SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

ASSESSMENT OF UTILIZATION OF SKILLED DELIVERY SERVICES AND ASSOCIATED FACTORS AMONG WOMEN AT KPONE, IN KPONE KATAMANSO MUNICIPALITY, GHANA

BY

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DECLARATION

I, **EVELYN OKAIKOR TETTEH** hereby declare that this dissertation is a result of my independent work. References to other works have been duly acknowledged. I further declare that this dissertation has not been submitted for award of any degree in this institution and other University elsewhere.

…….. .....

EVELYN OKAIKOR TETTEH **Date**

(STUDENT)

…….. .....

DR. ERNEST MAYA **Date**

(SUPERVISOR)

DEDICATION

To God, my parents, and siblings

ACKNOWLEDGEMENT

My uttermost thanks go to the Almighty God, who is helping me through my master's degree. My sincere gratitude goes to my supervisor, Dr. Ernest Maya for his encouragement, constructive criticisms and his suggestions provided for the completion of this dissertation.

Again, I extend acknowledgement to my husband for his encouragement and support during my entire master's degree. To all my friends and post graduate students who have been supporting me, I say thanks.

Finally, to everyone who has contributed in one way or the other to my academic success, I say, "may the almighty God richly bless you all".

ABSTRACT

Introduction: "Ghana's current Maternal Mortality Ratio (MMR) of 319 per 100,000 live births makes achievement of the Sustainable Development Goal of 70 maternal deaths per 100,000 live births or less by 2030 appears to be deceptive" (Gudu & Addo, 2017). Even though skilled attendance during childbirth is a crucial approach to decreasing maternal mortality, the proportion of deliveries taking place within health facilities where such assistance is provided is very low in Ghana, with massive differences between urban and rural dwelling women.

Objective: The main objective of the study is to examine skilled delivery utilization and associated factors among women in Kpone Township of Kpone-Katamanso District in the Greater Accra region, Ghana.

Methods: A descriptive cross-sectional study involving a target sample size of 311 women between 15 years and 49 years was carried out at Kpone Township of Kpone-Katamanso District in Greater Accra, Ghana. The cluster sampling technique was used to select a total of 20 clusters each containing 10 houses and thus 16 participants per cluster were created within the enumerated area. Questionnaires were administered to these women and data on factors associated with skilled delivery utilization were collected. The analysis involved the use of Chi-square tests and multiple logistic regression to determine the strength of the association between skilled delivery utilization and associated factors.

Results: The overall prevalence of receiving antenatal care was 81.7% among women. Among those who received antenatal care, 1 in 5 utilized unskilled delivery services at last delivery. Factors identified to influence utilization of skilled delivery services were: valid national health insurance card (AOR = 1.461, 95% CI = 1.321,

1.907, P<0.05), visited the health center for antenatal care (AOR= 0.187, 95% CI = 0.045, 0.785, P-value <0.05), women with three children (AOR = 0.130, 95% CI =0.103, 3.16, P-value<0.05), women with five children (AOR = 0.038, 95% CI =0.002, 0.620, P-value<0.05), utilization of buses or taxis as means of transportation to place of delivery (AOR=7.931, 95% CI=1.698, 9.051, P-value<0.05).

Conclusion and Recommendation: The study concludes that skilled delivery services are not utilized by some women. Factors such as visited the health center for antenatal care at last delivery and women with three or five children influence the use of skilled delivery. Also, possession of valid national health insurance card and utilization of buses or taxis as means of transportation to place of delivery influence women using skilled delivery. The study, therefore, recommends that Kpone Municipal Chief Executive in collaboration with the Kpone Municipal Health Directorate should jointly organize home-based educative programs on the importance of skilled delivery services to create awareness of skilled delivery services.

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LIST OF ABBREVIATIONS

ANC	Antenatal Care
GDHS	Ghana Demographic and Health Survey
GHS	Ghana Health Service
GSS	Ghana Statistical Service
MMR	Maternal Mortality Ratio
SBA	Skilled Birth Attendants
SDG	Sustainable Development Goal
UNFPA	United Nations Population Fund
UNICEF	United Nation Children Fund
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Pregnancy is usually a period in a woman's life, which is an exciting and satisfying time for the woman both as a person and as a member of the society. Pregnancy however, can also be a time of so much pain and agony if it is unplanned, unexpected, or if there are conditions that endanger the pregnancy, cause postpartum complication or lead to the death of the woman or mother. Pregnancy, although a natural process, has many associated problems (WHO, 2005). Having skilled attendance at birth helps in eliminating the problem associated with pregnancy. "Skilled delivery is 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 the necessary equipment and the support of a functioning health system, including transport and referral facilities for emergency obstetric care" (Babalola & Fatusi, 2009).

On a daily basis, pregnancy and childbirth related complications contributes to roughly 830 maternal deaths worldwide (WHO, 2015). Again, the WHO (2015), state that 303,000 women of reproductive age lost their lives in the period of pregnancy and childbirth in that year. Developing countries across the world recorded approximately 302,000 (99.0% of mothers who died during pregnancy and childbirth), of which 201,000 (56.0%) were in Sub-Saharan Africa while the remaining 66,000 which is 19.0% were recorded in Southern Asia. Again, while the maternal mortality ratio in developed regions of the world (in every 100,000 live births there are 12 maternal deaths) was 15 times lower than that of developing regions which recorded 239 maternal deaths in every 100,000 live births, the global

ratio in 2015 was 216 deaths in every 100,000 live births (WHO, 2015). Globally, inadequate utilization or lack of utilization of skilled delivery services resulted in the death of approximately 289,000 women in 2015 (Sheferaw, Mengesha, & Wase, 2016; Tessema, & Ayele, 2015).

Over the last twenty years, the current estimate of the WHO on Ghana's MMR is 319 maternal deaths in every 100,000 live births (UNICEF, WHO, World Bank Group, UNFPA, & UN, 2015). This estimate (319 per 100,000 live births) is way below the target of the third Sustainable Development Goal (SDG) which is fewer than 70 deaths in every 100,000 live births (WHO, 2016). However, greater than 70.0% of the losses of lives are plainly regarded as preventable (Maswime & Buchmann, 2016). To improve the perinatal results for new born, and reduce maternal mortality, strategies such as accessing skilled intervention at childbirth, highly beneficial care immediately (within the initial 24hours) after delivery has been identified.

The Millennium Development Goal 5 had a target of minimizing by a third, the number of maternal death in 1990 by end of 2015 by scaling up the count of births supervised by professional health workers in health centres by training more people to offer skilled care. In Sub-Sahara Africa, most women have no access to professional or skilled care during the period of pregnancy and delivery and are assisted by Traditional Birth Attendants (TBAs) at home instead. These TBA assisted deliveries are carried out usually by women who have attained skills in delivery by understudying other TBAs or by learning from their own experiences of delivering babies. However, because TBAs lack the ability to recognise early warning signs and

handle challenges that may come up in less than 15.0% of babies delivered, they are classified as not skilled (Caulfield et al., 2016).

From the above, the most critical and quickest periods during pregnancy and childbirth is labor and delivery, since nearly all maternal deaths occur mainly because of delivery related complications. It is confirmed that even with the most sophisticated and advanced antenatal care possible, delivery could end up in complications. Skilled assistance is therefore crucial to ensuring safer births and care for newborns. Even though pregnant women are counseled during antenatal care (ANC), to give birth in health facilities that offer skilled delivery care, available data point to low skilled delivery services utilization (Semere, Semere, Belda, & Gebremariam, 2016). According to Chimankar & Sahoo (2011) and Dreze & Sen (2013) the most crucial factors hindering the use of skilled delivery in countries with low and middle incomes are social-cultural and economic. However, the Ghana Statistical Service, Ghana Health Service, and ICF International (2015) believe that most low skilled delivery utilization by women in such countries can be attributed to service cost, the care quality and proximity to health installations. This study identified the factors that affect utilization of skilled delivery among women in Kpone to generate evidence on the need for projects to be implemented in the Greater Accra Region of Ghana.

1.2 Problem Statement

Worldwide, maternal morbidity as well as mortality has been a major problem, with a majority of the deaths occurring during the delivery process; and great disparity in recorded cases between the developing and developed countries (WHO, UNICEF, UNFPA, World Bank Group, & United Nations, 2015; Afful-Mensah, Nketiah-

Amponsah, & Boakye-Yiadom, 2014). Current estimates indicated that there was a 43.0% decrease from the 1992 figure of approximately 532,000 to 303,000 in 2015 (Gudu & Addo, 2017). Also, countries classified as having low-and-middle incomes accounted for nearly 99.0% (302,000) of maternal deaths worldwide, and countries in sub of the Saharan desert of Africa cases contributed approximately 56% (201000), while countries in Southern Asia followed with 66000 maternal deaths (WHO, UNICEF, UNFPA, World Bank Group, & United Nations, 2015).

Experts generally agree that, an approximate 20.0% of all stillbirths resulting from complications relating to intrapartum can be eliminated through the effective use of skilled care or delivery services (WHO, UNICEF, UNFPA, World Bank Group, & United Nations, 2015). Globally, estimates by UNICEF, WHO, World Bank Group, UNFPA, & United Nations (2015) show that one of every four births are not attended to by professionally trained birth attendants. In countries with low and middle incomes, this figure when converted in actual terms was 40 million plus in 2015 in poor countries around the world. Countries in South Asia and those in sub-Saharan Africa accounted for ninety percent (90.0%) of these (WHO, UNICEF, UNFPA, World Bank Group, & United Nations, 2015).

In Ghana, estimates by the Ghana Demographic and Health Survey (GDHS) (2014) showed that just less than three quarters (73.0%) of births were conducted in health installations, and out of this percentage, the largest proportion was in the public sector. This was an increase since the GDHS in 2008 indicated that health facilities recorded 57.0% of births. This implies that, 27.0% of women delivered at home instead of in health centers, due to various reasons including but not limited to the distance to health centers, issues relating to care quality, and cost (Ghana Statistical

Service, Ghana Health Service, & ICF International, 2015). According to the GDHS 2014 report, approximately 74% of births in Ghana were delivered by skilled health professional of which 14% were conducted by a doctor; 57% by nurses and midwives,while community health officers or community health nurses assisted 3.0% of deliveries. On the other hand, traditional birth attendants (TBAs) assisted with sixteen percent (16.0%) of births, relatives and other persons assisted 7.0% of all births and 3.0% of deliveries happened spontaneously with no assistance from anyone. The survey also revealed that 90.0% of deliveries in urban areas were conducted by skilled personnel while 60.0% of women who delivered in rural areas received care from skilled providers (Ghana Statistical Service, Ghana Health Service, & ICF International, 2015).

