ensured in dissemination of findings from this study since participants will not be identified by their names.

Ethical Approval

The study was reviewed and approved by the Ghana Health Service Ethical Review Committee (GHS-ERC).
Participants’ Consent Form

Literate participants’ consent form

I have read the foregoing information regarding this study and I fully understand the purpose of the study. The procedure and processes involved in the study, confidentiality and risk and benefits have been satisfactorily clarified and I have fully understood it. I hereby consent to voluntarily participate in the study.

Signature/thumbprint of participant: ________________________________
Date: __________________________

Iliterate participants’ consent form

The purpose of this study has been read and translated to me in a language that I understand and I have fully understood it. The procedures and processes involved in the conduct of the study, confidentiality and risk and benefits have also been explained and translated to me in my own language of understanding. All my concerns regarding the study have been satisfactorily clarified. I thus hereby consent voluntarily to participate in this study.

Signature/thumbprint of participant: ________________________________
Date: __________________________

Witness form

I have fully witnessed the process of obtaining consent from this participant to take part in the study. The procedures and processes of the study were duly explained and translated in the language of understanding of this participant to his/her understanding. The purpose of the study, confidentiality as well as the risk and benefits involved in the study were also duly explained and translated in his/her native language of understanding and he/she has fully understood it. He/she therefore, voluntarily consent to participate in this study.

Name of witness: ______________________________________________
Signature/thumbprint of witness: ________________________________
Date: __________________________

Interviewer's Statement

I, the undersigned (your name), have explained this consent form to the participant in simple language that she/he understands, clarified the purpose of the study, procedures to be followed as well as the risks and benefits involved. The participant has freely agreed to participate in the study.

Signature of interviewer …………………………………………………
Date …………. / ………….. / …………….

Address:
Telephone number:
Email address:

In case of any concern you can contact the Ethics Administrator, Miss Hannah Frimpong, GHS/ERC on: 0243235225 / 0507041223.
Appendix B: Questionnaire

Study title: Factors Influencing Utilization of Institutional Delivery in Okaikoi district, Greater Accra, Ghana.

Serial No……………..

This questionnaire is to collect data on factors influencing utilization of institutional delivery in Okaikoi Sub-metro of the Greater Accra Region. I will be grateful if you could make time to complete it. Every piece of information will be held in absolute confidence.

Thank you

Date………………………………………

Interviewer………………………………………………

Please fill in the blanks and mark (√) unless otherwise indicated.

SECTION 1: SOCIO-DEMOGRAPHIC DATA

1. Age
   1. 18-25
   2. 26-34
   3. 35-44
   4. 45-54
   5. 55 and above

2. Educational level
   0. None [ ]
   1. Primary [ ]
   2. JHS [ ]
   3. Secondary [ ]
   4. Vocational [ ]
   5. Tertiary [ ]

3. Employment status
   0. Unemployed [ ]
   1. Employed [ ]

4. Occupation
   1. Trader/Business
   2. Artisan
   3. Salaried worker

5. Income
   1. 100-300
   2. 400-600
   3. 700-900
   4. 1000 and above

6. Religion:
   1. Christian [ ]
   2. Muslim [ ]
   3. Traditionalist [ ]

7. Tribe
   1. Ga
2. Akan  
3. Ewe  
4. Northner

8. Marital status  
0. Single  
1. Married  
2. Co-habiting  
3. Divorced  
4. Widowed  
6. Others

9. Total number of family household size  
1. Trader/Business  
2. Artisan  
3. Salaried worker

11. What is your partner’s educational level?  
0. None  
1. Primary  
2. JHS  
3. Secondary  
4. Vocational  
5. Tertiary

12. Do you receive money from friends and relatives  
0. No  
1. Yes

13. If No skip to Q15

14. If yes to Q12 how much do you receive  
0. 100-300  
1. 400-600  
3. 700-900  
4. 1000 and above

15. Did you ever have health education on maternal health when you visited the ANC Clinic? If yes skip Q14  
0. No  
1. Yes

16. If no skip to question 18.

17. If yes for question (15) by whom?  
1. HEWs  
2. CHWs  
3. TBAs  
4. Midwife  
5. Radio  
6. Other (specify)
SECTION 2: ANTENATAL FACTORS INFLUENCING UTILIZATION OF INSTITUTIONAL DELIVERY