On the contrary, this is not the case in Kpone, a sub-district of Kpone-Katamanso District. Annual reports from the Kpone Health Center for 2015 reveal that even though antenatal coverage is at an appreciable level, the same cannot be said of skilled delivery. Out of 3963 antenatal care attendances, only 338 (8.5%) skilled deliveries were done in 2015, and 10% and 10.2% were done in 2016 and 2017 respectively. Given the introduction of free maternal health services which has reduced the cost of delivery, as well as increase health education on patronage of skilled delivery and its benefits, it is envisaged that pregnant women will utilize skilled delivery services which will result in a growth in the coverage of skilled deliveries but that is not the situation. The 10.2% coverage in 2017 is far less than the 2016 national target (80%) and the worldwide target of 85% in 2016. It is in this light that the research seeks to assess the utilization of skilled delivery services and associated factors among women in Kpone in the Kpone-Katamanso District in the Greater Accra Region of Ghana.

1.3 Research Questions

Below are the research questions for this study:

1. What is the prevalence of skilled delivery services utilization among women in Kpone in the Greater Accra Region of Ghana?
2. What are the demographic and socio-economic factors affecting the utilization of skilled delivery services among women in Kpone in the Greater Accra Region of Ghana?
3. What is the history of maternal health service utilization factors affecting the utilization of skilled delivery services among women in Kpone in the Greater Accra Region of Ghana?

1.4 Objectives of the Study

1.4.1 General Objective

The general objective is to assess the utilization of skilled delivery services and associated factors (demographic and socio-economic, and history of maternal health service utilization) among women in Kpone in Greater Accra Region of Ghana.

1.4.2 Specific Objectives

The specific objectives of this study are:

1. To estimate the prevalence of utilization of skilled delivery services among women in Kpone in the Greater Accra Region of Ghana.
2. To determine the demographic and socio-economic factors affecting the utilization of skilled delivery services among women in Kpone in the Greater Accra Region of Ghana.

3. To investigate the history of maternal health service utilization factors affecting the utilization of skilled delivery services among women in Kpone in the Greater Accra Region of Ghana.

1.5 Justification

The purpose of the study was to assess the utilization of skilled delivery services and associated factors (demographic and socio-economic, and obstetric history) among women in Kpone in Greater Accra Region of Ghana. The study looked at factors that promote the utilization of skilled delivery services among women in Kpone in Greater Accra Region of Ghana. Utilization of skilled delivery services among women of reproductive age plays a critical role in preventing neonatal and maternal morbidity and mortality. Child and maternal mortality and morbidity are on the rise in Ghana and the Kpone Township in Greater Accra Region of Ghana is no exception (GSS, 2014). While this may be indicative of the low utilization of skilled delivery, information regarding the factors that may be affecting the utilization of skilled delivery by women in Kpone in Greater Accra Region of Ghana is lacking.

This information could provide the essence of the utilization of skilled delivery services especially among women who do not visit antenatal care in order to decrease maternal and neonatal mortality. Also, this study would assist the Kpone Health Service in organizing educative programs on the importance of skilled delivery services to create awareness of skilled delivery services. Furthermore, the results of this dissertation could be used to strengthen future developments in reproductive health service delivery to women and to direct the Ghana Health Service in Kpone district, other partner organizations in the nation and the country as a whole.

1.6 Conceptual Framework

The graphical representation of demographic factors, economic factors, socio-cultural factors and obstetric history related factors and its relationship with utilization of skilled delivery services among women in Kpone in the Greater Accra Region of Ghana can be seen in Figure 1.1. The conceptual framework comprises of Independent variables (demographic and socio-economic factors and obstetric history related factors) and Dependent variable (Utilization of skilled delivery services). These independent variables were derived from review of related studies where utilization of skilled delivery services is affected by maternal demographic and socio-economic and obstetric history related factors.

Demographic and socio-economic factors identified include age, parity, educational level, partner education, ethnic group, religion, birth order wealth status, and possession of valid health insurance card. Obstetric history related factors comprise of received antenatal care at last birth, place of antenatal care, frequency of antenatal care visits, and means of transportation to place of antenatal care.

As highlighted by Gudu & Addo (2017), Kebede, Hassen, & Teklehaymanot (2016), history of maternal health service utilization factors and demographic and socio-economic factors have a significant effect on the utilization of skilled delivery services. An example is the positive relationship between frequency of antenatal care visits and utilization of skilled delivery services (Karkee, Lee, & Khanal, 2014; Kitui, Lewis, & Davey, 2013). Boah, Mahama, & Ayamga (2018) identified that, mode of transportation to place of delivery is a key factor that influence the utilization of skilled delivery services. Hence, the conceptual framework in Figure 1.1 shows how

the above-mentioned factors (demographic and socio-economic factors and obstetric history related factors) affect skilled delivery utilization among women.

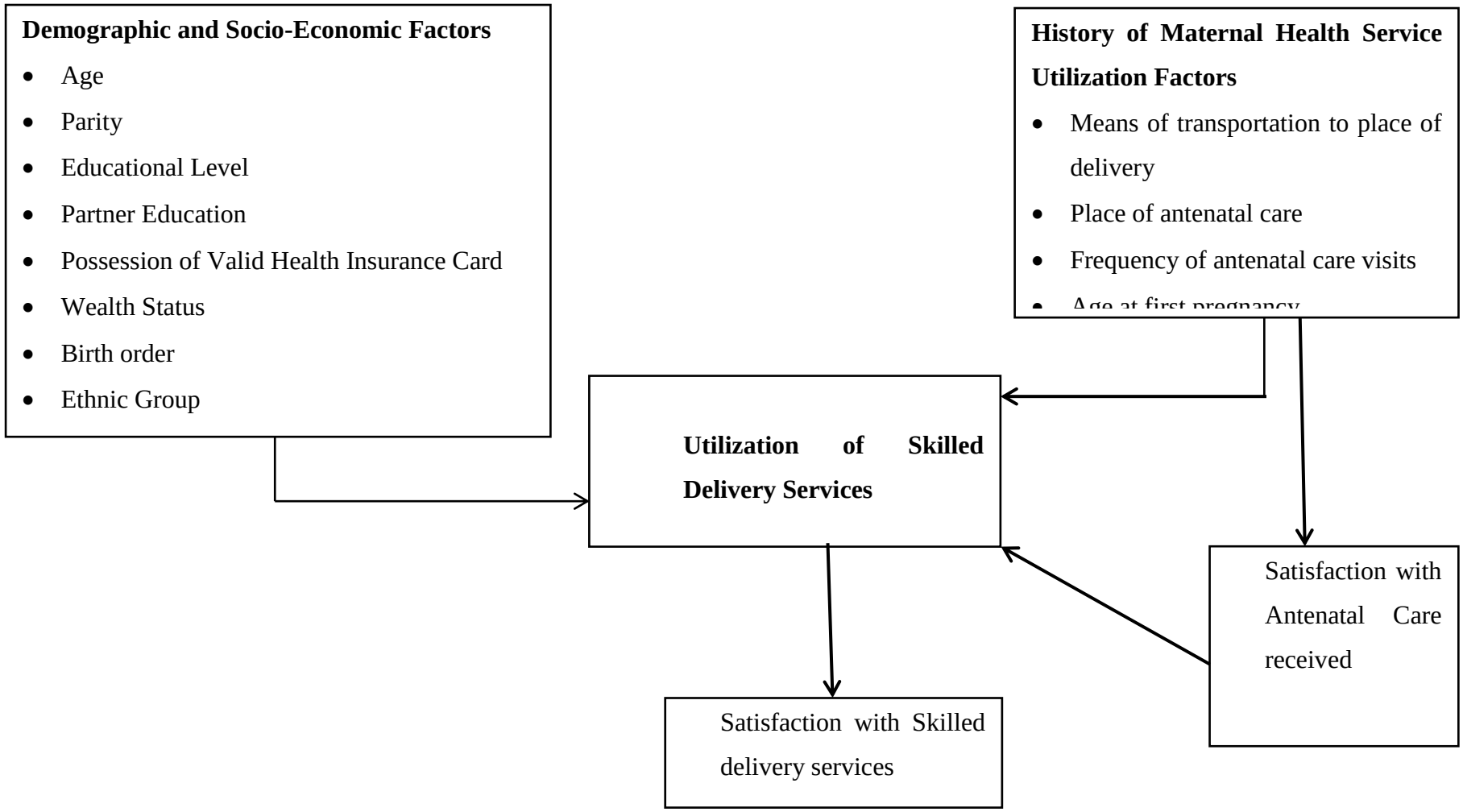

Figure1.1: Conceptual Framework of factors affecting utilization of skilled delivery services

Source: Researcher's own work.

CHAPTER TWO

LITERATURE REVIEW

2.1 The Concept of Utilization of Skilled Delivery Services

Babalola and Fatusi (2009) defined skilled delivery as a care given during pregnancy to the mother and her baby, on delivery and soon after delivery by a certified, well trained and qualified health care giver who has the right tools and the backing of a fully operational health system, with transport and facilities for referring emergency obstetric cases. A skilled birth attendant is defined as "an accredited health professional such as a midwife, doctor or nurse who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns" (WHO, 2004).

Skilled attendance at birth requires two key components: a skilled birth attendant and an enabling environment include drugs and equipment, a functional referral system and enabling policies (Koblinsky et al., 2006). Access to skilled care, most importantly skilled delivery at birth, can ensure that professionals attend to women and newborns during childbirth and also link women to the referral system in the case of any complications (Parkhurst et al., 2006).

2.2 The Importance of Skilled Delivery

To decrease the incidence of maternal mortality, one critical intervention to employ is skilled delivery (WHO, 2014). This is because 75% of all mothers who die within the immediate postpartum (first 24 hours) of delivery die as a result of the complications that surround labour and delivery (Khan et al., 2006). Skilled delivery is when a woman receives appropriate care during labour and delivery and immediately after

delivery (Graham et al., 2001). The requirement is that labour and delivery takes place in an environment where there is appropriate infrastructure, equipment and supplies in addition to effective referral and communication systems (Graham et al., 2001). During childbirth, even though complications are highly unpredictable, they can be successfully managed to prevent losses of lives if they (complications) are identified and dealt with promptly. The World Health Organization (WHO) highly advocates that all deliveries must be conducted by a skilled birth attendant (SBA)—a professional who is able to recognize and handle normal labour and delivery; treat complications and refer appropriately (Graham et al., 2001; Khan et al, 2006).