18. Number of total pregnancies in lifetime.
19. Number of pregnancies in the last 5 years
20. Number of surviving children under five of respondents living within the same household
21. Do you have history of abortion?  
   0. No □  
   1. Yes □
22. If No to Q19 skip to Q23
23. If yes how many times?
24. Did you attend ANC for your recent pregnancy in Okaikoi Sub-metro?
25. If No to Q24 skip to Q28.
26. At what gestational age did you start ANC__________
27. If (yes) how many times did you attend ANC before delivery?
28. Reasons why you attended ANC?  
   1. I was sick □
   2. Health facility near □
   3. Good service □
   4. Partner encouraged □
   5. To know my health status □
   6. To know my fetus status □
   7. Other (specify)________________
29. Did you receive any advice on where to deliver when you attended ANC?  
   0. No □
   1. Yes □
30. Reasons why you did not attend ANC?  
   1. No health problem □
   2. Work load □
   3. Health facility far □
   4. Husband refused □
5. afraid of fees
6. Health Worker poor handling
7. feel shame
8. Don't know importance
9. Other (specify)

**SECTION 3: DELIVERY FACTORS INFLUENCING UTILIZATION OF INSTITUTIONAL DELIVERY**

| 31. Age of the recent baby | 1. Zero to 6 month
|                          | 2. 7 to 12 months
| 32. Place of birth for the recent baby in Okaikoi Sub-metro | 1. At home
|                                | 2. CHPS Compound
|                                | 3. Health centre
|                                | 4. Polyclinic
|                                | 5. Hospital

| 33. Is there a functional theatre at the health facility you chose? | 0. No
|                                                               | 1. Yes
| 34. If you gave birth at home, who assisted you? | 1. Mother
|                                                               | 2. Mother-in-law
|                                                               | 3. TBA
|                                                               | 4. Neighbor
|                                                               | 5. HEW
|                                                               | 6. Others specify

| 35. If you gave birth for the recent baby at home, why? | 1. Easily labour
|                                                        | 2. Transport problem
|                                                        | 3. Health facility far
|                                                        | 4. Husband refused
|                                                        | 5. Afraid of fees
|                                                        | 6. Poor service
|                                                        | 7. Feel shame
|                                                        | 8. Poor skill of health workers
|                                                        | 9. Don't know importance
|                                                        | 10. I was sick
|                                                        | 11. Other (specify)

| 36. If you gave birth at health facility for the recent baby, why? | 1. I was sick
|                                                                | 2. No fee
|                                                                | 3. Health facility near
|                                                                | 4. Good service
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>37. Who decided where you gave birth? (latest birth)</td>
<td>1. Myself □</td>
</tr>
<tr>
<td></td>
<td>2. My partner □</td>
</tr>
<tr>
<td></td>
<td>3. Both of us □</td>
</tr>
<tr>
<td></td>
<td>4. Mother □</td>
</tr>
<tr>
<td></td>
<td>5. Mother-in-Law □</td>
</tr>
<tr>
<td></td>
<td>6. TBA □</td>
</tr>
<tr>
<td></td>
<td>7. Neighbor □</td>
</tr>
<tr>
<td></td>
<td>8. Midwife □</td>
</tr>
<tr>
<td></td>
<td>9. Father □</td>
</tr>
<tr>
<td></td>
<td>10. Others specify__________</td>
</tr>
<tr>
<td>38. Do you think there is a difference between giving birth at home and health facility?</td>
<td>0. No □</td>
</tr>
<tr>
<td></td>
<td>1. Yes □</td>
</tr>
<tr>
<td></td>
<td>2. Don’t know □</td>
</tr>
<tr>
<td>39. If you think health facility is better how and why?</td>
<td>1. Clean □</td>
</tr>
<tr>
<td></td>
<td>2. save mothers life □</td>
</tr>
<tr>
<td></td>
<td>3. No retain placenta □</td>
</tr>
<tr>
<td></td>
<td>4. No bleeding □</td>
</tr>
<tr>
<td></td>
<td>5. save child life □</td>
</tr>
<tr>
<td></td>
<td>6. shorten labour □</td>
</tr>
<tr>
<td></td>
<td>7. Other (specify)__________</td>
</tr>
<tr>
<td>40. If you think home is better (question 34) how and why?</td>
<td>1. No need of transport □</td>
</tr>
<tr>
<td></td>
<td>2. No cost □</td>
</tr>
<tr>
<td></td>
<td>3. No bleeding □</td>
</tr>
<tr>
<td></td>
<td>4. There is privacy □</td>
</tr>
<tr>
<td></td>
<td>5. other (specify)__________</td>
</tr>
<tr>
<td>41. Which skilled birth attendant (SBA) was present at your time of delivery</td>
<td>1. CHO</td>
</tr>
<tr>
<td></td>
<td>2. Nurse</td>
</tr>
<tr>
<td></td>
<td>3. Midwife</td>
</tr>
</tbody>
</table>
42. What was the outcome of delivery
1. normal delivery
2. normal delivery with assistance(episiotomy)
3. complicated delivery(Caesarean Section)