Despite this recommendation, prevalence of supervised delivery is still very low in sub-Saharan Africa. In nearly one out of every ten deliveries, there is a situation where unexpected birth complications occur (Bacak et al., 2005). In such situations, every second of delay in receiving skilled care significantly raises the danger of stillbirth, neonatal death and maternal death" (Lee et al., 2009). It is forecasted that achieving universal skilled birth attendance could drop the maternal mortality ratio by 16-33% and neonatal mortality by 20-30 percent globally (Graham et al., 2001; Darmstadt et al., 2005). Skilled delivery ensures the procedure is attended by a person with the right knowledge, skills and equipment and also provides post-partum care to mother and baby (Kabir, 2007).

It is essential for mothers to give birth in a proper setting equipped with life-saving tools and hygienic conditions , in addition to professional attention. This can also help bring down to the barest minimum, the danger issues and conditions that may lead to death of mother and child (Campbell et al., 2006; Kesterton et al., 2010). Decreasing

maternal mortality is therefore overwhelmingly dependent on the extent to which intrapartum-care strategies are effectively implemented..

2.3 Prevalence of Utilization of Skilled Delivery

Making sure that all babies are born in health facilities or with the assistance of a skilled birth attendants is a crucial strategy that will reduce maternal and neonatal mortality and morbidity. Globally, approximately twenty five percent (25%) of all births are delivered with no help or care from experienced certified officers (UNICEF, 2015). In 2015 only, there were more than 40 million births that were not attended to by skilled attendants in low and middle-income countries. About 90 percent of this figure were in South Asia alone (UNICEF, 2015). According to the World Health Organization's projection of coverage, only 18% of births in Bangladesh were attended by skilled professionals in 2011. This was only 19% in Nepal, 39% in Pakistan and 47% in India (WHO, 2011). This shows less utilization of skilled delivery services

In Ghana, there have been significant increases in births that are carried out in health installations from forty two percent (42%) in 1988 to a 2014 figure of seventy four percent (74%) (GSS report, 2014). There was also an increase in the number of skilled deliveries conducted in the Volta Region. 57.4 percent skilled deliveries were recorded in the region in 2013, as compared to 47 percent in 2012, with 43.1 percent and 38.8 percent being the percentage of skilled deliveries recorded respectively in the years 2010 and 2011 (VRHD Annual Report, 2014). In the Keta Municipality, the issue was rather different as the Municipality recorded 71 percent skilled delivery in 2012 and 60.1 percent in 2014 (DHIMS, 2012-2014). Summing up, there has been an increase in the rate of skilled delivery worldwide, as expressed above but it remains a

fact that the MDGs and SDGs targets have not been accomplished. There is therefore the need for ongoing research and interventions to raise the level or rate of skilled deliveries, most importantly in low income settings like Ghana.

2.4 Maternal Demographic and Socio-economic Factors and Utilization of Skilled Delivery

2.4.1 Maternal Age and Utilization of Skilled Delivery

Kebede, Hassen, & Teklehaymanot (2016) used logistic regression and found that maternal age was significantly associated with utilization of skilled delivery services. Their study found that young mothers were 1.77 times more likely to use skilled delivery services as compared to older mothers.

Furthermore, Shahabuddin et al. (2017) analyzed data on1662 ever-married young women (aged 15-24 years) from the 2011 Nepal Demographic and Health Survey data using bivariate and multivariate logistic regression. The study found that maternal age was significantly associated with utilization of skilled delivery services. That is, older women were more likely to utilize skilled delivery compared to younger women. Similarly, Exavery et al. (2014) assessed 915 women in Rufiji, Kilombero, and Ulanga districts of Tanzania using Chi-square test and multivariate logistic regression to examine factors that influence institutional delivery. They found that maternal age was significantly associated with utilization of skilled delivery services.

However, on the contrary, a study conducted by Gudu & Addo (2017) sampled 400 women aged 15 to 49 years who had delivered a year prior to the study. The study used chi-square test and found that maternal age had no significant relationship with utilization of skilled delivery services.

2.4.2 Parity and Utilization of Skilled Delivery

A study by Agha & Carton (2011) on 2018 married women who had children aged 12 months or younger in rural areas of Jhang district in Pakistan was analysed using logistic regression. The study found a positive association between parity and utilization of skilled delivery services. This is consistent with studies by Kebede, Hassen, & Teklehaymanot (2016) who found that number of children the women delivered was significantly associated with the utilization of skilled delivery services. They found that women with parity 1 were three times more likely to give birth in health care facility than multiparous women. This is similar to the findings in Ghana by Manyeh et al. (2017) who found that parity has a significant positive relationship with utilization of skilled delivery.

2.4.3 Maternal Educational level and Utilization of Skilled Delivery

Tebekaw, Mashalla, & Thupayagale-Tshweneagae (2015) analysed data on 901 women aged 15–49 years in Addis Ababa, Ethiopia and found that level of education has a significant positive association with utilization of skilled delivery services. They further identified that women with no formal education were almost four times more likely to deliver at home compared to those with secondary and above educational level. This is consistent with studies in Nepal by Shahabuddin et al. (2017) and in Kenya by Kitui, Lewis, & Davey (2013) who identified that maternal educational level was significantly associated with utilization of skilled delivery services.

Shahabuddin et al. (2017) further reported that young women who had secondary level education or above were 1.63 times more likely to choose skilled delivery than young women who had no formal education. According to Alemayehu & Mekonnen (2015), women with high levels of education stand a greater chance of having access

to written information and will likely adapt to current cultural perspectives. Also, women are empowered by education to help them decide for on their reproductive health needs.

2.4.4 Birth Order and Utilization of Skilled Delivery

Kalule-Sabiti, Amoateng, & Ngake (2014) assessed 8531 women aged 15-49 from 9864 households selected for the 2006 Uganda Demographic and Health survey using logistic regression. The study found that birth order has a significant relationship with utilization of skilled delivery. They reported that the odds of women with first birth order giving birth in a health facility is 2.37 times higher than their counterparts with 6+ birth order. This is consistent with studies in Kenya by Kitui, Lewis, & Davey (2013) who found that birth order was significantly associated with utilization of skilled delivery services.

2.4.5 Partner Education and Utilization of Skilled Delivery

A sub-analysis of data from the 2014 GDHS showed that partner education was significantly associated with utilization of skilled delivery among women in Northern Ghana (Dickson & Amu, 2017).The finding of the study showed that partner education has a significant positive association with utilization of skilled delivery. This finding implies that utilization of skilled delivery services may continue to be low in the Northern parts of the country if male partner involvement is not promoted in the country. This is a result of the fact that societal ascriptions of gender roles for men and women strongly influence access to skilled delivery care for pregnant women (Ensor & Cooper, 2004). These ascriptions normally make male partners the heads of their respective households. As heads of households, the males mainly

decide the means of healthcare accessibility including where the women should seek care (Amu & Dickson, 2016).

2.4.6 Ethnic Group and Utilization of Skilled Delivery

A sub-analysis of data from the 2011 Nepal Demographic and Health Survey showed that ethnic group was significantly associated with utilization of skilled delivery among women in Northern Ghana (Shahabuddin et al., 2017). This is consistent with evidence from Kenya (Kitui, Lewis, & Davey, 2013) and in Rufiji, Kilombero, and Ulanga districts of Tanzania (Exavery et al., 2014). However, this is contrary to the findings of Boah, Mahama, & Ayamga (2018) who identified no relationship between ethnic group and utilization of skilled delivery services in Ghana.

2.4.7 Religion and Utilization of Skilled Delivery

Yegezu & Kitila (2015) studied 281 pregnant women in Jimma Zone of South West Ethiopia and found a statistical significant relationship between religion and utilization of skilled delivery services. This is consistent with evidence from Kenya, Ghana, and Nepal that religion was significantly associated with utilization of skilled delivery services (Kitui, Lewis, & Davey, 2013; Boah, Mahama, & Ayamga, 2018; Shahabuddin et al., 2017).

2.4.8 Possession of Health Insurance Card

A sub-analysis of data from the 2011 national Ghana Multiple Indicator Cluster Survey showed that possession of valid insurance card has a positive relationship with utilization of skilled delivery services (Khan & Singh, 2016).

Also, a sub-analysis of data from the 2008-2009 Kenya Demographic and Health Survey showed that possession of valid insurance card has a positive relationship with

utilization of skilled delivery services (Were, Were, Wamai, Hogan and Galarraga, 2017).This is consistent with studies in Ghana by Gudu & Addo (2017) who found that possession of health insurance card was significantly associated with utilization of skilled delivery services.

2.4.9 Wealth Status

An analysis of women based on two rounds of Ethiopian Demographic and Health Surveys showed household wealth was positively associated with maternal health service utilization (Mezmur, Navaneetham, Letamo, & Bariagaber, 2017). The finding is consistent with studies in Kenya by Kitui, Lewis, & Davey (2013) and in Nepal by Shahabuddin et al. (2017) who found an association between wealth status and utilization of skilled delivery services. According to Shahabuddin et al. (2017), wealthy young women are 2.12 times more likely to deliver their child in a health institution compared with poor young women. However, evidence in Ghana found a null association between wealth and utilization of skilled delivery services (Gudu & Addo, 2017).

2.5 History of Maternal Health Service Utilization Factors

2.5.1 Received Antenatal Care at Last Birth

Boah, Mahama, & Ayamga (2018) analysed data collected from 38, 298 women in reproductive age in the Builsa South District in the Upper East Region of northern Ghana. They found that women who received antenatal care at last birth were positively associated with utilization of skilled delivery services.

2.5.2 Place of Antenatal Care

A sub-analysis of data from the 2008/2009 Kenya Demographic and Health Survey showed that place of antenatal care has a significant positive association with utilization of skilled delivery services (Kitui, Lewis, & Davey, 2013).

2.5.3 Frequency of Antenatal Care Visits

Karkee, Lee, & Khanal (2014) analysed 4079 ever married women from the 2011 Nepal Demographic and Health Survey and found that number of antenatal care visits was positively and significantly associated with utilization of skilled delivery services. They also identified that women who made more than four antenatal care visits were five times more likely to deliver at a health facility when compared to those who paid no visit. This is consistent with studies in Kenya by Kitui, Lewis, & Davey (2013) who found that number of antenatal care visits was significantly associated with utilization of skilled delivery services. According to Gudu & Addo (2017), attending ANC frequently on has a positive effect on reducing maternal mortality as it helps in the early detection of obstetric conditions and on the other influences women's decision to seek for skilled delivery assistance.