43. Did you have any history of difficult labour (obstructed labour)?
0. No
1. Yes

44. If yes for question (43) which type?
1. Bleeding
2. Retain placenta
3. prolonged labour
4. Mal presentation
5. still birth
6. other (specify)____

45. Birth order of recent Child
1. 1st
2. 2nd
3. 3rd
4. 4th
5. Others(specify)

46. How long was your labour?
1) 24 hours
2) 24-36 hours
3) 36-48 hours
4) Others (specify)

47. Who was with you in the labour ward apart from health personnel/family member?
1. Other Patient in Labour
2. Patient Relatives

48. How was the privacy in the labour ward between you and other patients in labour
0. No screen
1. Partitioned/screened
2. Walled

49. Where would you prefer to give birth for your next delivery?
1. Home
2. same health facility
3. different health facility

50. Who do you prefer to assist you for your next delivery?
1. Mother
2. Mother-in-Law
3. TBA
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>51. Where’s your partner’s preferred place for your next delivery?</td>
<td>1. Home</td>
</tr>
<tr>
<td>52. How do you consider the distance from your home to the health facility?</td>
<td>1. Not far (≤8km) [ ]</td>
</tr>
<tr>
<td>53. Do you possess a valid NHIS card?</td>
<td>0. No [ ]</td>
</tr>
<tr>
<td>54. Did you incur cost during the delivery of your child at the health facility?</td>
<td>1. 20-140</td>
</tr>
<tr>
<td>55. How much did you pay at the institution where you delivered?</td>
<td>0. Average [ ]</td>
</tr>
<tr>
<td>56. How do you consider the cost incurred during the delivery of your baby in the health facility?</td>
<td></td>
</tr>
</tbody>
</table>
The following refer to some attitudes/activities relating to skilled birth delivery. According to your experience at the health facility, kindly rate appropriately by placing [✓] against the boxes using the scale from 0 (lowest) – 4 (highest). (0=hardly any, 1=a little, 2=Some, 3=A lot, 4=Extremely).

<table>
<thead>
<tr>
<th>Health-Service Related factors</th>
<th>1. Yes</th>
<th>0. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>52. Were you satisfied with the quality of care that you received from Health facility during your delivery?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53. Friendly staff</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>54. Waiting time</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>55. Time spent with SBA for delivery</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>56. Courtesy of SBAs</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>57. Availability of emergency drugs</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>58. Privacy</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>59. Provision of needed services</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>60. Staff qualified</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>61. Services are expensive</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>62. Extra charges by staff</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

63. Apart from the factors mentioned above, list ONE POSITIVE attitude/activity you observed in the facility, if any. 1. Good 2. Patient 3. Good communication skills

64. Also list ONE NEGATIVE attitude/activity you observed in the facility, if any.


65. Based on your overall experience, will you prefer to utilize skilled delivery next time? 0. No 1. Yes

66. Did you attend ANC for your recent pregnancy in Okaikoi sub-metro? 0. No 1. Yes

67. Did you deliver your recent pregnancy in Okaikoi sub-metro? 0. No 1. Yes