2.5.4 Satisfaction with Antenatal Care Provided

Lakew, Ankala & Jemal (2018) declared that patient satisfaction with antenatal care services has traditionally been linked to the quality of services given and the extent to which specific needs are met. This is consistent with studies in Ghana by Gudu & Addo (2017) who found that satisfaction with antenatal care provided was significantly associated with utilization of skilled delivery services.

2.5.5 Age at First Pregnancy and Utilization of Skilled Delivery

Alemayehu & Mekonnen (2015) studied 373 in Northwest Ethiopia and found that age at first delivery has a positive association with utilization of skilled delivery services. This result is in consonant with studies in Kenya by Kitui, Lewis, & Davey (2013) who found that age at first delivery was significantly associated with utilization of skilled delivery services.

2.5.6 Means of Transportation to Place of Delivery and Utilization of Skilled Delivery

Enuameh et al. (2016) examined 1500 women aged 15–49 years with live or stillbirths from January 2011 to April 2013 who live in Dodowa (Greater Accra Region), Kintampo (Brong Ahafo Region), and Navrongo (Upper-East Region). The study identified that means of transportation to place of delivery has a positive significant relationship with utilization of skilled delivery services. This is consistent with evidence from Kenya and Ghana that means of transportation to place of delivery has a positive association with utilization of skilled delivery services (Kitui, Lewis, & Davey, 2013; Boah, Mahama, & Ayamga, 2018).

2.6 Conclusions and Research Gaps

- Dearth of research on utilization of skilled delivery in developing countries, with only 15% of low and middle income countries covered (2 studies in Ghana).
- Few studies in low and middle income countries conducted among women to assess the relationship between history of maternal health service utilization and utilization of skilled delivery services, for example only three of the eight

studies of the are from Sub-saharan Africa with no studies on place of antenatal care and age at first pregnancy from Ghana.

- Few researches in identifying the association between history of maternal health service utilization, and utilization of skilled delivery services in high income countries.

CHAPTER THREE

METHODOLOGY

3.1 Study Design

The study employed a descriptive cross-sectional research design with quantitative method of data collection and analysis. Structured questionnaires were used to collect data on economic and demographic, and history of maternal health service utilization characteristics of women in Kpone Township.

3.2 Study Area

The study was carried out in Kpone Township of the Kpone-Katamanso District. The Kpone Katamanso district is one of the sixteen (16) districts in the Greater Accra Region of Ghana. Its capital is Kpone. Kpone Katamanso district was established in 2012 by Legislative Instrument (L.I) 2031, when it was carved out of the Tema Metropolis District. The district is bordered to the north by Akuapim North District and Akuapim South District (both in the Eastern Region), to the east by Shai Osudoku District and Ningo Prampram District, to the south by the Gulf of Guinea, and to the west by Tema Metropolis District, Ashaiman Municipal District, Adenta Municipal District and La Nkwantanang Madina Municipal District. According to the 2010 census, the population of the district is 109,864 with 53,376 males and 56,488 females. Kpone is a fishing community with its inhabitants being predominantly fishermen and fish mongers. Educational levels are low as well as income levels. The health facilities available at Kpone-Katamanso District are community-based health planning services (CHPS) in Saduase community and Kpone health center.

3.3 Study Population

The target population for this study was women of reproductive ages between 15 and 49 years who had given birth a year prior to the study in Kpone Township, Ghana. The total number of women between the ages of 15 years and 49 years was 32,751 out of a total of 109,864 in the Municipality.

3.4 Variables in the Study

The dependent variable in the study was utilization of skilled delivery services. Four categories of factors were examined as independent variables. They are; demographic factors, economic factors, socio-cultural, and history of maternal health service utilization factors. A summary of the independent and dependent variables that will be used in the study can be found in Table 3.1.

Table 3. 1: Summary of Variables used in the Study

Name of Variable	Variable Measurement	Scale of measurement
Dependent variable		
Utilization of Skilled Delivery Services		Binary
Independent Variables	**Demographic and socio-economic factors**	
Age	Years	Continuous
Parity	Value	Discrete
Educational Status	No formal education, primary, middle/JHS/JSS, Secondary, Tertiary.	Nominal
Partner educational Status	No formal education, primary, middle/JHS/JSS, Secondary, Tertiary.	Nominal
Possession of Valid Health Insurance Card.	No, Yes	Binary
Wealth Status	Currency in Ghanaian Cedis	Continuous
Ethnic Group	Asante/Akyem, Ewe, Fante/Nzema, Ga/Dangme, Mole-Dagbani/Grusi	Nominal
Religion	Christianity, Muslim, Traditional	Nominal

Table 3. 2: Summary of Variables used in the Study *(Continued)*

Name of Variable	Variable Measurement	Scale of measurement
Independent Variables	**History of Maternal Health Service Utilization Factors**	
Means of transportation to place of delivery at last birth	Walking, bus or taxi, own car, motorcycle	Discrete
Place of antenatal care	Hospital, Health center	Nominal
Frequency of antenatal care visits	Value	Discrete
Age at first pregnancy	Years	Continuous

3.5 Sampling Method

This study was conducted using UN recommendation for cluster sampling with probability proportional to size adjusted to achieve our sample size (United Nations Statistical Division, 2008). A sampling frame with the list of houses members in Kpone Township was collected from Kpone-Katamanso municipal assembly. As a result a total of 20 clusters each containing 10 houses and thus 16 participants per cluster were created within the enumerated area with the number of clusters proportional to the population size within the particular enumerated area. The houses in each cluster was visited in a random walk method starting from the house nearest to Kpone health centre, church or school as the focal point in each cluster. Within each household, all consenting women between 15 and 49 years who had been residents of the enumerated area for more than 3 months was enrolled. The next household was taken as the one nearest to that previously visited until the sample size for the given cluster will be achieved.

3.6 Sample Size Determination

The minimum sample size for the study was calculated using the Cochran (1977) formula for population proportions. Annual reports from the Ghana Demographic and Health survey for 2014 reveal that the percentage of skilled deliveries was 26.01% for

Kpone-Katamanso District. The proportion of skilled deliveries in Kpone in 2018 was used as the estimated proportion.

The sample size was calculated using the following equation estimates;

$$n = \frac{Z^2{}_{\frac{\alpha}{2}} \times P \times (1 - P)}{e^2}$$

Where n= the minimum sample size

α = significance level = 0.05

Z = z-score for population distribution at 95% confidence interval =1.96

e = margin of error or precision = 5%

P = proportion of skilled delivery (estimated proportion) = 26.01%. Hence, p will be assumed to 0.2601.

Sample size computation using Cochran (1977) is given as;

$$n = \frac{1.96^2 \times 0.2601 \times (1 - 0.2601)}{0.05^2} = 295.7 \approx 296$$

Accounting for 5% non-response rate, the total number of participants was calculated as follows: 296 + (0.05 × 296) = 311. Therefore, the required final sample size of 311 women of reproductive was recruited for the study.

3.7 Inclusion and Exclusion Criteria

3.7.1 Inclusion Criteria

The study considered women of reproductive age (15 to 49 years old women) who have signed a written informed consent to be part of the study. These women should

have had a live or stillbirth between February 2018 and February 2019 and resident in the study area from February 2018 to the time of the study.

3.7.2 Exclusion Criteria

The study excluded women who are severely ill, or mentally ill. Those who did not give consent or are unavailable at the time of the study did not take part in the study.

3.8 Data Collection Procedure

The study used primary data collected from women of reproductive age in Kpone Township through the administration of questionnaires. Questionnaires for the study were administered to women living in Kpone Township at Greater Accra. The questionnaire was used to gather information on demographic and socio-economic, and history of maternal health service utilization characteristics of women of reproductive age in Kpone Township using random walk method. These variables have been reported in literature to have a relationship with utilization of skilled delivery services.

The closed-ended structured questionnaire was made up of three (3) sections; section A and section B. Section A sought to get information on participants' demographic and socio-economic such as age, sex, parity, partner's educational status, educational status, possession of valid national health insurance card, religion, and wealth status. Section B comprised of history of maternal health service utilization such as means of transportation to place of delivery at last birth, age at first pregnancy, frequency of antenatal care visits, and place of antenatal care. These variables have been reported in the literature to have an association with weight loss practices.

3.9 Data Analysis

The researcher double entered the data gathered into a Microsoft excel 2015 spreadsheet, clean it to remove missing values and transfer it to STATA version 15 for data analysis. Also, the researcher used descriptive statistics such as frequency distribution tables and percentages. Furthermore, statistical tests such as Chi-square test and multiple logistic regression to determine the relationship between the dependent variable and various independent variables was used. Both bivariate and multiple logistic regression analysis was used to assess the determinants of the utilization of skilled delivery services.

All variables identified to have an association with the utilization of skilled delivery services in bivariate analysis using Chi-square test with 95% Confidence Interval (CI) at significant level of ≤ 0.05 was taken to multivariable regression analysis in order to control confounders. The study then used Adjusted Odds Ratio with 95% CI to evaluate the degree of relationship between demographic and socio-economic, and history of maternal health service utilization characteristics and utilization of skilled delivery services of the participants.

A Chi-square analysis was used to test the relationship for cross-tabulations and to establish how proportions of the various independent variables compare between the categories of the outcome variable (demographic and socio-economic, and history of maternal health service utilization characteristics and utilization of skilled delivery services). Since bivariate analyses do not consider confounding effects, a logistic regression was conducted to identify how strong demographic and socio-economic, and history of maternal health service utilization characteristics was associated with utilization of skilled delivery services.

3.10 Quality Control Measure

A standardized questionnaire was prepared in English and translation into the local language (Ga) was agreed on during training prior to start of the fieldwork. These questionnaires was scrutinized by experience supervisor and administered to women of reproductive age in Prampram Township at Ningo-Prampram District which is in the East of Kpone-Katamanso District of Ghana for pre-testing. The pre-testing is to assess the understanding of women of reproductive age in Kpone Township. The goal of conducting a pre-testing survey was to assess the comfortability of participants and the precise time used by the participants when answering the questionnaire before administering the questionnaire to the women of reproductive age in Kpone Township. Information derived from the administration of questionnaire to the participants was kept in a cabinet under lock and key, accessible to only the principal investigator.

3.11 Ethical Consideration

3.11.1 Ethical Issues

Before the researcher started with the data collection and analysis, ethical clearance will be sought from the Ghana Health Service (GHS) ethical review committee as well as permission from the municipal assembly of Kpone-Katamanso for approval.

3.11.2 Consenting Process

Consent will be sought from the municipal assembly of Kpone-Katamanso; the consent of the participants was also sought by signing an informed consent form. The consent form contained information regarding possible risk or discomfort, possible benefits, data storage and management, contact person for additional information, voluntary participation and the right to withdraw from the study at any given time

without penalty attached. Consent forms was given to the women of reproductive age and was returned signed to give their consent. Parental permission and assent form was taken from participants less than 18 years.

3.11.3 Privacy and Confidentiality

The information shared by participants during the study was confidential to the principal investigator of the study. In view of this, participants were given codes for identification instead of using their names. The names of participants were not disclosed to any other person before, during, and after the study is conducted successfully.

3.11.4 Possible Risk and Discomfort

There was an anticipated minimal risk for the study to be conducted: this is in view of soliciting information from women of reproductive age which to an extent caused them to be a bit hysterical. However, any risk identified during the study was duly addressed. A minimal discomfort was respondents answering questions about their age at first pregnancy especially for children under 18 years.

3.11.5 Possible Benefits

This study informed current measures aimed at improving skilled delivery with the Kpone Township.

3.11.6 Voluntary participation and Right to Withdraw

Participation in this study is voluntary. Participants are free to answer part or the entire questionnaire. They are free to withdraw from the study at any point in time. They can also choose not to answer any question(s) they find uncomfortable about.

Should they choose not to participate; it would not affect them or Kpone Township in any way. However, they are encouraged to partake fully in this study.

3.11.7 Compensation

The principal investigator did not offer any form of payment to participants sampled for the study. Instead, refreshments in the form of soft drinks and biscuits were given to participants for their time spent during the study.

3.11.8 Data Storage and Management

The principal investigator stored the data collected for the study electronically on pen drives, compact disc, external hard disk drive, and google drive. The password to all account of the electronic medium is private to the principal investigator alone. The principal investigator destroyed the information that identifies participants or link them to their responses stored a year after the dissertation is submitted.

3.11.9 Dissemination of Findings

The results of this research were submitted to the School of Public Health in partial fulfillment of the requirements for the award of a Master of Public Health Degree. The findings were also written for publication in a reputable journal.

3.11. 10 Conflict of Interest

The study was not associated with any conflict of interest.

3.11.11 Funding

This study is solely funded by the principal investigator.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the findings of the study. This study used primary data collected from women of reproductive age in Kpone in the Greater Accra Region of Ghana to assess the factors that influence the utilization of skilled delivery services.

4.1 Socio-Demographics Characteristics of women of reproductive ages between 15 and 49 years

A total of 311 women were recruited and they all completed the questionnaire making a response rate of 100%. They were all included in the analysis. Table 4.1 shows the socio-demographic characteristics of participants. The mean age of the participants was 33.1 (SD ± 8.0) years, with the minimum of 16 years and maximum of 49 years. Twenty-nine (9.3%) of the participants were teenagers (below 20 years).

About 29.3% of participants had either not been to school before or had attained primary educational level and 25.4% partners of the participants had either not been to school before or had attained primary educational level. Also, more than three-quarters of the participants 80.4% had less than 4 children. The average monthly income of participants was Ghc 436.54 (± 395.02) with the majority of the participants 41.8% having medium wealth (between Ghc200 and Ghc999.99). Furthermore, majority of the participants 60.1% were Christians and 38.9% participants belong to the Ga/ Dangme ethnic group.

Table 4.1: Demographic and Socio-economic characteristics of study participants

Characteristics	Frequency (N=311)	Percentage (%)
Age Mean (± SD) 33.1 (± 8.0)		
≤20 years	29	9.3
21-30 years	99	31.8
31-40 years	125	40.2
>40 years	58	18.7
Educational Status		
No Formal Education	31	10.0
Primary	60	19.3
Middle/JHS/JSS	70	22.5
Secondary	83	26.7
Tertiary	67	21.5
Partner Educational Status		
No Formal Education	25	8.04
Primary	54	17.4
Middle/JHS/JSS	72	23.2
Secondary	75	24.1
Tertiary	85	27.3
Parity Mean (± SD) 2.50 (± 1.41)		
1	95	30.6
2	73	23.5
3	79	25.4
4	33	10.6
5	22	7.1
>5	9	2.9
Possession of Valid 67890Health Insurance Card		
No	88	34.9
Yes	164	65.1
Monthly Wealth Status Mean (± SD)	436.5 (± 395.02)	
Poor (<GHC 200)	79	25.4
Medium (GHC 200 – GHC 999.99)	130	41.8
Rich (≥GHC1000)	102	32.8
Religion		
Christianity	222	71.4
Islam	89	28.6
Ethnic Group		
Asante/Akyem	51	16.4
Ewe	52	16.7
Fante/Nzema	38	12.2
Ga/Dangme	121	38.9
Mole-Dagbani/Grusi	49	15.8

4.2 History of Maternal Health Service Utilization of study participants

Table 4.2 shows the history of maternal health service utilization of participants. About 81.7% of the participants had received antenatal care at last birth while the remaining did not. Out of the total participants who received antenatal care at last birth, more than half of the participants were teenagers during their first pregnancy 51.5% with mean age at first pregnancy being 20.62 (± 4.2) years. Also, 65.0% participants visited the hospital for antenatal care, more than half 55.5% participants went for antenatal care more than 4 times, and only 22.4% participants were satisfied with antenatal care received. Also, 56.0% of the participants had used taxi or bus as means of transport to place of antenatal care.

Table 4.2: History of maternal health service utilization of study participants

Characteristics	**Frequency N=254**	**Percentage (%)**
Age at first pregnancy Mean (± SD)	20.62	(± 4.20)
<20 years	160	51.5
20-30 years	151	48.5
Place of delivery at last pregnancy		
Hospital	147	57.9
Health Center	107	42.1
Frequency of antenatal care visits		
≤4	113	44.5
>4	141	55.5
Satisfaction with antenatal care provided		
No	197	77.6
Yes	57	22.4
Means of transportation to place of delivery at last birth		
Walk	58	22.8
Taxi or Bus	142	56.0
Own Car	27	10.6
Motorcycle	27	10.6

4.3 Prevalence of Utilization of Skilled Delivery Services

The prevalence of women's utilization of skilled delivery services is shown in Figure 4.1. Out of 311 study participants, 257(82.6%) utilized skilled delivery services at their last delivery.

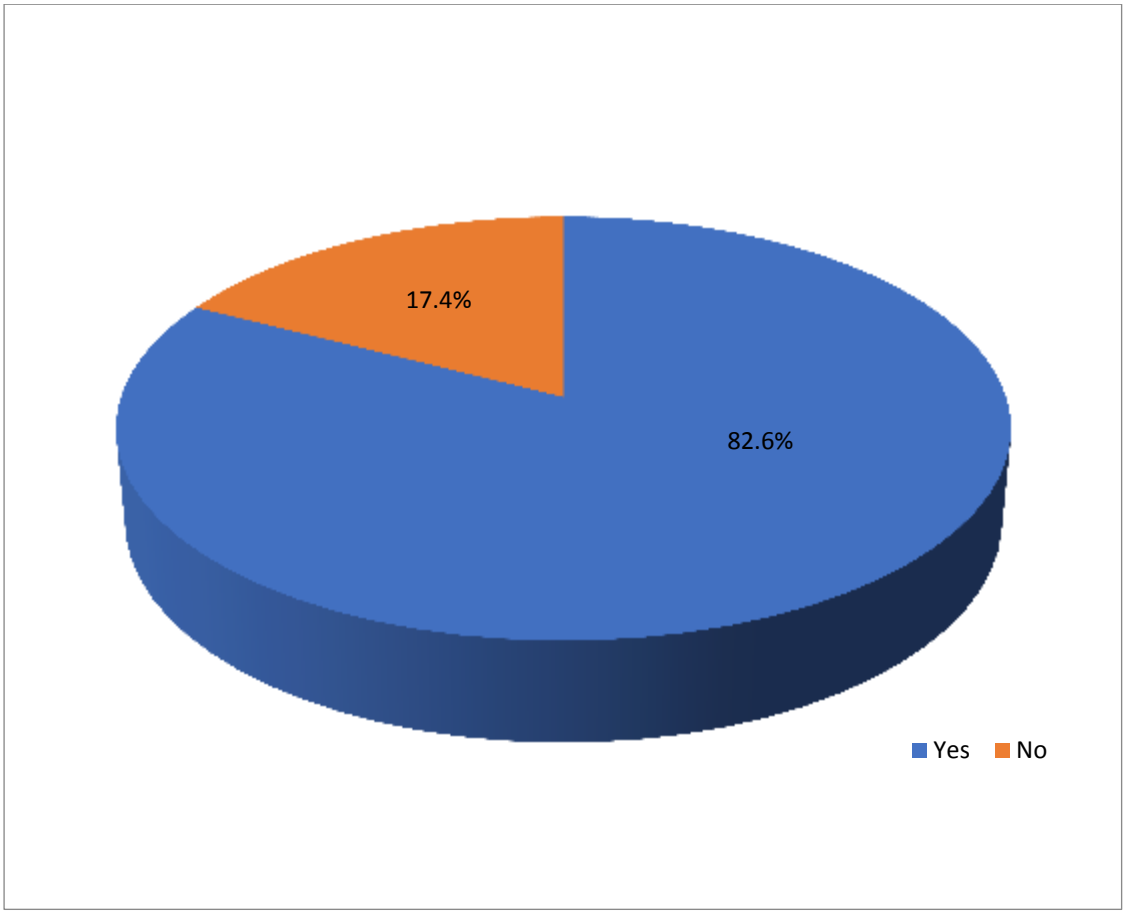

Figure 4.1: Utilization of skilled delivery services among participants

Also, the prevalence of women's utilization of skilled delivery services after receiving antenatal care is shown in Figure 4.2. Out of 254 of the study participants who had received antenatal care at last delivery, 205(80.7%) utilized skilled delivery services at their last delivery.

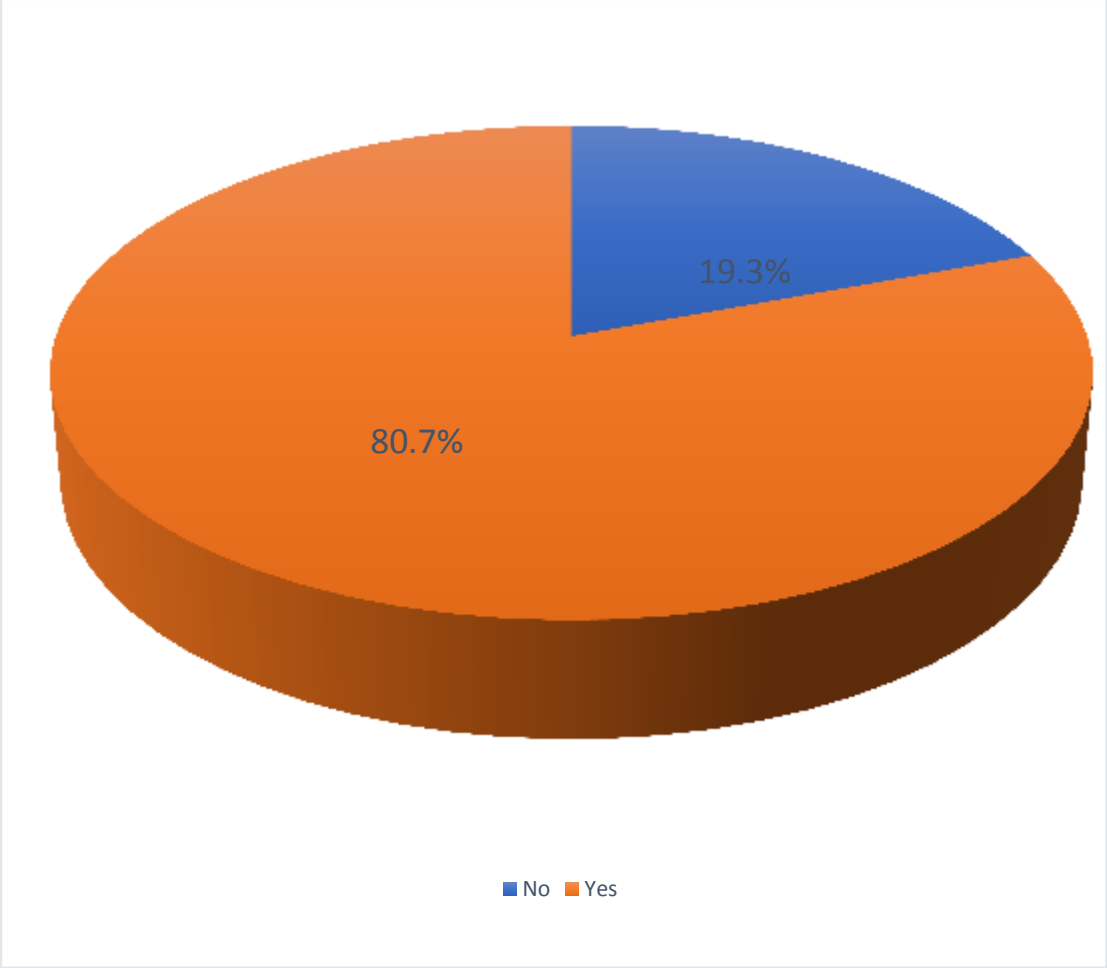

Figure 4.2: Utilization of skilled delivery services among women with ANC attendance

Furthermore, the prevalence of women's utilization of skilled delivery services after not receiving antenatal care was shown in Figure 4.3. Out of 57 (19.3%) of the study participants who did not receive antenatal care at last delivery, 21 (38.2%) utilized skilled delivery services at their last delivery.

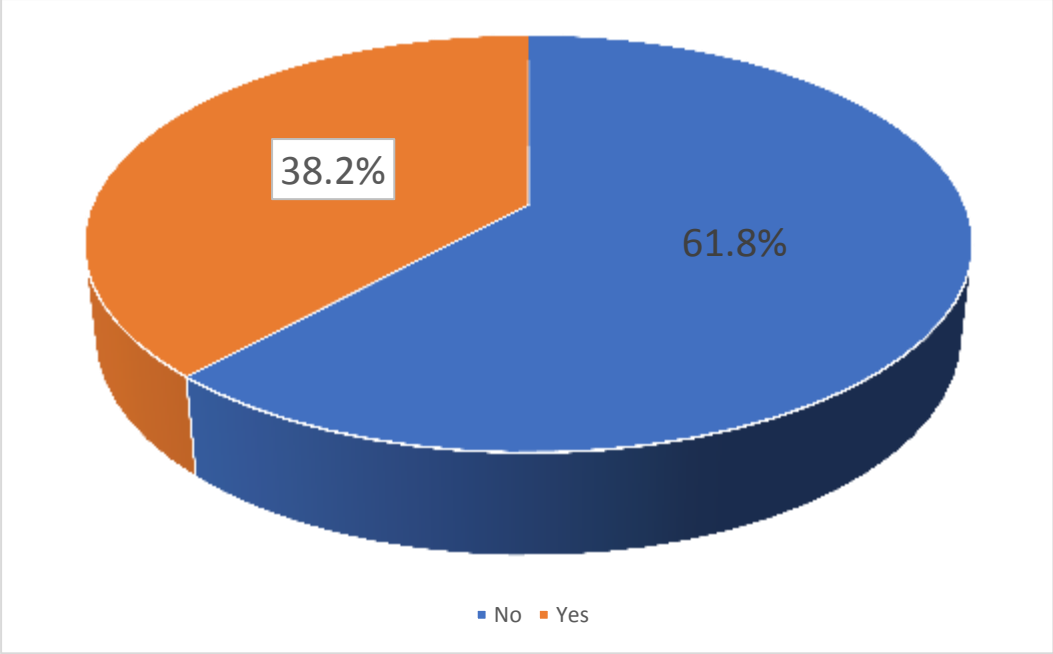

Figure 4.3: Utilization of skilled delivery services among women with no ANC attendance

4.4 Association between Demographic and Socio-economic Characteristics and utilization of skilled delivery services

Table 4.3 shows the association between demographic and socio-economic characteristics of participants and utilization of skilled delivery services. Participants who had one child were more likely to utilize skilled delivery services compared to participants who had more than five children (P-value < 0.001). Also, partner educational status was identified to be statistically significantly associated with utilization of skilled delivery services (P-value=0.040). Furthermore, participants who belong to Christianity religion were more likely to utilize skilled delivery services as compared to participants who belong to Islamic religion (P-value=0.006). Participants who possessed valid national health insurance card were reported to be more likely to utilize skilled delivery services as compared to participants who did not possess valid national health insurance card (P-value<0.001).

Table 4.3: Association between Demographic and Socio-Economic Characteristics and Utilization of Skilled Delivery Services

Characteristics	Utilization of Skilled delivery Services No N (%)	Yes N (%)	Total N (%)	Chisquare	P-Value
Age					
≤20 years	4(8.2)	20(9.8)	24(9.5)	2.1924	0.533
21-30 years	13(26.5)	66(32.2)	79(31.1)		
31-40 years	19(38.8)	83(40.4)	102(40.2)		
>40 years	13(26.5)	36(17.6)	49(19.2)		
Educational Status					
No Formal Education	5(10.2)	19(9.3)	24(9.5)	3.9776	0.409
Primary	14(28.6)	34(16.6)	48(18.9)		
Middle/JHS/JSS	10(20.4)	49(23.9)	59(23.2)		
Secondary	11(22.5)	57(27.8)	68(26.8)		
Tertiary	9(18.3)	46(22.4)	55(21.6)		
Partner's Educational Status					
No Formal Education	6(12.2)	15(7.3)	21(8.3)	5.9793	0.201
0000Primary	13(26.5)	31(15.1)	44(17.3)		
Middle/JHS/JSS	8(16.3)	51(24.9)	59(23.2)		
Secondary	9(18.4)	49(23.9)	58(22.8)		
Tertiary	13(26.6)	59(28.8)	72(28.4)		
Parity					
1	10(20.4)	65(31.7)	75(29.5)	**76.7771**	**0.000****
2	4(8.2)	56(27.3)	60(23.6)		
3	2(4.1)	61(29.8)	63(24.8)		
4	17(34.7)	12(5.9)	29(11.4)		
5	12(24.5)	6(2.9)	18(7.1)		
>5	4(8.1)	5(2.4)	9(3.6)		
Possession of Valid Health Insurance Card					
No	47(97.9)	41(20.1)	88(34.9)	**103.5410**	**0.000****
Yes	1(2.1)	163(79.9)	164(65.1)		
Monthly Wealth Status					
Poor (<GHC 200)	14(28.6)	49(23.9)	63(24.8)	0.4656	0.792
Moderate (GHC 200 – 999.99)	20(40.8)	90(43.9)	110(43.3)		
Rich (≥GHC1000)	15(30.6)	66(32.2)	81(31.9)		
Religion					
Christianity	40(81.6)	125(61.0)	165(65.0)	**7.4139**	**0.006***
Islam	9(18.4)	80(39.0)	89(35.0)		
Ethnic Group					
Asante/Akyem	11(22.5)	28(13.7)	39(15.4)		
Ewe	9(18.4)	39(19.0)	48(18.9)		
Fante/Nzema	5(10.1)	27(13.2)	32(12.6)	3.6528	0.458
Ga/Dangme	19(38.8)	75(36.6)	94(37.0)		
Mole-Dagbani/Grusi	5(10.2)	36(17.5)	41(16.1)		

**p<0.001, *p<0.01

4.7 Association between History of Maternal Health Service Utilization and Utilization of Skilled Delivery Services

Table 4.6 shows the association between history of maternal health service utilization and utilization of skilled delivery services. From Table 4.6, Fewer participants who were less than twenty years at first pregnancy utilized skilled delivery services compared to participants who were twenty years or more (46.3% vs 53.7%, P-value <0.001). Also, more participants who used bus or taxi as means of transport to the place of delivery utilized skilled delivery services as compared to those who used other transportation (P-value <0.001). Furthermore, significantly more participants who visited the hospital for antenatal care at last delivery utilized skilled delivery services as compared to those who visited the health center for antenatal care at last delivery, (P-value < 0.001).

Table 4.6: Association between History of Maternal Health Service Utilization and Utilization of Skilled Delivery Service

	Utilization of Skilled delivery Services				
Characteristics	No N (%)	Yes N (%)	Total N (%)	Chi-square	P-value
Age at first pregnancy					
≤20 years	41(83.7)	95(46.3)	136(53.5)	**22.1577**	**0.000****
21-30 years	8(16.3)	110(53.7)	118(46.5)		
Place of antenatal care					
Hospital	10(20.4)	137(66.8)	147(57.9)	**34.9553**	**0.000****
Health center	39 (79.6)	68 (33.2)	107 (42.1)		
Frequency of antenatal care visits					
≤4	20 (40.8)	93 (45.4)	113 (44.5)	0.3315	0.565
>4	29 (59.2)	112 (54.6)	141 (55.5)		
Transportation to place of delivery					
Walk	20 (40.8)	38 (18.5)	58 (22.8)		
Taxi or Bus	9 (18.4)	133 (64.9)	142 (55.9)		
Own Car	8 (16.3)	19 (9.3)	27 (10.6)	**36.7245**	**0.000****
Motorcycle	12 (24.5)	15 (7.3)	27 (10.6)		

**p<0.001

4.10 Multiple Logistic Regression Analysis of Factors Influencing Utilization of Skilled Delivery Services

A multiple logistic regression model was also built to test the strength and direction of the association between the outcome variable (utilization of skilled delivery services) and independent variables. The model was also used to control for confounders and included all variables that were significant at $p<0.05$ during the chi-square test. Table 4.9 shows the multiple logistic regression analysis of the factors affecting utilization of skilled delivery services among women in Kpone Township. The Wald Chi-squared value is 171.78 with a P-value < 0.001. This shows the overall significance of the logistic regression model that was used to explain the factors that influence women utilization of skilled delivery services. Hence the Multiple logistic regression model is appropriate.

From Table 4.9, the multiple logistic regression analysis shows that possession of valid national health insurance card, place of antenatal care, means of transportation to antenatal care, and parity was significantly associated with utilization of skilled delivery services.

Accordingly, women who possessed valid national health insurance card in the study had 1.46 (AOR = 1.46, 95% CI = 1.32, 1.91, P<0.05) higher odds of utilizing skilled delivery services than women who do not possess valid national health insurance card. The women who visited the health center for antenatal care at last delivery had 0.19 (AOR= 0.19, 95% CI = 0.05, 0.79, P-value <0.05) lower odds of utilizing skilled delivery services than women who visited the hospital for antenatal care at last delivery.

Participants who had three children had 0.13 (AOR = 0.13, 95% CI =0.10, 3.16, P-value<0.05) lower odds of utilizing skilled delivery services than those who had one

child. Also, participants who had five children had 0.04 times (AOR = 0.04, 95% CI =0.02, 0.62, P-value<0.05) lower odds of utilizing skilled delivery services than those who had one child. Besides, participants who used buses or taxis as means of transportation to place of delivery at last birth had 7.93 (AOR=7.93, 95% CI=1.70, 9.05, P-value<0.05) higher odds of utilizing skilled delivery services than those who walked to place of delivery at last birth.

Table 4.9: Multiple Logistic Regression Analysis of factors associate with utilization of skilled delivery services

	Crude Odds Ratio			Adjusted Odds Ratio		
	OR	P-Value	95% CI	OR	P-Value	95% CI
Parity Mean						
1	Ref			Ref		
2	2.15	0.215	0.64, 7.23	5.64	0.078	0.83, 8.44
3	4.69	0.002	0.99, 5.28	**0.13**	**0.030****	**0.10, 3.16**
4	0.11	0.000	0.04, 0.29	0.39	0.283	0.07, 1.19
5	0.08	0.000	0.02, 0.15	**0.04**	**0.022****	**0.02, 0.12**
>5	0.19	0.028	0.04, 0.84	0.66	0.780	0.04, 1.46
Possession of Health Insurance Card						
No	Ref			1		
Yes	1.87	0.000	0.03,1.95	**1.46**	**0.000****	**1.32, 1.91**
Religion						
Christianity	Ref			**1**		
Islam	2.84	0.008	1.31, 6.18	1.52	0.556	0.38, 6.16
Age at First Pregnancy				1		
≤20 years	Ref			**1**		
21-30 years	3.93	0.000	2.65,5.28	2.56	0.228	0.56, 3.80
Place of Antenatal Care				1		
Hospital	Ref			**1**		
Health Center	0.13	0.000	0.06, 0.27	**0.19**	**0.022****	**0.05, 0.79**
Transportation to place of delivery						
Walk	Ref			1		
Taxi or Bus	7.66	0.000	3.22, 8.21	**7.93**	**0.008****	**1.69, 9.05**
Own Car	1.32	0.584	0.49, 3.52	3.54	0.194	0.53, 3.76
Motorcycle	0.70	0.452	0.28, 1.77	1.43	0.692	0.25, 2.22

**p<0.05

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This chapter discusses the findings of the study with respect to recent literature. It discusses the prevalence of utilization of skilled delivery services, demographic and socio-economic characteristics, obstetric related history factors that influence utilization of skilled delivery services. It then focuses on the association between demographic and socio-economic characteristics, obstetric history factors, and utilization of skilled delivery services. Finally, it discusses other factors that affect the utilization of skilled delivery services. This study found that possession of valid national health insurance card, place of antenatal care, means of transportation to antenatal care, and parity was significantly associated with utilization of skilled delivery services.

5.1 Prevalence of Utilization of Skilled delivery Services

The outcome of giving birth without the assistance of a skilled birth attendant can be maternal morbidity and mortality (WHO, UNICEF, UNFPA, World Bank Group, & United Nations, 2015; Afful-Mensah, Nketiah-Amponsah, & Boakye-Yiadom, 2014), therefore, the utilization of skilled delivery is crucial. Utilization of skilled delivery is a critical strategy for reducing maternal and neonatal morbidity and mortality. In this study, the prevalence of utilization of skilled delivery The prevalence of women's utilization of skilled delivery services among women of reproductive age was 82.6%. Also, the prevalence of women's utilization of skilled delivery was 80.7% among 254 women who attended antenatal care. This is higher than the prevalence of 71% reported in 2014 by Ghana demographic Health Survey (GHS, 2014). In other

African countries, significantly less utilization has been reported in Niger (40.0%) and Mali (44.0%) in 2015 based on WHO 2017 report. Also, less utilization has been reported in Kenya (62.0%) in 2014 and Ethiopia (28.0%) in 2016 based on WHO 2017 report.

This high prevalence of utilization of skilled delivery observed in this study is likely due to the free maternal health care services throughout pregnancy and at child birth implemented in 2008 under Ghana's National Health Insurance Scheme in Ghana. Although there is a high prevalence of skilled delivery in Kpone township, the study found that majority of the women who utilized skilled delivery at Kpone Health Center were not satisfied with the skilled delivery services provided. Lack of ambulance(s) at Kpone Health center resulted in a lot of referrals which the women were not comfortable with. This made them visit the hospitals such as Tema General Hospital and Narh-Bita Hospital during their subsequent delivery. Others complained of the bad attitude demonstrated by some midwives during their last delivery.

5.2 Association between demographic and socio-economic characteristics and utilization of skilled delivery services

The demographic and socio-economic characteristics in this study do not differ significantly from other studies. The study found that women who possessed valid national health insurance card were 46% more likely to utilize skilled delivery services as compared to women who did not possess valid national health insurance card. This shows that, at Kpone Township, health insurance card is critical to the utilization of skilled delivery. This is consistent with studies in Ghana by Gudu & Addo (2017) who found that possession of valid health insurance card has a positive

relationship with utilization of skilled delivery services. Also, findings from Moyer & Mustafa (2013) shows that insurance-based programs and fee exemptions result in higher utilization of skilled delivery. In Ghana, persons with health insurance receive healthcare services without out-of-pocket payments. According to Dzakpasu et al. (2012), pregnant women with insurance are therefore more likely to utilize health facility delivery.

Furthermore, the study found that parity has an influence on utilization of skilled delivery by women. This study found reduced odds of utilizing skilled delivery among women with higher parity compared with those with one child. This shows that number of children of a woman has an inverse relationship with utilization of skilled delivery. This is consistent with the findings of Kebede et al. (2016) who found that women with one child were three times more likely to utilize skilled delivery services than multiparous women. However, this is contrary to previous evidence in Ghana by Manyeh et al. (2017) which reported that parity has a positive influence on utilization of skilled delivery services.

5.3 Association between history of maternal health service utilization and utilization of skilled delivery services

The study found that means of transportation to place of delivery at last birth has an influence on the utilization of skilled delivery services. From the findings, women who are transported to their place of delivery by bus or taxi are more likely to utilize skilled delivery services compared to women who walk to place of delivery (18.5%). This is consistent with studies in Ghana by Enuameh et al. (2016) and Boah et al. (2018) who found that means of transportation to place of delivery has a positive significant relationship with utilization of skilled delivery services. According to

Story et al. (2012), distance discourages women from making a decision to seek skilled delivery services. The barrier provided by distance when intensified by lack of transport and poor roads deters women from utilizing skilled delivery services. Unlike antenatal care, the precise timing of a delivery is unpredictable, making it more difficult for women without access to transportation to reach place of delivery.

Also, the study found that place of antenatal has an influence on the utilizing skilled delivery services. From the findings, women who visited the hospital for antenatal care are more likely to utilize skilled delivery services compared to women who visited the health center for antenatal care. This is consistent with studies in Kenya by Kitui et al. (2013) who found that visit to health center has a positive significant influence on utilization of skilled delivery services. The study found that the proportion of women who utilized skilled delivery services (80.7%) were lesser than those who received antenatal care (81.7%). This may be due to inadequate counseling by healthcare providers at antenatal health centers on the essence of the utilization of skilled delivery services.

5.4 Limitations to the Study

The usage of only structured questionnaire to solicit the views of women on the utilization of skilled delivery services might have decreased the ability of the women to explicitly express their feelings on the study.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

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

6.1 Conclusion of the Study

This chapter presents the conclusion of the study based on the findings. Generally, the study concluded that 82.6% of the study participants utilized skilled delivery services at their last delivery. Also, the study concludes that 81.7% of the study participants attended antenatal care and among those who attended antenatal care 80.7% utilized skilled delivery services at last delivery. Further, this study concludes that women who possessed valid national health insurance card were more likely to utilize skilled delivery services as compared to participants who did not possess valid national health insurance card. Moreover, this study concludes that parity has an influence on utilization of skilled delivery by women. This study concludes that means of transportation to place of antenatal has an influence on then utilizing skilled delivery services. Finally, this study found that place of antenatal has an influence on the utilizing skilled delivery services.

6.3 Recommendation

6.3.1 Kpone Municipal Chief Executive

- The study found that more than one-third of women who did not receive antenatal care at last delivery utilized skilled delivery services. In order to encourage the utilization of skilled delivery services especially among women

who do not visit antenatal care, the Kpone Municipal Chief Executive in collaboration with the Kpone Municipal Health Directorate to organize home-based educative programs on the importance of skilled delivery services to create awareness of skilled delivery services.

- From the findings, women who are transported to place of delivery by bus or taxi are more likely to utilize skilled delivery services compared to women who walk to place of delivery. Based on this finding, the Kpone Municipal Chief Executive should ensure easy accessibility to healthcare facilities by providing more public transports such as public taxis and buses to enabling environments of the facilities.

6.3.2 Kpone Health Directorate

Considering the findings of the study, the study recommends that the Kpone Healthcare Directorate should motivate the traditional birth attendants and other service providers in the municipality to refer women who come to them for delivery to health facilities for skilled delivery. Also, the Kpone healthcare directorate should have a policy to yearly train TBAs at the community level since their training will equip them with the knowledge and skills to handle maternal health services and also refer women who visit them to skilled delivery providers.

6.5 Future Research

The study recommends that future studies should employ qualitative or mixed research methods to assess the views of women on the factors affecting the utilization of skilled delivery services. Lastly, further studies on why those who can walk to the facility refused to utilize skilled delivery.

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APPENDIX I-QUESTIONNAIRE

TOPIC: Assessment of Utilization of Skilled Delivery Services and Associated Factors among Women at Kpone, in Kpone Katamanso Municipality, Ghana.

Instructions: Please answer every question as honestly as possible. Do not leave any question unanswered**.**

	Variables	Responses	CODE
	SECTION A	**DEMOGRAPHIC AND SOCIO-ECONOMIC FACTORS**	
1	Age	……. years	
2	Parity	……	
3	Educational Level	No education …….	0
		Primary……	1
		JHS/JSS/Middle……	2
		SHS/SSS…….	3
		Tertiary……	4
		Others…….	5
4	Partner Educational Level	No education …….	0
		Primary……	1
		JHS/JSS/Middle……	2
		SHS/SSS…….	3
		Tertiary……	4
		Others…….	5

5	Wealth Status (Monthly Income)	……Ghc	
6	Possession of Health Insurance Card	No……	0
		Yes……	1
7	Religion	Christianity……	0
		Islam…… …	1
		Traditional ……	2
		Others, Please Specify……..	3
8	Ethnic Group	Asante/Akyem.....	0
		Ewe	1
		Fante/Nzema.....	2
		Ga/Dangme	3
		Mole-Dagbani/Grusi	4
		Others…….	5
	SECTION D	**OBSTETRIC RELATED HISTORY FACTORS**	
9	Age at First Pregnancy	……years	
10	Means of Transportation to place of delivery	Walk ……	0
		Taxi or bus……	1

		Own car……	2
		Motorcycle……..	3
		Bicycle…….	4
		Others please Specify…….	5
11	Received antenatal care at last birth	No ……	0
		Yes……	1
12	If you answered **Yes to Question 11**, place of antenatal care	Hospital……	0
		Health Center……	1
		Outreach Point…….	2
		Not Applicable…….	3
13	If **Yes to Question 11,** Frequency of antenatal care visits	……	
14	If **Yes to Question 11**, where you satisfied with antenatal care provided	No……	0
		Yes……	1
15	If **Yes to Question 11**, will you recommend	No……..	0

	someone to patronize the antenatal care services		
		Yes……	1
16	If **Yes to Question 11**, did you utilize skilled delivery services at last birth	No……	0
		Yes……	1
17	If **Yes to Question 16**, where you satisfied with the skilled delivery services received	Hospital……..	0
		No……..	0
		Yes……	1

APPENDIX II: Respondent Information Sheet

General information

Project Title: Assessment of Utilization of Skilled Delivery Services and Associated Factors among Women at Kpone, in Kpone Katamanso Municipality, Ghana.

I am **EVELYN NAA OKAIKOR TETTEH**, a student of the Department of Population, Family and Reproductive Health in the School of Public Health, University of Ghana, Legon, pursuing a Master of Public Health Degree Programme. I am here with my research assistants to carry out a survey to assessment of utilization of skilled delivery services and associated factors among women at Kpone, in Kpone Katamanso District, Ghana. This is purely for academic purposes and forms part of the requirement for the award of Master of Public Health Degree. The researcher has no conflict of interest in this study.

Background of the study Pregnancy is often a defining phases in a woman's life, and it can be a joyful and fulfilling period for the mother both as an individual and as a member of society. However, it can also be a period of misery and suffering when it is unwanted, or when complications or adverse circumstances compromise the pregnancy, cause ill health or even maternal death. World health organization (WHO), in its 2005 world health report emphasizes that pregnancy may be natural, but that does not mean it is problem-free (WHO, 2005). Pregnancy becomes problem free when the unborn baby is delivered by skilled persons. Skilled delivery is 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 the necessary equipment and the support of a functioning health system, including transport and referral facilities for emergency obstetric care (Babalola & Fatusi, 2009). In Ghana, according to Gudu and Addo (2017), MMR has been decreasing over the last two

decades. A current estimate from WHO puts Ghana's MMR at 319 maternal deaths per 100,000 live births (WHO, UNICEF, UNFPA, World Bank Group, & United Nations, 2015). The number of maternal death is far below the Sustainable Development Goal (SDG) 3.1 whose target is less than 70 deaths per 100,000 live births (WHO, 2016). Meanwhile, more than 70.0% of the deaths are considered to be clearly avoidable (Maswime & Buchmann, 2016; Lund et al., 2012). To reduce maternal mortality and improve on perinatal outcomes for early born, strategies such as seeking skilled assistance during childbirth, effective postnatal care within the first 24 hours of delivery and readily available, accessible and appropriate care in cases of complication have been identified. Of these strategies, the most critical is the 'health-centre intrapartum care strategy' where qualified skilled health personnel manage labour, effectively manage complications should they occur and there is a supportive referral system for specialised care when needed (Kitui, Lewis, & Davey, 2013).

Nature of the study

The study will employ a descriptive cross-sectional research design with quantitative method of data collection and analysis.

Procedure

The study will comprise of answering questions from a questionnaire to assess the utilization of skilled delivery services and associated factors among women at Kpone, in Kpone Katamanso District, Ghana. The information you provide will add to knowledge to previous literature and propose some interventions needed.

Compensation

There will be no monetary or material compensation for the study.

Benefits

This study will provide the necessary information needed to assist local policy makers and stakeholders at the various health facilities in the community when providing delivery interventions for the improvement in maternal health care and also to help solve the problem of maternal mortality, infant mortality and morbidity in the Kpone Township. Also, it will assist the management of the various health facilities to increase the coverage on skilled delivery supervision before, during, and after child birth. Furthermore, the study will inform the district health directorate to conduct periodic educational programs in Kpone Township to create awareness of the significance of skilled delivery services. Lastly, it will help prevent maternal and child mortality in Kpone Township as a result of engaging in unskilled delivery services.

Risks

There are minimal psychological risks associated with this study, due to this, questions that respondents are uncomfortable with, will be skipped and privacy will be provided.

Confidentiality

The researcher will not record any name. Your name and identity are not needed in the study. However, the information you are going to provide will be coded and will be treated strictly confidential. You are assured of total confidentiality to the information you will give. Apart from the researcher and supervisor of this research, no one else will have access to information provided whether in part or whole. Data collected will be stored under lock and key then destroyed after a minimum of three years as per research protocol.

Right to Refuse

Participation in this study is voluntary. You are free to answer part or the entire questionnaire. You can choose to withdraw from the study at any time you want. You

can also choose not to answer any question(s) you find uncomfortable about. Should you choose not to participate, it will not affect you or your clinic in any way. However, you are encouraged to participate fully in this study to help us learn.

Provision of Participant Information and Signed Consent Form

Copies of the information sheet and signed consent form will be given to the participants.

Dissemination of Results

Findings and recommendations would be available at the School of Public Health.

Before Taking Consent

Do you have any questions you wish to ask about the study? Yes/No

If yes, please indicate the questions below

……

……

……

…….....

If you need further clarification concerning this study and/or the conduct of the researcher and research assistants, please do not hesitate to contact the following;

Evelyn Naa Okaikor Tetteh

0241666106/0272067427

Miss. Hannah Frimpong

The Administrator of the Ghana Health Service Ethics Review Committee, Research and Development Division - Accra

Tel: 0507041223

Appendix III: Consent Form

I declare that, I have read the information, procedures, nature, risk and benefits on the research titled "assessment of utilization of skilled delivery services and associated factors among women at Kpone, in Kpone Katamanso Municipality, Ghana" or it has been read and explained to me in a language I understand (□English, □Ga, □Twi) and I understand. I have been given a chance to ask questions concerning this study and questions have been answered to my satisfaction. I now consent to voluntarily agree to participate in this study knowing that I have the right to withdraw at any time without it affecting my current or future use of health care services.

Participant's Signature/Thumb print: ……

Date: ……..

Principal Investigator / Translator's Consent

I, the undersigned, have read and explained the information, procedures, nature, risk and benefit of the research and this consent to the respondent in (English, Ga, Twi) and that she understands the purpose of the study, procedures to be followed as well as the risks and benefits of the study. The participant has fully agreed to participate in the study.

Signature of interviewer: ……..…

Date: ……

Contact detail: ……

Witness

I declare that, in my presence, the information, procedures nature, risk and benefit of the research titled "assessment of utilization of skilled delivery services and associated factors among women at Kpone, in Kpone Katamanso Municipality, Ghana" have been read and explained to the participant in the language she understands.

Signature of witness: ……..…

Date: ……

Contact Detail: ……

APPENDIX: IV

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted

MyRef. GHS/RDD/ERC/Admin/App
Your Ref. No. 19/077

Research & Development Division
Ghana Health Service
P. O. Box MB 190
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Tel: +233-302-681109
Fax + 233-302-685424
Email: ghserc@gmail.com
20th March, 2019

Evelyn Naa Okaikor Tetteh
University of Ghana
School of Public Health
Legon

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	**GHS-ERC037/02/19**
Project Title	Assessment of Utilization of skilled Delivery Services and Associated Factors among Women at Kpone, in Kpone Katamanso Municipality, Ghana
Approval Date	20th March, 2019
Expiry Date	19th March, 2020
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.
- Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
DR. CYNTHIA BANNERMAN
(GHS-ERC CHAIRPERSON)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra