DETERMINANTS OF SKILLED DELIVERY SERVICES UTILIZATION AMONG WOMEN OF REPRODUCTIVE AGE IN MIGORI COUNTY, KENYA

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DECLARATION

This thesis report is my original work and has not been presented for a degree or any other award in any other university.

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DEDICATION

I specially dedicate this project to the memory of my late father, Patrick Agunga Onyango, you never lived to see me succeed in my education despite the support you provided. To my grandmother, Agnes Wambi, despite not going to school, you fully understood the meaning of education and your support is immensely appreciated. Thank you *"Nyar Otho".*

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DEFINITION OF OPERATIONAL TERMS

Skilled delivery: Refers to delivery assisted by a trained health care worker -Doctor, Nurse or, Registered Clinical officer; with training in midwifery and proficiency in the skills necessary to manage normal deliveries and diagnose, manage or, refer obstetric complications (WHO).

Facility delivery: Refers to child birth conducted within a health facility environment and assisted by a trained health care worker- Doctor, Nurse or, Registered Clinical officer; with training in midwifery and proficiency in the skills necessary to manage normal deliveries and diagnose, manage or, refer obstetric complications (WHO).

Home Based delivery: A delivery that has occurred in a place not accredited as a health facility and does not have a trained mid wife to assist in delivery.

Maternal health: refers to health of a woman during pregnancy, delivery, childbirth and postpartum period.

Lactating Mother: Refers to a mother who has had a delivery within the past 24 months.

Obstetric complications: refers to the disruptions and disorders of pregnancy, labour and delivery, and the early neonatal period.

Still Birth: Defined as fetal death at or after 20 to 28 weeks of pregnancy. It results in a baby born without signs of life

Free maternal Delivery: Refer to the Government's program, initiated in 2013 where the governments pays specific health facilities the cost of delivery for pregnant women at a fixed rate.

Gravida: Defined as the total number of confirmed pregnancies that a woman has had, regardless of the outcome.

Parity: Defined as the number of times a female is or has been pregnant and carried the pregnancies to a viable gestational age; usually of 20 weeks or more.

LIST OF ABBREVIATIONS AND ACCRONYMS

AIDS	-	Acquired Immune Deficiency Syndrome
AM	-	After Midnight
ANC	-	Antenatal Care
CHMT	-	County Health Medical Team
CHEW	-	Community Health Extension Worker
CHW	-	Community Health Worker
CHV	-	Community Health Volunteer
DF	-	Degree of Freedom
DHIS	-	Demographic Health Information System
FGD	-	Focus Group Discussion
HBM	-	Health Belief Model
HCW	-	Health Care Worker
HH	-	Household
HIV	-	Human Immune Virus
ICPD	-	International conference on population and development
KDHIS	-	Kenya Demographic Health Information System
KDHS	-	Kenya Demographic Health Survey
KII	-	Key Informant Interview
KM	-	Kilometer
KNCHR	-	Kenya National Commission of Human Rights
KNBS	-	Kenya National Bureau of Statistics
MAX	-	Maximum

MCH	-	Maternal and Child Health
MDG	-	Millennium Development Goals
MICS	-	Multiple Indicator Cluster Survey
MIN	-	Minimum
MNCH	-	Maternal, Neonatal and Child Health
MoH	-	Ministry of Health
MPH	-	Master of Public Health
M&E	-	Monitoring and Evaluation
PM	-	Past Morning
PPH	-	Post Partum Hemorrhage
RCO	-	Registered Clinical Officer
SBA	-	Skilled Birth Attendant
SDA	-	Seventh Day Adventist
SDG	-	Special Development Goals
SPSS	-	Statistical Package for Social Sciences
TBA	-	Traditional Birth Attendant
UNFPA	-	United nations Family Planning Association
UNICEF	-	United Nations Children’s Fund
UN	-	United Nations
USA	-	United States of America
WHO	-	World Health Organization
YOB	-	Year of Birth

ABSTRACT

Skilled delivery is a key intervention that greatly contributes to improvement of maternal and child health. By extension, skilled delivery is a component of maternal and childcare provided during pregnancy, at delivery and post-delivery. Irrespective of the quality of service provided during pregnancy, delivery process remains a risk and hence needs to be given relevant attention. Global data shows that in developed countries, over 99% of the women access skilled delivery as compared to low accessibility of below 50% in developing countries and 61.8% in Kenya. This study sought to investigate the factors that determine utilization of skilled delivery services among women of reproductive age in Suna-West Sub-County, Migori County, Kenya. The objective of the study was to establish the factors influencing utilization of skilled delivery services among women of reproductive health in Suna West Sub County. Mixed design model was used to assess the views of the study population. Quantitative data was collected through household questionnaires targeting women of reproductive age. Qualitative data, on the other hand, was collected through focus group discussions and key informant interviews among health service providers, traditional birth attendants and male partners. Independent variables, of the study, were; demographic, economic, socio-cultural, and physical factors; whereas, the dependent variable utilization of skilled delivery services. The analysis was done using the Statistical Package for Social Sciences (SPSS version 24) software and Ms. Excel (office 2010). Chi Square was used to test the relationships between variables. The findings showed that Suna West Sub-County has a higher rate of skilled delivery (74.6%) as compared to national average 61%. Key factors identified to determine utilization of skilled delivery services were parity, $p<0.005$, $\chi 2=13;$ level of education, $p<0.005$, $\chi 2=27.616$ and ANC attendance $p<0.00$ $\chi 2=30.706;$ though not statistically significant, distance to health facility, time of operation of the maternity and availability of services were identified to have an influence on type of delivery. In addition, the study found high level of maternal knowledge on risks of pregnancy and negative beliefs on utilization of skilled delivery services. On the other hand, level of household income or partner's occupation had no significant relationship. The study recommends establishment of policies by the County government to enhance risk assessment and risk-based health education during pregnancy, both at the community and at the antenatal clinics. In addition, there is a need to invest in infrastructure and human resource to ensure the women are able to get the services at any time they visit the health facility.

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

More than a decade ago, the global community adopted the UN millennium declaration that listed 8 critical goals for combating poverty and accelerating human development (UN, 2000). These 8 declarations were christened Millennium Development Goals (MDGs) among which, the 4th, 5th and 6th goals target reduction of child mortality, reduction of maternal mortality, combating malaria, HIV/AIDS and other diseases - respectively. Indeed, the three goals specifically target human health whereby two of the goals directly focused on reducing child mortality and improving maternal health. These point out to the importance of health factors in global development and poverty reduction (World Health Organization [WHO], 2003).

Skilled attendance at childbirth is crucial for decreasing maternal and neonatal mortality. Yet, many women in low and middle-income countries deliver outside of health facilities, without the help of skilled personnel (WHO, 2004). During childbirth, a woman needs a continuum of care to ensure the best possible health outcome for her and the newborn. To achieve this, care starts from the mother herself, the family (more specifically the spouse) and first level of health care at a health clinic or at home by a trained health personnel (WHO, 2004). World Health Organization recommends that successful provision of the continuum of care during pregnancy, requires a functional health care system with the necessary infrastructure in place. This includes; transport between the primary levels of health care, the referral clinics/hospitals with an effectively efficient and proactive

collaboration across all healthcare providers to pregnant women and newborns (WHO, 2004).

The WHO defines a skilled attendant as an accredited health professional such as a trained 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. Skilled delivery is best chanced from the point of conception. This is because the earlier an expectant mother starts attending Antenatal Clinic (ANC) visits, the lower their risk of obstetric complications due to early detection and timely provision of medical assistance (Seljeskog, Soundby & Chimango, 2006). In other studies, it has been observed that high number of maternal deaths occur during the first day after delivery, emphasizing the need for a skilled birth attendant before, during and post-delivery (Abebe, Berhane & Girma, 2012).

Despite the overwhelming evidence from developed and developing countries on the value of skilled attendants in lowering maternal mortality ratio, this skilled workforce remains insufficient in many developing countries (WHO, 2015). Consequently, improvement of maternal and reproductive health has remained a major challenge in most low-income countries - especially Sub-Saharan Africa and Asia (WHO, 2015).Since the millennium declaration, there have been some improvements in the uptake of maternal health interventions such as Antenatal Care (ANC), Skilled Birth Attendance (SBA), and

facility-based delivery. However, it is hardly evident in any resource poor countries that bear the highest burden of maternal mortality.

These efforts have resulted in success among a few countries although progress in most countries, including Kenya, has been unacceptably slow. Experience from past projects and ongoing researches point to the importance of access to a functioning health care system as a key factor in reducing maternal mortality (WHO, 2004). During the International Conference on Population and Development (ICPD), a resolution was endorsed by many countries including Kenya and action plan was agreed that all countries must expand utilization of maternal health services. That all births should be assisted by skilled attendants, trained birth attendants (United Nation [UN], 1995).

In Kenya, maternal and infant mortality rate remained at disconcertingly high level; 488 deaths per 100,000 live births, and the lifetime risk of maternal death in 2009 was 1 in 39 women – making it one of the world's highest (Kenya National Bureau of Statistics [KNBS] and ICF MACRO, 2010). Interestingly, most maternal deaths are caused by hemorrhage during childbirth, HIV/AIDS, malaria, unsafe abortions, and the low proportion of deliveries conducted by skilled birth attendants as well as poor staffing; among other causes (KNBS and ICF MACRO, 2010). The government of Kenya declared free maternal and child healthcare, in 2013, among other rhetorical commitments to women's health. This has seen a reduction of the number of women dying due to pregnancy related complications from 488 to approximately 362 per 100,000 live births (KNBS and ICF MACRO, 2010; KNBS 2015). However, this

reduction was not statistically significant when compared to the preceding results of 2008/2009 survey.

According to the Demographic Health Survey (DHS) conducted in 2014, about 6 out of 10 women in Kenya receive assistance from a health professional during delivery even as 96% of mothers have had at least 1 antenatal visit (KNBS 2015). Further, those delivering with the help of skilled personnel have fairly remained low at 61.8% with approximately 37% delivering at home (KNBS 2015).

1.2 Statement of the Problem

The utilization of skilled delivery services is a fundamental factor in the fight against maternal and child mortality and morbidity (Berry, 2006). This is evidenced wherein all countries with skilled deliveries utilization higher than 80% have maternal mortality rates of below 200 deaths per 100,000 live births. The development of professional midwifery during the 20th century has been linked to the dramatic declines in maternal deaths within industrialized countries (WHO, 2003). However, despite these encouraging statistics around the world, the utilization of these skilled delivery services in Sub-Sahara Africa and Kenya in particular, have remained low with many home deliveries; conducted by midwives with no formal training.

In a study conducted in rural Bangladesh, it was observed that deaths were mainly associated with women accessing delivery services from traditional birth attendants (Bashar Abul, S.M, 2013). Across Africa, studies revealed that women have a desire to

deliver with the assistance of trained attendants, however, most of them still find themselves in the hands of untrained counterparts (including family members) (Abeb et al. 2012). Demographic factors such as; age, level of educations, marital status and parity have in different studies been mentioned to have some influence on utilization of skilled delivery services ,the respondent and households economic status, availability and accessibility of services, cultural attitudes as well as beliefs, and myths on birth attendant.

In Migori County, only 42% of the births were assisted by skilled personnel between the year 2009 and 2010 (KNBS, 2011). Although it is expected that all deliveries in health facilities are assisted by a skilled attendant, 10% of births in public health facilities were not assisted by a skilled attendant (KNBS, 2011). Moreover, only a third (34%) were delivered with the assistance of a nurse or midwife in the two years preceding the Migori Multiple Indicator Cluster Survey (MICS), with the traditional birth attendants reported to play a substantial role in assisting 33% of the deliveries in the County. Another10% of the births were assisted by a relative or friend, while the remaining 6% had no attendant. Ministry of health, in a policy brief number 45 of 2015, puts Migori County as the 9th County with the highest maternal mortality rates.

It was, therefore, important to inform the key priority areas in policy change and public health intervention in understanding the characteristics of women not accessing skilled delivery services to help craft the interventions for this group. This research sought to establish the influence of demographic, socio economic, physical and cultural factors on

utilization of skilled delivery services among women of reproductive health in Suna West Sub-County, Migori County.

1.3 Justification

Delivery under unskilled attendants is one of the highest risk exposures to maternal deaths during pregnancy and delivery. Several studies have identified unskilled delivery is clearly linked to maternal and child death during delivery. In Rural Bangladesh, most of deliveries happening at home, under the care of TBA, are the main cause of deaths (Chowdhury et al. 2013). In Kenya, latest KDHS reports indicating that, nationally, at least 95.5 % of pregnant mothers attend an antenatal clinic at least once during each pregnancy, however, this does not translate to skilled delivery as it has remained a low of 61.8%, (KNBS et al., 2015). In Migori County, despite 94.6% attending at least 1 ANC visit, only 53.3% end up having a delivery assisted by skilled personnel; a figure below the national statistics by 8.5%. This shows the significant space covered non trained individuals including TBAs in maternal health during pregnancy and delivery. Migori County has a total of 8 Sub-Counties, with the county headquarters in Suna East Sub County, a neighboring Suna West Sub-County where the study was conducted, to the target study. In addition, among the 8 Sub-Counties of Migori County, Suna West Sub-County, has consistently reported low proportion between the pregnant women attending the first ANC and those delivering at a health facility at 55% (Kenya Health Information System (KHIS), 2016-2018).

This study therefore aimed to identify some of the determinants for pregnant women in accessing skilled delivery services during pregnancy, and the choice of where to deliver in Suna-West Sub County, of Migori County. Understanding the characteristics of women not utilizing skilled delivery services is key in influencing policy change and coming up with strategies which can help improve behaviors change. The study results presented, provides recommendations to the County Government and other stakeholders in maternal and child health services on efficiency on investment and acceleration factors which they can focus on to improve utilization of skilled delivery.

1.4 Research Questions

The study was guided by the following research questions:

1. What are the Demographic factors associated with utilization of skilled delivery services among the women of reproductive age, in Suna West Sub-County of Migori County?
2. What are the Economic factors associated utilization of skilled delivery services among women of reproductive age, in Suna West Sub-County of Migori County?
3. What are the Socio-Cultural factors associated utilization of skilled delivery services among the women of reproductive age, in Suna West Sub-County of Migori County?
4. What are the physical factors associated with utilization of skilled delivery services among the women of reproductive age, in Suna West Sub-County of Migori County?

1.5 Objectives of the Study

The study was guided by the following objectives:

1.5.1 Main objective

The broad objective of the study was: To establish the factors associated with utilization of skilled delivery services among women of reproductive age in Suna-West, Migori County.

1.5.2 Specific objectives

The sub objectives of the study were:

1. To establish Socio-Demographic factors which determine the utilization of skilled delivery services among the women of reproductive age in Suna West, Migori County.
2. To determine Socio-Economic factors which influence utilization of skilled delivery services by women of reproductive health in Suna West, Migori County.
3. To establish the influence of physical factors on the utilization of skilled delivery services among the women of reproductive age in Suna West, Migori County.
4. To establish the Socio-Cultural factors which define the utilization of skilled delivery services among the women of reproductive age in Suna West, Migori County.

1.6 Delimitations and Limitations

1.6.1 Delimitations

This study may be delimited by the immigration and emigration of the study population in the study area; since it falls at the border between Kenya and Tanzania, there is likely to be an influence from the neighboring country based on difference on policies. For instance, a person who was followed up during pregnancy by the health system of the neighboring Country, Tanzania may have been exposed to different policies and definition of skilled birth attendance.

1.6.2 Limitations

The study was conducted at a time when the Kenyan health system was undergoing a lot of changes: in terms of infrastructure development, administration and in classification of the health care system. These changes have come with disruptions likely to have influenced the pattern in which the pregnant women behave with respect to utilization of ANC and skilled delivery services. Further, given the adjustment of government policy, in the last one year, as it promised free access to skilled delivery services, there are likely to be influences on the pattern of service utilization; due to the waived fees.

Other limitations emanated from the frequent nurses strikes, given that the nurses are the drivers of rural health care. Limitation in access to maternal health care, to some extent, impacted other health services uptake, among the women of reproductive age. Lastly, given that the study was conducted in Suna West sub-county setting, which is mostly rural, the study findings may not be used as a basis for generalization to explain similar

phenomena in urban setup – where availability and accessibility of the services is more improved.

1.7 Theoretical and Conceptual Framework

1.7.1 Theoretical Framework

The study employed Health Belief Model, a psychological model that attempts to explain and predict health behaviors by focusing on the attitudes and beliefs of individuals in seeking health services (Becker & Maiman,1974) This assumes that one will seek health services if he/she: Feels that the health condition can be avoided; has a positive expectation that by taking the recommendations and actions, she will avoid pregnancy related negative conditions and believes that she can successfully take a recommended health action.

This theory will build up, and spell out, in terms of four constructs representing the perceived threat and net benefits of seeking the proposed health services for the expectant mothers: and these are perceived *susceptibility*, *severity*, *benefits*, and *barriers.* These concepts are a guided theory of influence to the women to act and activate their readiness and stimulate overt behavior towards the use of skilled care during pregnancy and delivery.

1.7.2 Conceptual Framework

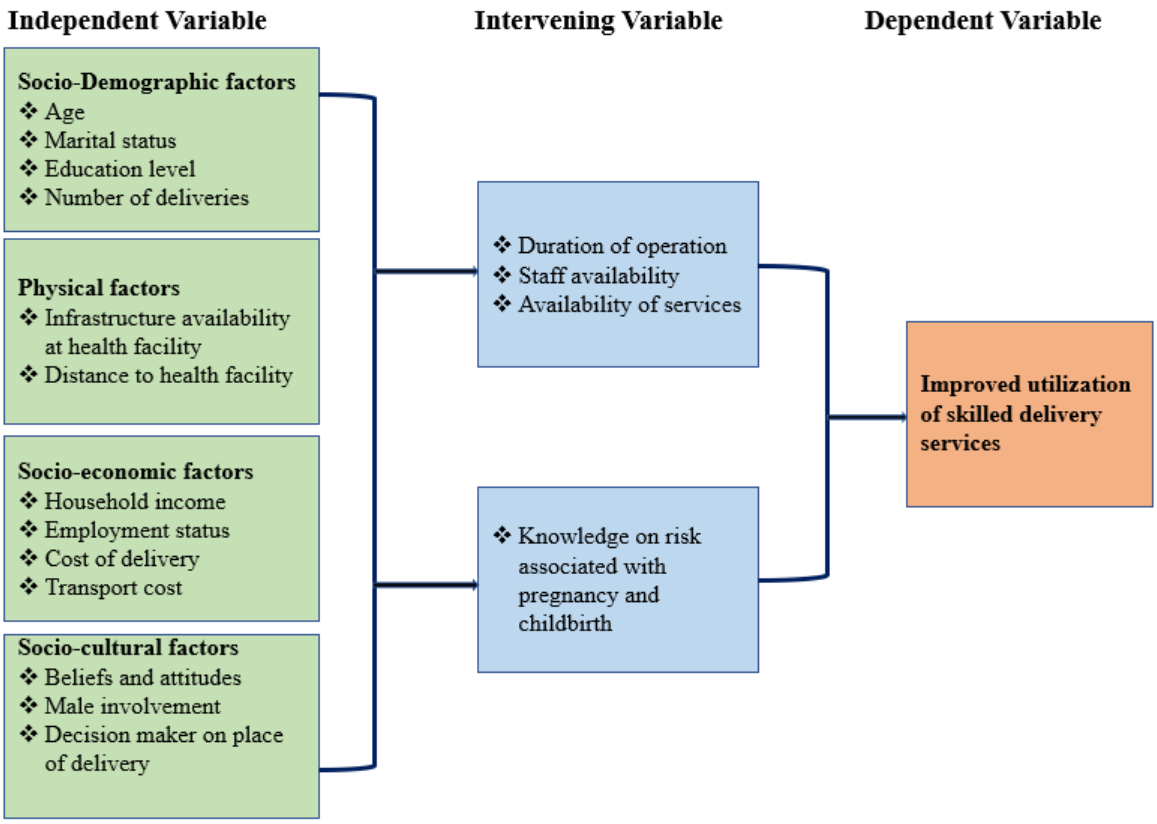

Figure 1.0: Conceptua l Framework

Constructed from the Literature Review

1.9 Significance of the Study

According to the latest national statistics on utilization of skilled delivery services during pregnancy, Migori County recorded 53.3% pregnant women to have had a skilled delivery compared to the national average of 61.8%, (KNBS et al., 2015). These discrepancies in the statistics are mainly due to intangible socio-cultural factors; where the patterns of care-seeking, behavior cannot purely be explained by access and awareness barriers or, by behavior and decision-making motivated by multiple variables that operate within the localized understandings of health and illness (Mwaniki, Kabiro & Mbugua, 2002). An analysis of routine service delivery data on maternal and child health

during pregnancy between 2016-2018, shows that Suna West Sub-County has consistently reported low skilled delivery ratios of 1st ANC to actual deliveries at 55%, as compared to neighboring Suna East Sub-County 98% (KHIS, 2016-2018).

To ensure effective policy formulation, planning and implementation of MNCH focused activities, it was necessary to identify these factors and the possible solutions in the promotion of use of skilled care during pregnancy and, subsequently, reduction of maternal mortality. Further, there was a need to obtain the details of the challenges in addressing issues of utilization of skilled delivery services and suggest possible solutions that could be integrated in the society to promote skilled delivery. This thesis report, therefore, acted as a repository for information which was help to all the stakeholders, in planning and better implementation of result-oriented interventions; to improve the skilled delivery services uptake indicators in Suna West Sub-County and in Migori County.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

World Health Organization (WHO, 2004) defines skilled delivery service as: a pregnancy related service provided by an accredited health professional such as a midwife, a doctor or a nurse who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, child birth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns. Such accredited health professionals provide maternal care during pregnancy, childbirth, postpartum period and newborn care at health facility using sterile equipment.

The use of skilled delivery services is important because should complications be diagnosed early enough, mothers and babies can, either, be treated or, referred to appropriate facilities to avoid deaths and disabilities (WHO, 2008). It's also important to monitor the progress of pregnancy: to detect complications and provide preventive measures, to develop birth and emergency plans, and to advice mothers on health, lifestyle and nutrition during pregnancy (Mwaniki et al., 2002). According to the WHO, 303,000 women die during the pregnancy process and this accounts to about 830 maternal deaths daily (WHO, 2015). Globally, developing countries contribute to about 99% of the total maternal deaths with only 1% contributed by developed countries. Sub-Sahara Africa and Asia alone, contributes about 85% of this number Sub- Sahara Africa contributing the bulk of the deaths, 66% (WHO 2015).

To improve maternal health during pregnancy, focusing on the period around childbirth is appropriate since most maternal deaths cluster around labor and postpartum period. It is also necessary to monitor the progress of labor during delivery, to manage abnormalities such as breech delivery and deal with severe complications such as eclampsia or obstructed labor (Bashour & Abdulsalam, 2005). Further, it is important to help the mother and baby in breast feeding, manage complications such as severe postpartum hemorrhage, infections, or depression and if the baby has problems, to provide timely and appropriate treatment as well as counseling on postnatal contraception to the mothers (WHO, 2008). For skilled delivery health services to be accessed, expectant mothers must present themselves to health facilities. Even though, this has not been the case all over the world, and particularly in Africa, including in Kenya where the maternal mortality has remained high (Kahn, Wojdyla, Say, Gulmezoglu, &Vanlook, 2006).

During the UN assembly 2001, it was universally agreed that all mothers and babies need maternity care, in pregnancy, childbirth, and after delivery, to ensure optimal pregnancy outcomes. However, all over the world, one third of births take place at home without the assistance of a skilled attendant – majority being in developing world (WHO, 2007). Both governmental and Non-Governmental Organizations, all over the world, strongly advocates for skilled care at every birth; to reduce the global burden of 536 000 maternal deaths, 3 million stillbirths and 3.7 million newborn deaths each year (WHO, 2001).

The proportion of deliveries assisted by skilled attendants is one of the indicators of progress towards Millennium Development Goal 5, that aims to improve maternal health

with intentions to reduce maternal deaths by 75% by the year 2015 (Bashour & Abdulsalam, 2005). Better access to skilled personnel during pregnancy and at delivery could prevent maternal deaths and help achieve this goal. Despite contributing to only 12% of world's population and 17% of all births globally, (WHO, 2012) Sub-Saharan Africa bears the largest global burden of maternal deaths at 56%, (WHO, 2012: 70). According to the UN millennium development goals report (2014) by, most of the maternal deaths in 2013 took place in Sub-Saharan Africa (62%) and Southern Asia (24%).

In Kenya, health facility deliveries have remained fairly low since 2003 despite health sector efforts to improve skilled attendance at pregnancy. This is suspected to be as a result of intangible socio-cultural factors, where the patterns of care-seeking behavior cannot purely be explained by just access or awareness barriers but, also, by social behavior and decision-making practices (Mwaniki et al. 2002). Poor care seeking behavior around childbirth have resulted in women experiencing prolonged and obstructed labor and led to obstetric fistula and other complications; including maternal deaths (Mwaniki et al. 2002).

2.2 Demographic Factors and Utilization of Skilled Delivery Services

Utilization of health care is influenced by several demographic characteristics. Characteristics such as age, marital status, number of previous deliveries, education level, and location of residence have been identified by many studies to have some influence on where a pregnant woman will decide to deliver. In a study conducted in India to assess

the influence of demographic characteristics on the choice of delivery, it was revealed that education, age at marriage, birth order, standard of living index, and exposure to mass media were strong influencing factors on the choice of place of delivery among women in rural areas, (Ravi & Kulesekaran, 2014). In Bangladesh, a study on the determinants of institutional delivery among women established that only 14.7% of women sought institutional delivery with access to skilled delivery services (Kamal, Hassan & Alam, 2015). Seeking skilled delivery services was found to be highly attributed to first-order pregnancies, couples who had higher levels of education, women who lived in urban areas and women who received antenatal care services in their study.

A study on skilled delivery care utilization in Ethiopia established that women living in rural areas were greatly disadvantaged in receiving skilled delivery care services (Fekadu & Regassa, 2014). Their study revealed that only 4.5% of women in rural areas received assistance from skilled birth attendants against 64.1% of women getting similar services in urban areas. Using a Bayesian logistic analysis, the study also established that ANC utilization, education level of women, age and birth order were also demographic factors that influenced the utilization of skilled service delivery in addition to place of residence. A similar study among Women in South-Western Uganda, established that women who lived in small towns were more likely to deliver at a health facility, than their counterparts living in rural areas (Kabakyenga, Östergren, Turyakira, & Pettersson, 2012). The same study further revealed that: when women made the final decision on location of birth in consultation with their spouses, the likelihood of giving birth assisted by a skilled birth attendant was very high. However, when women made the final

decision on location of birth by themselves, the likelihood of giving birth assisted by SBAs was significantly reduced.

Education has been revealed to promote better understanding of health messages hence empowering the women to make informed choices hence improving not only their health but also that of their families (Kabakyenga *et al*., 2012). As well, women who had their first or second delivery were more likely to deliver with the care of SBS than those who have had two or more delivered. The study showed that this may be attributed to most women, who have had more deliveries, believing their experience assures them of a normal delivery without so much supervision. In another study, it was established that mothers above 35 years of age were less likely to deliver in health facilities thus limiting their access to skilled delivery access (Kitui, Lewis, & Davey, 2013). A study conducted in Selected Health Facilities in Nyandarua South District, Kenya, revealed that majority of the mothers (72.3%) had SBAs attending to them during their first delivery (Wanjira, Mwangi, Mathenge, & Mbugua, 2011).

2.3 Economic Factors and Utilization of Skilled Delivery Service

Economic status of a household is a key determinant in expenditure on health care. Several studies have identified economic status of a household as a key determinant on the investment in health at household level, including during pregnancy and post-delivery. The study therefore reviewed the economic status of women and their partners and how this has influence on access to skilled delivery services.

2.3.1 Economic Status of Women

The choice of using a health facility where there is easy access to skilled delivery services or home deliveries that commonly lacks the skilled delivery attendants for expectant women is also affected by their economic status (Exavery, Kanté, Njozi, Tani, Doctor, Hingora, & Phillips, 2014). This also affects their preference for skilled delivery services significantly (Moyer & Mustafa, 2013). Economic status of women is determined by the occupation and wealth of the woman as well as that of the husband, this then determines her status as poor, mid-income or rich (Ma & Schapira, 2017).

Economic status has a direct impact on the choice of mode of delivery and whether skilled delivery services should be accessed. Some of the expenses to be incurred in a bid to access quality skilled delivery services include maternity fees, transport costs and other allied costs (Kitui *et al*., 2013). Where households or an expectant woman is unable to cater for these expenses, skilled delivery services will largely remain a last option (Kitui *et al*., 2013). Various studies have arrived at this conclusion when comparing women who are financially stable and those that are poor.

In conducting a study on the factors associated with the use and quality of antenatal care in Nepal, it was established that household economic status of the women was among the various other predictors of women attending quality ANC services (Joshi, Torvaldsen, Hodgson, & Hayen, 2014). This impacted positively on the uptake of skilled delivery services. A study on determinants of maternal health service utilization in Ethiopia established that the wealth of households had a significant impact on utilization of

healthcare services attributed to expectant women including ANC and skilled delivery services (Tarekegn, Lieberman, & Giedraitis, 2014). Women from well off household had higher probabilities of seeking and utilizing skilled delivery care and services than their counterparts from less abled households.

While conducting a study on improving access to skilled facility-based delivery services in rural Zambia, it was established that low socioeconomic status of women prevented them from accessing and utilizing the services of skilled delivery care providers (Sialubanje *et al*., 2015). The inability to provide for basic social need weighed against the cost of accessing skilled delivery services. This hereby shifted the preference of women from delivering in health facilities where skilled delivery attendants were easily available to deliveries at home.

In Kenya, a number of studies have also established that women especially the low-income earners and the poor, had minimal chances of seeking skilled delivery and rather go for home deliveries. The home delivery services offer a cheaper alternative particularly for mothers living in areas far away from health facilities (Mulinge, 2017). In addition, women who were not in any gainful income generating activity had a higher chance of opting for delivery with the help of unskilled delivery care providers. Qualitative studies have identified cost as a major factor hindering access to skilled delivery services for women who lack the economic empowerment [Gabrysch & Campbell, (2009) as cited by Mulinge, (2017)].

The introduction of free maternity services in Kenya by the government demonstrated progress in understanding of the impact of poverty and economic status on seeking skilled delivery services. This directive of the President in June 2013 has enabled expectant women to access skilled delivery services through financing their user fees. They then have an equal opportunity to fully utilize this service. In a study on the impact of delivery policy on utilization of maternal health services in County referral hospitals in Kenya, it was established that there has been an increase in facility-based deliveries (Njuguna, Kamau & Muruka, 2017). This has been attributed to the increased uptake of health facility-based deliveries with access to skilled delivery care providers.

2.3.2 Economic Status of Partners

Women who have husbands or partners with low income occupations have higher chances of seeking assistance from unskilled attendants during delivery (Mulinge, 2017). This is majorly because such occupations have been associated with poverty hence resulting in difficulty when seeking assistance from skilled attendants during deliveries.

2.4 Socio-Cultural Factors Influencing Utilization of Skilled Delivery Services

In different regions and countries, disparities pertaining to the service sought for during delivery exist and this is generally based on social and cultural alignments (Palamuleni, Bett & Ruhiiga., 2011). A study conducted in Ghana found a correlation between ethnicity, traditional, beliefs, religion and culture and preference for skilled birth attendants (Adjei, 2013). Religious belief affects the choice of delivery services especially among the Muslims while traditional beliefs such a *Nankana* have showed a

higher preference for delivery without dependence on skilled birth attendants. In cultural beliefs, the gender of skilled deliver attendants is a hindrance (especially for the Muslims) whose beliefs disallowed male attendants from providing the skilled delivery services. This led to the fear of seeking skilled delivery services. Socially, female skilled delivery attendants are many a time preferred given their better understanding of the psychological and physical needs of expectant women (Srivastava, Avan, Rajbangshi, & Bhattacharyya, 2015).

In a study on socio-cultural barriers to accessibility and utilization of maternal and newborn healthcare services in Ghana, it was established that women culturally preferred home births due to social expectations, religious beliefs and practices (Ganle, Otupiri, Parker, & Fitzpatrick, 2015). These include; strong observance of the dictates of a religion of healing by faith, cultural tradition and norms such as rituals pertaining to pregnancy and the negative perception pertaining to delivery in health-facilities. They also noted that women generally had limited freedom in choosing a preferred delivery mode and location according to the dictates of the society.

A study conducted in Zambia noted that socio-cultural norms prevented expectant women from utilizing skilled delivery services (Sialubanje *et al*., 2015). These ranged from concerns about home care of other children to concerns of lacking basic social and healthcare needs especially in the facilities offering skilled delivery services including adequate sleeping space, water, sanitary services as well as beddings, food, cooking facilities. A study conducted in Tanzania to establish factors contributing to low

utilization of skilled delivery, the respondents reported that the TBAs are believed to have spiritual relationship with *Eng'ai* (the Maasai god) while they share the ability to give life. At the same time, they meet women's expectations of care before, during and, after labor. This belief is a major factor influence the pregnant women to specifically seek care from the TBAs rather than at the health facility.

Kenya's public health facilities have long been plagued by reports of abuse, mistreatment, and neglect of patients at the hands of healthcare workers; a problem enhanced by poor supervision and understaffing. Patients also report that the public health system is not culturally sensitive, failing to adapt to local circumstances such as cultures which require women to be attended by female practitioners, *(Center for Reproductive Rights and Federation of Women Lawyers – Kenya, 2007)*.

Utilization of skilled delivery services is an important factor in the fight against maternal mortality and morbidity (Berry, 2006). This is evidenced whereby all countries with skilled deliveries utilization higher than 80% have low maternal mortality rates of less than 200 per 100,000 births. It was also reported that the development of professional midwifery during the 20th century was the main reason for the dramatic declines in maternal deaths within industrialized countries (WHO, 2003).

Despite these encouraging statistics around the world, the utilization of skilled deliveries services in Kenya is still low, and many births still take place away from the hospital with assistance from a non-trained health personnel – who may be a family member or, with

traditional birth attendant or a midwife with no formal training. Kenya ranks among the top of the list with huge regional disparities and mortality rates as high as 1,300 per 100,000 in some areas (KNBS et al., 2015). In Kenya, health facility deliveries have remained fairly low since 2003; mainly due to intangible socio-cultural factors where the patterns of care-seeking behavior cannot purely be explained by access or awareness barriers, and by behavior and decision-making motivated by multiple variables that operate within the localized understandings of health and illness (Mwaniki *et al*., 2002). Poor care seeking behavior around childbirth have resulted in women experiencing serious complications such as prolonged and obstructed labor, which may lead to obstetric fistula and other complications –even maternal deaths.

In his study to determine factors that contribute to low uptake of skilled delivery in Malindi, Alexander Carter identified that the first ANC visit attendance at health facilities helps to increase the number of births attended by skilled care (Carter Alexandra, 2010). The study adds that socio-cultural and economic factors play are important than access alone in women's health-seeking behavior during pregnancy and childbirth. Carter Alexandra, (2010) continued to reveal the link between lack of birth preparedness coupled, with the community belief that health facilities are for the treatment of complications and reduced uptake of skilled delivery care. These study findings were reiterated in Homa-Bay District, as a scarcity in "birth preparedness" (Moore Hahn, Ritchie, Thornton, & White, 2002), where planning in advance for delivery was unfamiliar concept to most women.

The communities represented in the Homa-Bay study believe that birth should be a spontaneous process without a specific plan or anticipation. Moore Hahn, Ritchie, Thornton, & White, (2002) further identified perceived/real cost of delivery services, fear of operation, lack of transport facilities, distance and traditional beliefs as the main barriers to seeking health facility delivery services. The TBAs' in some areas, as revealed in Malindi, believe that pregnant women help them acquire healing abilities that they used to motivate the women to deliver at their places of service. The women believe that the services offered by the TBAs, in Malindi, are of higher quality since they are provided with a massage, warm water, herbal medicine and gentle handling of the mothers during consultations and even delivery (Carter, 2010).

A study in Migori County of Kenya established that lack of support from partners among married women facilitated home deliveries by unskilled delivery care providers (Cheptum *et al*., 2017). Skilled birth attendance is accessed by 53.4%, in Migori County, and 54.6% attending at least 4 ANC visits (KNBS et al., 2015; MoH, 2016). Traditional Birth attendants is reported to attend to approximately 28.6% or pregnant mothers who access unskilled birth attendance, (KNBS et al., 2015). An indication that Traditional birth attendants and non-trained birth attendants still plays a major role in providing pregnancy and delivery care services for pregnant women in Migori County.

2.5 Physical Factors and Skilled Delivery Service Utilization

Physical structures and equipment, the staffing, quality of services, the location of the facility, distance of travel, topography and other geographical factors play an important role in access to and use of health services (Khan & Bhardwaji, (1994); Snow et al., (1994)).In Sub-Sahara Africa and other developing countries, distance covered to reach a

health facility contributes to the time required to access health services (Hjorstberg & Mwikasa, 2002). Industrialized countries halved their maternal mortality ratios in the early 20th century by providing professional midwifery care at childbirth through increasing the allocation of resources to skilled delivery services (Parkins, 2004). World Health Organization concurs that maternal deaths have reduced to the current low level as a result of improving the access to hospitals since the Second World War. In addition, Malaysia, Sri Lanka and, Thailand halved their maternal mortality ratios within 10 years by increasing the number of midwives in the 1950s and 1960s. Egypt also doubled the proportion of deliveries assisted by skilled birth attendants and reduced its maternal mortality ratio by 50% (WHO, 2007).

Despite the above evidence, approximately 34% of deliveries globally have no skilled attendant indicating that at least 45 million births occur at home without skilled health personnel each year. Although, skilled attendants assist more than 99% of births in developed countries, only 62% of births in developing countries receive skilled attention (WHO, 2007). In a study conducted in Indonesia to determine the motivating factors to skilled delivery, the location of the health facility was significant in influencing the mothers' choice of deliver place. This study further revealed infrastructure, human resources, availability of services and inconvenience of home delivery as important factors that usually influence the women's decision to seek skilled delivery (Bidhan K.S et al. 2016).

Even though the proportion of births assisted by skilled attendants in Africa rose steadily from 47% in 1990 to 62% currently, the progress is still low. In West and Central Africa, only 4% of mothers who give birth are attended at delivery by skilled health personnel, while in Chad, urban women are 8 times as likely as rural mothers to give birth with the assistance of skilled health personnel. This was reported to be as a result of approximate distance from the health facility per household. Some aspects such as financial factors, socio-cultural factors, knowledge of availability of services, institutional experience and history, infrastructure and the skills of the health care workers, were the dynamics that prompt women to have a hospital delivery (Bidhan K.S et al. 2016). The study further recommended the need to ensure the infrastructure, equipment and supplies, quality of service, knowledge and skills of the health care workers, their attitude and the cost of the services are frequently reviewed to motivate mothers to deliver at a health facility.

Over the years, the public health facilities in Kenya have struggled with insufficient infrastructure, equipment and staffing. In the survey dubbed, *Realizing Sexual and Reproductive Health Rights in Kenya,* it was reported that only 36% of public health facilities offering delivery services had all the basic delivery room infrastructure and equipment needed, with rural areas, tier 2 and tier 3 facilities being the most affected (Kenya National Commission on Human Rights [KNCHR], 2012). Further, the staffing level in the country is estimated to be at 17% of the national requirements with the rural area mostly affected with high nurse patient ratio. This is further worsened by un-even distribution of these health care workers in the country hence the discrepancy in the skilled delivery indicators performance, by region.

The largest percentage, 42% of the mothers who had delivered outside health facility cited lack of physical access in terms of traveling long distances and inadequate transport infrastructures as the reason why they did not deliver at the health facility, (KNBS and ICF MACRO, 2010). Cost, on the other hand, was cited by 30% of the mothers as a barrier to accessing health facility; in relation to the transportation to the health facility with the majority affected being in rural areas.

2.6 Skilled Delivery and ANC Attendance

There are regional disparities as to where a mother delivers and who provides support at delivery despite mothers' 95.5% attendance of Antenatal Clinic (ANC) at least once during each pregnancy (KNBS et al. 2015). Health facility deliveries have also remained fairly low since 2003 despite health sector efforts to improve skilled delivery attendance in Kenya (Rumbold & Warren, 2006). At least 15% of all pregnant mothers will experience problems and require access to essential obstetric care, and hence require the services of skilled birth attendants (Rumbold & Warren, 2006).

In a research conducted in Ethiopia, the mothers reported: economic, social and cultural believes, transport problems, poor quality of services, decision making power, sudden onset of labor and poor access of the health facility as the main reasons for choice of home delivery.: These were the same factors which they reported to influence the use of ANC services too. From the study, the mothers pointed out that home delivery reduced unnecessary transport and other costs and some mothers stated that they even gave birth

at home after attending ANC services because of long distance of the health facility (Assfaw, 2010).

The KNBS et al. (2015) reported 57.6% of the mothers attain the 4 ANC attendance before delivery despite the recommended minimum of 4 ANC visits during pregnancy. This also varies by region with women from urban areas most likely to have a skilled delivery as compared to those from the rural area. The survey further revealed that age, education and, wealth status are some factors that influence the number of ANC attendance.

2.7 Summary of the Literature

In June 2013, the government of Kenya introduced free maternity in all public hospitals. This was aimed at improving the maternal health indicators associated with skilled delivery access, hence reduction in child and maternal mortality. However, if not accompanied by wider investments to increase the number of health facilities in rural areas and provision of transportation infrastructure to link women to these facilities, the program may only have the result of enhancing reproductive inequalities between Kenya's regions and counties. Skilled delivery is a continuum of care right from conception to delivery: hence attendance of ANC clinics, periodic checks on the health status during pregnancy, and subsequently having a delivery assisted by a trained midwife or health care worker is the only way to ensure reduction in maternal and child mortality.

Available literature points to physical access, demographic factors, economic factors, cultural practices and believes in addition to other personal related factors as influence factors in the utilization of skilled delivery services, more so specifics to Migori county need to be assessed. Identification of factors and determinants of choice of place of delivery, hence, should be assed and regionalized to help in formulating policies specific to counties where skilled delivery indicators are still struggling to improve. Additional literatures have also identified uptake of skilled delivery in rural areas to be lower than that or urban areas. Suna West Sub-County, being over 90% rural, needs a clear understanding of these factors associated with utilization of skilled delivery services.

Given that among the 8 sub counties in Migori County, Suna West has consistently reported the lowest skilled delivery coverage, it would be important for the county government to understand the details on factors influencing utilization of skilled delivery services. With the results of the study, Migori County government will be informed on effective utilization of resources, formulation of relevant policies and engagement of different stakeholders in improving utilization of skilled delivery services and by extension improving maternal and neonatal health indicators.

CHAPTER 3: MATERIALS AND METHODS

3.1 Introduction

This section describes the methods applied in conducting the research. It gives a summary of the design of the study, study variables and how they relate in concept and theoretically, location of the study, data collection and analysis processes and ethical considerations.

3.2 Research Design

The study employed a mixed methods study design where both Quantitative and Qualitative approaches to data collection were used. Mixed methods design involved philosophical assumptions that guided the direction of the collection and analysis. As well, the mixture of qualitative and quantitative approaches in many phases of the research process. It focused on collecting, analyzing, and mixing both quantitative and qualitative data in a single study. The reason for use of this design was the approach.

A combination of quantitative and qualitative data was used to provide a better understanding, both summative and descriptive, of the research problem that neither approach by itself could explicitly explain. The design allowed the researcher to triangulate qualitative data with quantitative responses obtained through household questionnaire and explore the relationship of responses based on similarities and divergence.

3.2 Variables

3.2.1 Independent variables

The independent variables of the study were categorized into 4 broad groups:

a. Individual factors: age, marital status, number of previous deliveries, Education Level;
b. Economic factors: Employment status, Household income,
c. Physical Factors: Distance to health facility; infrastructure; and availability of equipment's
d. Socio-Cultural factors: Decision maker in the family; Cultural believes

These variables were used to assess how they relate to the study objectives, and the analysis conducted to establish the extent to which these factors influence the decision in the use of skilled delivery services. These variables and similar variables have been shown to influence the use of antenatal care in developing countries (Simkhada, Teijlingen, Porter & Simkhada, 2008).

3.2.2 Dependent variable

In this study, the dependent variables were defined as those aspects of the study objectives which may be influenced by the independent variables. The dependent variable that is analyzed by the researcher was improved utilization of skilled delivery.

3.3 Location of the Study

The study was conducted in Suna West Sub-County, Migori County, in the Southern part of former Nyanza province of Kenya (Appendix 7). Bordering Tanzania to the south,

Nyatike Sub-County, Kuria West Sub-County and Suna-East Sub-County. The study geographical area is approximately 282.80 square Kilometers with an approximated population of 112,863 (DHIS 2013, based on 2009 population census projections). The Sub-County comprises approximately 4,740 children under 5 years, 27,087 women of reproductive age, projected 9,816 expected pregnancies and an expected delivery of 4,853; with male to female ratio of 100:108 (DHIS2, population estimates 2016).The area is largely inhabited by the Luo community. The area has a total of 25 health facilities (10 clinics, 7 dispensaries, 2 health centers, 3 nursing homes and 3 hospitals) that serve the whole population of the Sub-County. It is majorly rural with less than 10% being peri-urban within the administrative headquarters of Migori County.

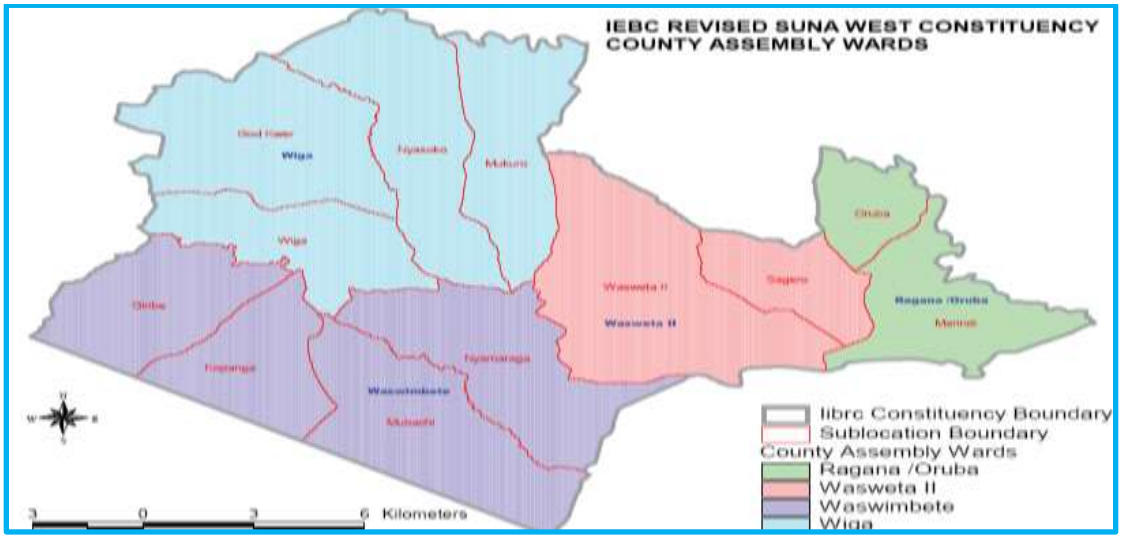

Figure 3.1: Map of the study area; source: google[1]

[1]*https://www.google.co.ke/search?biw=1745&bih=885&tbm=isch&sa=1&q=migori+county%3A+by+sub+county+boundaries&oq=migori+county%3A+by+sub+county+boundaries&gs_l=psy-ab.3...88181.89151.0.90566.4.4.0.0.0.0.432.778.3-1j1.2.0....0...1.1.64.psy-ab..2.0.0.OtcSVunKGxY#imgrc=a18ya12dHyAaiM:*

3.4 Study Population

The study population comprised of women of reproductive age, 15-42, Key Informant Interview respondents and Focus Group Discussion participants in Suna West Sub-county, Migori County

3.4.1 Inclusion Criteria

To be include as a respondent in the household interview, the responded had to meet the following criteria: For the HH questionnaire: i) Women in reproductive age (15-49 years); ii) Women residing in Suna West Sub county for at least the last 6 months; iii) Women who had a delivery within the last 18 months, or in last trimester of pregnancy. FGD: Male participants, must be aged 18 years and above and has a child. Health facility must be the level three and above within the sub-county.

3.5 Sampling Techniques and Sample Size

3.5.2 Sampling Techniques

The study area was purposively selected, based on the low coverage in skilled delivery services, from the 8 Sub-Counties in Migori County as reported in DHIS2. In this case, the purposive sampling was preferred considering the existing data on skilled delivery coverage over a period of 5 years showing that among the 8 Sub counties in Migori County, Suna West has consistently recorded the lowest skilled delivery coverage within the last 5 years. Additional consideration was based on the fact that part of the Sub-County is peri-urban crossing the administrative town of the County and hence the results would be more favorable to compare with other areas within the County. After

identification, the area was stratified by the existing administrative units, wards, and the sample allocated proportionately with respect to the total population/total households.

Within each administrative unit, the data collection started in the middle of the unit from where a pen was used to identify the direction of first household to be interviewed. A pattern of skipping two households was then adopted in consideration of the respondent meeting the eligibility criterion.

Table 3.1: Proportion to size per administrative unit

Administrative Ward	Locations	Total Population	Approximated No. HH	No. of HH to be interviewed	Success rate
Wasimbete	West Suna	9,033	1,921	38	100%
	Suna Wasimbete	10,202	1,995	40	100%
Wasweta II	South Suna	17,952	3,706	74	100%
Wiga	Suna Raha	9,746	2,187	44	105%
	Lower Suna	14,350	2,855	57	19%
Ragana	Suna Ragana	32,847	7,371	147	132%
Totals		*94,130*	*20,035*	*400*	*100%*

3.5.2 Sample size determination

A random sample of households was selected from the project area using Fischer's (1998) formula: $n = \{Z^2PQ\}/\{d\}^2$

Where,

n = desired sample size; z = standard deviation usually set at 1.96; which corresponds to the 95% confidence level; p = the proportion in the target population estimated to have a characteristic (having skilled delivery); q = 1.0-p; d = degree of accuracy desired, set at 0.05

Assuming a 90% response rate, the Sample size will be adjusted by 10% hence the Sample was calculated as: $n = [\{(1.96)^2 (0.618) (0.382)\}/ \{(0.05)^2\}] *1.1 = 399 \approx 400$ Households.

For qualitative data, a group of between 5-8 respondents were mobilized through the community structures and through snow balling upon which they were engaged in a discussion guided by pre-developed questions based on the objectives of the study.

3.6 Data Collection Tools

The researcher developed the data collection tools objectively by exhaustively assessing the underlying questions, based on the study objectives. Three different types of data collection tools were developed by the researcher and employed as instruments in primary data gathering. Additional data was collected through 3 Focus group discussion (FGD) sessions with groups of: Community Health Volunteers (CHVs), TBAs and Male partners.

3.6.1 Household questionnaire:

This tool was used to collect quantitative data from the eligible respondents withdrawn from the selected households. The questionnaire contained questions assessing the demographic characteristics of the respondents, their economic circumstances, the physical circumstantial predicament in which they find themselves and, knowledge, attitude and behaviors: all with respect to the study objectives (Appendix 1). The data collection tool also contained closed-ended questions with most probable fixed response

options. By the end of data collection, 403 respondents were interviewed at using the household questionnaire.

3.6.2. Key Informant interview guide

This Key Informant Interview (KII) guide was used to collect information from key persons in the community believed to have rich information based on the study objectives. The tool provided guidance for discussion but did not restrict the respondents in the answers to give (Appendix 4). The researcher engaged nursing officers at 3 health facility in health center level; Sub-County health nurse and 2 Community Health Extension Workers (CHEWs), a total of 6 KII were conducted.

3.6.3. Focus group discussion guide

These were a set of questions guiding the FGD facilitator on the key issues to be discussed. This tool was designed to generate an environment for discussing the issues around utilization of skilled delivery among women of reproductive age. A total of three FGD sessions were conducted with the male partners; traditional birth attendants and community health volunteers (CHVs) (Appendix 3).

3.7 Pre-Testing

3.7.1 Validity

The researcher ensured through evaluation of literature review of the previously conducted surveys and reviewed the tools used in the data collection then. The tools were developed and pre-tested upon which the researcher reviewed them in relevance to the

outcome of the pre-testing. Even though the content validity rarely changes, caution need to be taken that the “reliability of an instrument” is a property not of the instrument but of the instrument when administered to a certain sample under certain conditions (Polit & Beck, 2004). This should be done each time a research instrument is used (Knapp, 1985). Since the validity cannot be attained without reliability, the researcher therefore ensured that study methodology was followed to the letter to ensure data integrity.

3.7.2 Reliability

The research instruments were administered to 25 eligible respondents from Suna-East sub-county in Migori County, a geographical location bordering the selected Sub-county of study. Upon administering the questionnaire to the respondents, the researcher compared the results from different respondents to determine the consistency of the answer provided. Pretesting methods included asking the same question to the same respondent in different language and using different people to administer the same question to same person. The pre-testing helped in identifying deficiencies in the questionnaire which included ambiguity in some questions, some questions were not relevant to some respondents. The issues which came out of the pre-test were addressed and reviewed accordingly, before the actual data collection.

In addition, the researcher recruited experienced and competent research assistants with emphasis on ethics and integrity.

Cronbach test of reliability was used to assess the reliability of the instrument and as shown in table 3.2, the results showed a coefficient of 0.88 meaning the questions shared have covariance and hence measure the same underlying concept.

Table 3.2: Cronbach test of reliability

	Q1	Q2	Q3	Q4	Q5
Q1	1.189	0.556	0.259	0.295	0.107
Q2	0.556	0.667	0.370	0.074	0.111
Q3	0.259	0.370	0.444	0.148	0.037
Q4	0.295	0.074	0.148	1.210	0.112
Q5	0.107	0.111	0.037	0.112	0.226

3.9 Data Collection Techniques

A total of 15 research assistants were taken through a thorough 1-day training on how to conduct the interviews using the data collection tools. The study employed both qualitative and quantitative data collection methods to collect the primary data; which, was subsequently analyzed to assess the objectives of the study. Structured questionnaire, for quantitative data, was developed and administered to the eligible respondents by well-trained research assistants. A central point in each village was identified from where a pen was used to identify the direction of the interviewer. Depending on eligibility, every 2 household were skipped by the respondents and in a case where the next household had no eligible respondent, the next household was picked. Questionnaire responses were filled into the paper for consolidation.

Qualitative data, on the other hand, was collected through KIIs and FGDs with CHVs, TBAs, male partners and health service providers. The responses and discussions were recorded using a recorder for transcribing. The insights collected during these discussions were used to fashion explanations for observed trends in the quantitative data, in measuring the objectives of the study. The qualitative data collection was facilitated by use of interview guides for KIIs and unstructured questions for moderating FGD sessions.

3.10 Data Analysis

3.10.1. Quantitative data analysis

Data processing and analysis was conducted using a combination of analysis software's depending on the kind of analysis required. First, the data entry sheet was developed in SPSS version 21 where all the completed questionnaires data were entered. Data cleaning was conducted to ensure all the outliers and errors corrected. During the cleaning process, the research assistants involved in the data collection were engaged to clarify the unusual or missing values. The focus of the analysis for the quantitative data was based on identifying levels of influence in which the responses have on the research objective, regarding utilization of skilled delivery and the relations between the study variables.

Descriptive statistics including was run to understand the summary of the analysis results. Cross-tabulation was conducted to understand the relationships between the dependent and the independent variables and conducted. MS Excel version 10 and SPSS version 24 were also used by the researcher to generate different charts and tables.

3.10.1. Qualitative data analysis

Qualitative data was analyzed using the thematic approach. The collected data was transcribed directly from the language of discussion which included, English, Kiswahili and *Dholuo*-the local dialect. Then data was transcribed and translated into English to ensure same language across the discussion responses in the analysis. Themes were developed in relation to the study objectives grouped depending on the research questions and emerging issues. Codes were developed for the summary of themes to assess the frequency of related responses and discussions which then were triangulated with the quantitative responses. Upon coding and grouping of the responses, the researcher triangulated the responses with the quantitative responses to ensure they align with the study objectives.

3.11 Ethical Considerations

The research study was approved by and at the national government. The protocol was submitted to Kenyatta University for graduate school approval and to the Ethics Review Committee (KU-ERC) who provided approval and ethical clearance PKU/392/1361 for the study (Appendix 4). The National Council for Science and Technology Innovation (NACOSTI) gave the research authorization and research permit (Appendix 5). Various departments of the Ministry of Health at the Migori County government were approached for further authorization (Appendix). Further, the researcher ensured that all the necessary information was given to the study participants during through a consent form to help them in making individual decisions on participation (Appendix 1).

During the data collection, the identity of the participants was hidden by assigning codes rather than use their names. The analysis report on the other hand is presented in generalized format rather than individual opinion. To ensure that the data collected was treated with utmost privacy and confidentiality, restricted access was maintained, and no data was shared with any third party save for the policy makers who need the information obtained and the analysis report to make those policies beneficial to the community. Oral consent was administered to seek the concurrence of the respondents in the local language or the language which the respondent was comfortable with for proper understanding by the respondents. In the case of parents' eligible young girls aged between fifteen and seventeen years, both their accent as well as consent of a guardian adult (witness) was sought; in bid to accord them sufficient protection as minors.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter presents the findings of this study. The analysis and interpretations are discussed under thematic subsections with reference to the study objectives including the demographic characteristics, economic factors, socio-cultural factors and physical factors that determine the utilization of skilled delivery services. The targeted sample size for the study was 400 households, however, 403 respondents consented and were interviewed accounting for over 100% response rate, 401 questionnaires were complete against the 403 interviews. The success rate can be attributed to the comprehensive training and supervision of the data collection assistants along with an efficient data collection system that was set up by the researcher.

4.2 Demographic Characteristics of Respondents

Demographic characteristics were identified by the researcher as key factors that could have an influence on utilization of skilled delivery services. In response to this objective, the researcher collected several demographic information including age, marital status, education level, number of deliveries, household size and occupation of respondents as key factors to understanding the general characteristics of the respondents (Table 4.1).

Age:

The researcher sought to establish the age distribution of the respondents. As shown in the table 4.1 above, the youngest respondent who was interviewed was 15 years, while the oldest was 42 years. The mean age was 25.5 with the median being 24 years.

Table 4.1: Demographic characteristics of the respondents

		Frequency	Percent	Descriptive statistics
Age of Respondents	<20 years	57	14.2%	Mean age: 25.55 years
	20-24 years	146	36.4%	
	25-29 years	95	23.7%	Median age: 24 years
	30-34 years	63	15.7%	
	35-39 years	34	8.5%	Modal Age: 21 years
	40+ years	6	1.5%	
	Total	**401**	**100%**	Minimum age: 15
Level of Education	None	7	1.7%	
	Incomplete Primary	167	41.6%	
	Complete Primary	153	38.2%	
	Secondary	59	14.7%	
	College/University	15	3.7%	
	Total	**401**	**100.0%**	
Marital Status	Refused to Answer	1	0.2%	
	Divorced	2	0.5%	
	Married	328	81.8%	
	Separated	4	1.0%	
	Single	45	11.2%	
	Widowed	21	5.2%	
	Total	**401**	**100.0%**	
Household Size	2	23	5.7%	Mean: 5.04
	3	61	15.2%	
	4	77	19.2%	Median: 5
	5	89	22.2%	
	6	57	14.2%	Mode: 5
	7	36	9.0%	
	8	25	6.2%	Minimum: 2
	9	7	1.7%	
	10	6	1.5%	Maximum: 12
	11	1	0.2%	
	12	2	0.5%	
	NA	17	4.2%	
	Total	**401**	**100.0%**	

Education:

About 79.8% (320) of the respondents interviewed had not attained education beyond primary level. Close to half of all the respondents 41.6% (167) and 38.2% (153) had

attained incomplete primary and complete primary respectively. Another 14.7% (59) had attained secondary education while 1.7% (15) had a post-secondary education.

Marital status:

Majority (81.8%) of the respondents interviewed were married, 11.2% were single while about 5.2% were widows. About 1% of the respondents were separated from their spouses and 0.5% divorced. One respondent declined to disclose her marital status.

Household Size:

The maximum size of households of the respondents was 12 with the minimum being 2. Most of the households (89, 22.2%) had 5 members.

Religion:

Over half 202 (50.4%) of the respondents reported to be protestants, who specifically identified with *Legio Maria* church, this was closely followed by SDA at 97 (24%) and Catholic at 78 (19%), 18 (4%) reported other religions other than the mentioned with the rest 5 (1%) reporting no religion (Figure 4.1).

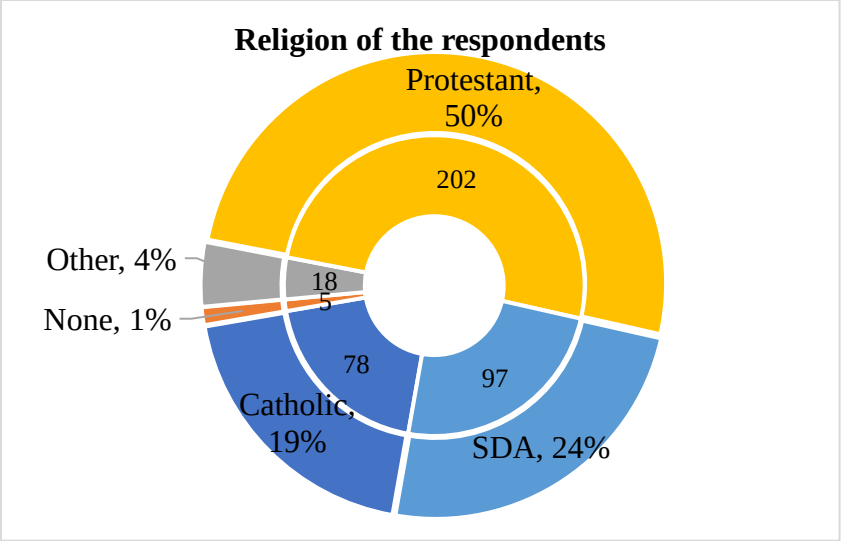

Figure 4.1: Religion of the respondents

Parity:

Among the 401 respondents who were interviewed, 133 (33.2%) had more than 3 full term pregnancies in their lifetime; 156 (38.9%) had between 2 and 3 full term pregnancies whereas 112 (27.9%) had only one full term pregnancy.

The respondents further reported an average of 3.21 pregnancies with a median of 3 pregnancies. The minimum number of pregnancies of the respondents was reported as 1 and the maximum 12 (Figure 4.2).

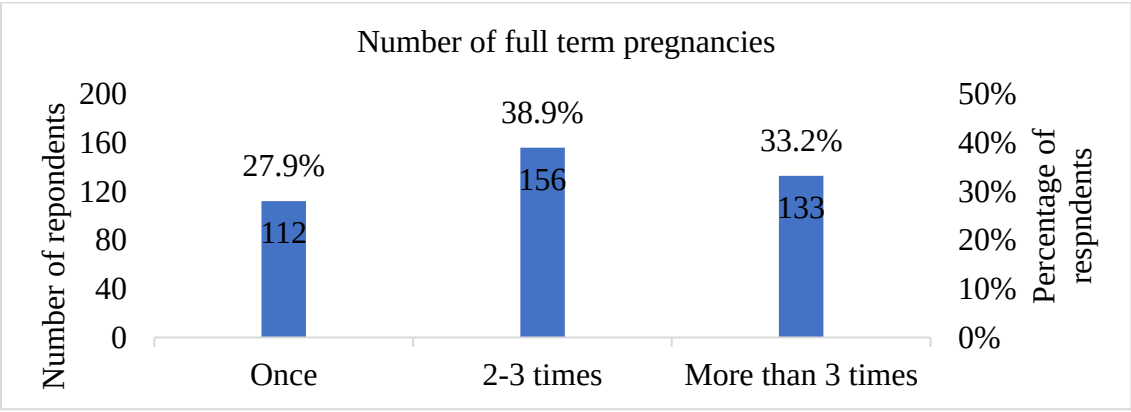

Figure 4.2: Number of full-time pregnancies of the respondent

4.3 Demographic Factors and Utilization of Skilled Delivery

Under the first objective of this study, factors such as age, marital status, parity, education level, and location of residence were identified as the demographic characteristics that affected women in seeking skilled delivery services.

4.3.1 Age of respondents and type of delivery

The study sought to determine the link between age of the study women on the place of delivery (Table 4.2).

Table 4.2: Relationship between Age of respondents and type of delivery

Grouped Age	Type of Delivery				Chi-Square statistics
	Home Delivery		Facility Delivery		
	Count	Percent	Count	Percent	
<20 years	8	16%	42	84%	
20-24 years	31	23.1%	103	76.9%	$\chi 2 = 5.564$
25-29 years	24	26.1%	68	73.9%	df = 4
30-34 years	19	30.6%	43	69.4%	$p = 0.234$
35+ years	14	35.0%	26	64.0%	
Totals	**96**	**25.4%**	**282**	**74.6%**	

Among the 378 respondents who had delivered by the time of interview, 96 (25.4%) did not deliver at a health facility. 32.3% of those who did not deliver at a health facility were aged 20-24 years. Women aged 30 years and above had a higher probability of non-facility delivery than the younger women. Nearly a third (30.6%) of women aged 30-34 years, delivering at home, same with those aged 35+ years who had a chance of 35.0% of delivering at home. Fewer younger women, aged 25-29 years (26.1%), 20-24 years (23.1%) and below 20 years (16%) had delivered at home. Nevertheless, at a *p-value* of

0.234, the findings showed that there was no significant relationship between age of women and type or choice of place of delivery.

4.3.2 Parity and type of delivery

The researcher also analyzed the association between parity as a factor to establish if it had any influence in utilization of skilled delivery services and also utilization of Antenatal care services.

Table 4.3: Influence of parity on type of delivery

Parity	Type of Delivery				Chi-Square statistics
	Home Delivery		Facility Delivery		
	Count	Percent	Count	Percent	
Once	15	16.0%	79	84.0%	
2-3 times	36	23.8%	115	76.2%	$\chi 2 = 13$
>3 times	45	33.8%	88	66.2%	df = 2
Totals	**96**	**25.4%**	**282**	**74.6%**	$p = 0.005$

Among the women who had at least one full term pregnancy, 84.0% had delivered at a health facility as presented in table 4.3. This was the highest probability followed by women who had delivered 2-3 times before, at 76.2%. The women who had delivered more than 3 times reported the highest proportion of those who delivered at home at 33.8%. With a *p-value* of 0.005, the study established that there was a significant relationship between parity and place of delivery. Meaning that women of higher parity were likely to have home deliveries.

Table 4.4: Influence of Parity on ANC attendance

Parity	Attended ANC				Chi-Square statistics
	Yes		No		
	Count	Percent	Count	Percent	
Once	95	94.1%	6	5.9%	
2-3 times	142	95.3%	7	4.7%	$\chi 2 = 14.256$
>3 times	120	93.0%	9	7.0%	df = 2
Totals	**357**	**94.2%**	**22**	**5.8%**	$p = 0.003$

Comparing parity with ANC attendance, the finding presented in table 4.4 revealed that 94.2% of the women attended antenatal care clinic during pregnancies. Among the women who had one full term pregnancy, 5.9% had not attended ANC during pregnancy compared to 4.7% and 7.0% for women who had between 2-3, and above three full term pregnancies. Out of the total 22 (5.8%) who reported not attending ANC, 31.8% and 40.9% had delivered between 2-3 and more than 3 times respectively. There was a significant relationship between parity and attendance of ANC among the respondents with a *p-value* of 0.003. Women of higher parity had a higher probability of attending ANC than those with low parity.

4.3.3 Marital status influence on type of delivery

This study analyzed the relationship between marital status and type of delivery among women.

Table 4.5: Influence of marital status on type of delivery

Marital status	Type of Delivery				Chi-Square statistics
	Home Delivery		Facility Delivery		
	Count	Percent	Count	Percent	
Single	8	22.2%	28	77.8%	$\chi 2 = 0.451$
Married	79	25.2%	235	74.8%	
Ever Married	8	29.6%	19	70.4%	df = 2
					$p = 0.798$
Total	**95**	**25.2%**	**282**	**74.8%**	

Majority of single (28, 77.8%), married, (74.8%), ever married (70.4%) and all indicated a strong preference for delivery at a health facility as opposed to home delivery with separated women showing an indifference or equal likelihood of preference for home or facility delivery from table 4.5 above. With a *p-value* of 0.798, there was no significant relationship between marital status and choice of delivery; meaning that the marital status of women did not affect their choice of place of delivery.

A male participant during the CHVs focus group discussion reported, *"Sometimes, it is us men who refuses our partners to go to health facility for delivery, like for my case, I have three children, the first two, I was the one who assisted in delivery. I never knew the dangers and I believed I could do it the same way the facility does it; however, since my wife had a complication of bleeding when she gave birth to our last born, I learnt the dangers and I am currently an advocate of facility delivery, and that's why I am volunteering to serve the community."* during the male partners FGDs however, the men were non-committal on the role they should play in making decision on ANC attendance during pregnancy or place of delivery, one of the respondents reported*, "As a man, I wake up to go to work and get money for feeding the family, it is upon my wife to decide if the money I give can support her to go to a health facility or to a TBA, and since for TBA you can be treated on credit, most of the time they will go to a TBA, but I can't protest since I may not have enough money".*

4.3.4 Influence of education on type of delivery

A possible effect of education levels of women on the choice of type of delivery was also assessed by this study.

Table 4.6: Influence of education level on type of delivery

Education level	Type of Delivery				Chi-Square statistics
	Home Delivery		Facility Delivery		
	Count	Percent	Count	Percent	
None	4	66.7%	2	33.3%	$\chi 2 = 27.616$
Incomplete Primary	55	34.4%	102	65.6%	df = 4
Complete Primary	34	23.1%	113	76.9%	$p = 0.000$
Secondary	3	5.9%	48	94.1%	
College/ University	0	0.0%	14	100.0%	
Total	**96**	**25.6%**	**279**	**74.4%**	

The findings presented in table 4.6 above showed an increased preference for facility-based deliveries with advancement in educational levels among women. Women having no education had a 33.3% chance of facility delivery, women with incomplete primary education had 65.6% chance of facility delivery, women with complete primary education 76.9% chance of facility delivery and women having secondary education had 94.1% chance of facility delivery. Women with tertiary level educational qualifications had a 100% chance of delivery at a health facility. With a *p-value* 0.000, the study established that education of women had a significant statistical impact on the choice of type of delivery. With an advancement in education levels among women, there was a higher chance of preference given to facility delivery.

These findings were supported by the response from health facility nursing officer for one of the health facilities who acknowledged that women who are more educated are easy to deal with during ANC visits and delivery, she reported, *"majority of the women we attend to in this facility for both ANC and delivery are not educated. however, the few*

educated ones who are either the teachers around, or may be housewives but are enlightened will develop a good pregnancy plan, including savings for delivery and post deliver expenses, coming on their appointment dates and easily understand the health education and instructions given, for the less educated ones, dealing with them is hectic and sometimes they feel we harass them and never come back." this was echoed by another KII who reported that, *"Most educated women, understand quickly and therefore spend few minutes in the ANC room, the less educated ones require a lot of time and they end up complaining that they spend so much time, whereas it is them who causes us to spend more time with them"*

4.4 Influence of Socio-Economic Factors Influence on Skilled Delivery Service Utilization

The second objective of this study identified factors such as occupation of respondents, partner's occupation, main source of income for households and average monthly family earning to be the economic factors that would possible affect women in seeking skilled delivery services. Cost of services at the health h facility was also analyzed to find the relationship with utilization of skilled delivery services.

4.4.1 Occupation engagement of respondents and their spouses

Occupational engagement of respondents and their spouses was a vital economic factor in determining the health care seeking behaviors of the households. The researcher hence sought to know from the respondents their occupational engagements and that of their spouses.

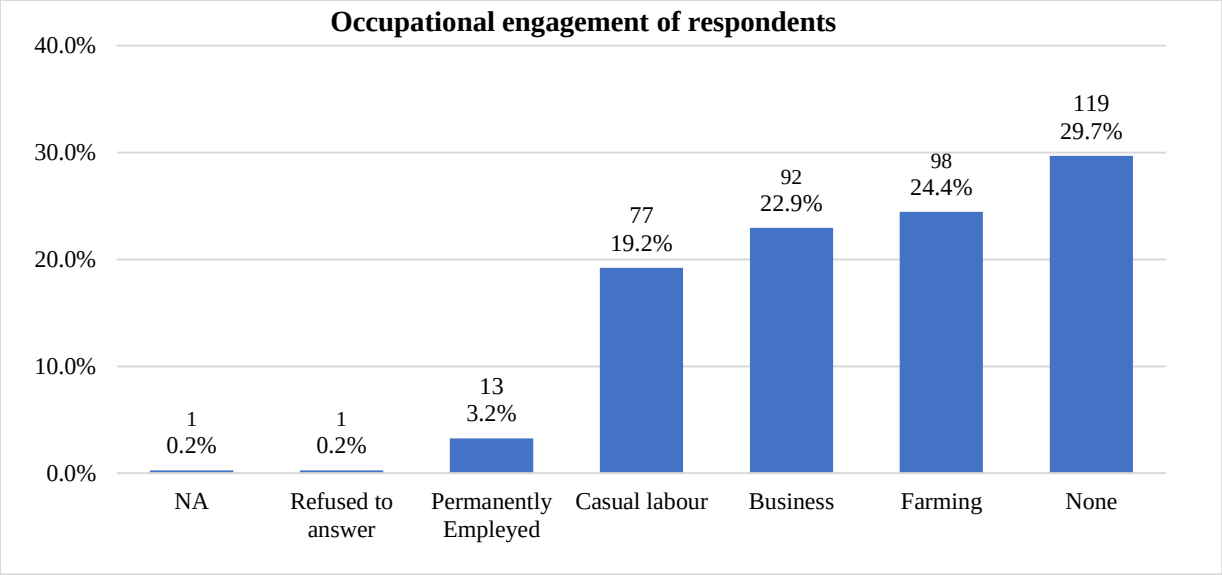

Figure 4.3: Occupational engagements of respondents

The finding presented in figure 4.3 above showed that 119 (29.7%) of the respondents did not have an occupation at the time of survey, 98 (24.4%) engaged in farming, 92 (22.9%) had businesses, while 77 (19.2%) were casual laborers. This was further confirmed through, at male partners FGD discussion, respondent said, *"here, not so many people have morning to evening jobs, we depend on menial jobs for people, and in most cases, available jobs are weeding for people, some men have 'bodaboda' , but in most cases, we are working on our small farms"*

Table 4.7: Influence of occupation of respondents on type of delivery

Occupation of respondents	Type of Delivery				Chi-Square statistics
	Home delivery		Facility delivery		
	Count	Percent	Count	Percent	
Permanently Employed	1	25.4%	11	74.6%	
Casual labor	20	29.2%	53	70.8%	*χ2 = 4.718*
Business	21	23.0%	69	7.07%	*df = 4*
Farming	30	25.4%	66	74.6%	*p= 0.317*
None	23	20.0%	83	80.0%	
Total	**95**	**25.20%**	**282**	**74.8%**	

A statistical analysis to ascertain the possible effect of occupation of respondents and the type of delivery as presented in table 4.7 above showed that there was no significant statistical impact of occupation of women on the type of delivery at a *p-value* of 0.317. A KII at one of the health facility shared the same opinion that there is no difference between women on employment accessing skilled delivery services than non-employed, she reported, *"Almost all the pregnant mothers who come here for ANC or delivery are not employed, and therefore, I can't say there is much difference that the women we see here are employed, it's the same". "Maybe if we had some employed ones, we would see a difference"* she added.

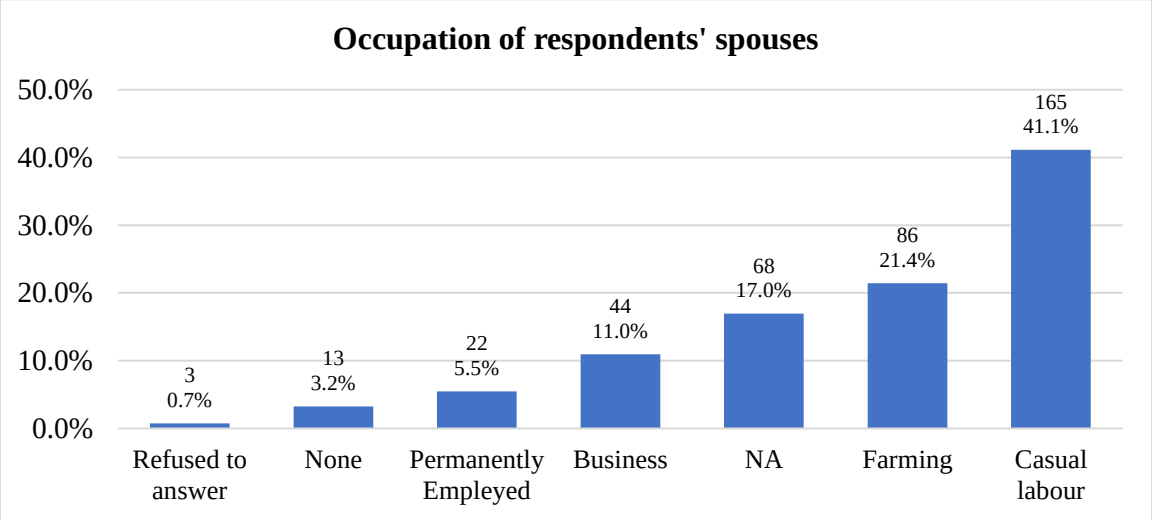

Figure 4.4: Occupation of respondents' spouses

The findings showed that 165 (41.1%) of the respondents' spouses were casual laborers, 86 (21.4%) were engaged in farming 44 (11.0%) and 22 (5.5%) were engaged in businesses and permanent employment respectively. The occupation of the respondents' spouses was then analyzed against the type of delivery of respondents for a possible significant statistical association.

Table 4.8: Influence of occupation of respondent's spouse on type of delivery

Occupation of respondent's spouse	Type of delivery				Chi-square statistics
	Home delivery		Facility delivery		
	Frequency	Percent	Frequency	Percent	
Permanently Employed	2	25.40%	20	74.60%	
Casual labor	43	29.20%	115	70.80%	$\chi 2 = 6.315$
Business	9	23%	34	77%	$df = 4$
Farming	23	25.40%	59	74.60%	$p = 0.177$
None	5	20%	6	80%	
Total	**82**	**25.95%**	**234**	**74.05%**	

With a *p-value* of 0.177, the findings of this study revealed that there was no significant statistical impact of occupation of respondents' spouses on the type of delivery as presented in table 4.8 above. The occupation of the respondents and that of their spouses was therefore determined to have no impact on the choice of place of delivery among women in the place of study.

4.4.2 Source of income for households

The researcher then sought to determine the major source of income for the households of the respondents engaged in the study.

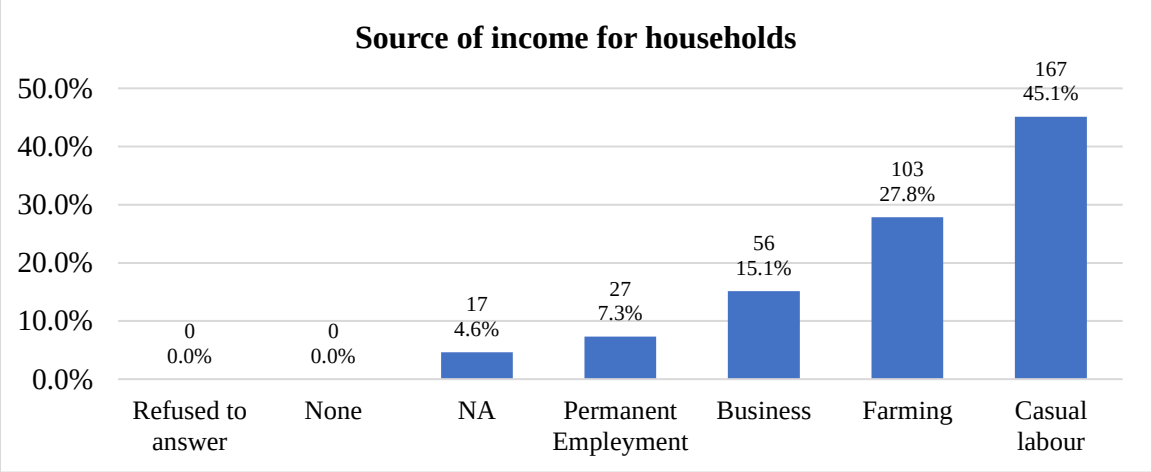

Figure 4.5: Main source of livelihood of respondents' household

The findings presented in figure 4.5 above showed that 167 (45.1%) of the respondents' earned their household income from casual labor, 103 (27.8%) earned their household income from farming, 56 (15.1%) from businesses with only 27 (7.3%) having their household income earned from permanent employment. It is also important to note that despite earlier indications in figure 4.3 and figure 4.4 of cases of respondents and even their spouses having no employment, no household was reported to lack a source of income.

4.4.3 Average monthly income for families of respondents

The study also sought to establish the average monthly income of households of the respondents. This was then used to gauge the possible effect on choice of place of delivery through a cross tabulation against the place of delivery of the respondents.

Table 4.9: Influence of average monthly income on type of delivery

Average Household Income	Type of Delivery				Chi-Square statistics
	Home delivery		Facility delivery		
	Frequency	Percent	Frequency	Percent	
<1000	30	25.4%	88	74.6%	$\chi 2 = 1.528$
1001-3000	28	29.2%	68	70.8%	df = 5
3001-5000	14	23.0%	47	77.0%	$p = 0.910$
5001-10000	16	25.4%	47	74.6%	Mean HH Income = Kshs. 5,129
10001-20000	5	20.0%	20	80.0%	
>20000	3	20.0%	12	80.0%	Median = KSHs. 3,000
Total	96	25.4%	282	74.6%	

The findings showed that women whose households had higher levels of income were more likely to deliver at a health facility. 80.0% of households earning above 20,000 and

between 10,000 and 20,000 reported to have had facility deliveries while households earning KSHs. 5,001-10,000, KSHs. 3,001-5,000, KSHs. 1,001-3,000 and below KSHs. 1,000 reported 74.6%, 77.0%, 70.8% and 74.6% facility delivery respectively. Home deliveries increased in numbers with reducing levels of household income. The mean monthly salary for families of respondents was KSHs. 5,129 with a median of KSHs. 3,000 per month, minimum 0 and maximum KSHs. 50,000. The analysis revealed a right skew of the income since the mean was higher than the median. 87.2% of the households had bellow KSHs. 10,000 monthly incomes. Most of the women were therefore low-income earners that would then have an impact on their ability to access skilled delivery services. Nevertheless, further statistical analysis revealed that there was no significant relationship between income level and place of delivery among women at a *p-value* of 0.910. Household income earning did not affect the choice of type of delivery among women in the area of study.

4.4.4 Cost of facility delivery services and type of delivery

Cost of skilled delivery was identified as a key factor for the researcher to establish if it has any influence on utilization of these services. To this effect, the researcher asked the what on what it costs to have a skilled delivery at a health facility and how the introduction of free maternity may have utilization of these services. The study found out that as much as the government waived the charges for facility delivery, respondents reported that this was not fully waived and sometimes, the mothers still had to pay some money for purchasing gloves and other consumables. One of the KII reported: *"As much as the government says facility delivery is free, there hasn't been a consistent*

disbursement of funds to the facility, and even the little that is collected through little charges is not enough to purchase all the consumable like gloves, as health service providers, we can only do as much as we can and we always ask pregnant mothers to have some funds which they can use to buy gloves and cotton wool when they are coming for delivery."

It was further noted that the cost of delivery did not have any significant relationship with the mother's decision to deliver at a health facility or at home. On average, the one-way cost to the nearest health facility costed KSHs. 59, with the common mode of transport reported to be the motorbike and walking on foot. This shows that for any visit to the health facility, the mother would need an average of 118 for transport.

In a FGD discussion with TBAs, they acknowledged that there has been reduced business from their side for the past few years, one of the respondents said, "*For the last 2 to three years, there has been a lot of emphasis on Skilled delivery from 'sister'(referred as the Nurse at the health facility) and the community health volunteers; they walk in the village every day to talk to pregnant women that the services are free and they should to attend ANC clinics and delivery at the health facilities, rather than go to the TBAs since the facility ."* another CHV added that*, " In fact, the CHVs and the CHEWs have engaged us to refer pregnant women to health facility and even some of TBAs have been recruited as CHVs and once we do this, sometimes we get small token of appreciation;*

When asked what they charge for delivery and if by any chance it influences the women decision not to go to health facility, the TBAs responded that they don't have any fixed amount to charge for delivery, rather it depends on a person. One of the responded reported, "*As TBAs, this is a skill we use to help, and we usually do not charge. Once you assist a mother, they only give something small for appreciation which may not necessarily be in cash. We sometimes receive chicken, 'lessos', clothes or sometimes nothing, or the husband may even give you a goat." one added that, "Some women will refuse to go to the facility and insist they only need services from us, they say we are gentle and treat then nicely"*

4.5 Physical Factors Influence on Utilization of Skilled Delivery Service

Physical accessibility of a health facility was perceived to be vital by the researcher in ensuring accessibility to skilled delivery services. Physical infrastructure, human resource, proximity to a health facility, timing of operation, and staffing were also some of the determinants which possibly influenced one's access to the services at a health facility. To this effect, the researcher was interested in establishing some characteristics of the nearest health facilities to the respondents' homes and the relationship between these characteristics and decision to use skilled delivery services.

4.5.1 Availability of maternity services in the nearest health facility

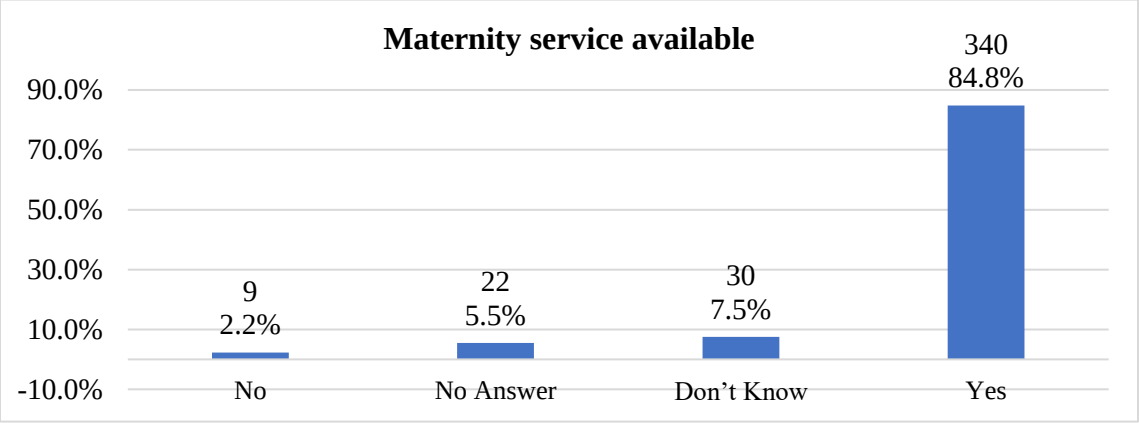

Figure 4.6: Maternity service availability

Majority of the respondents, 340 (84.8%), reported the availability of maternity services at the nearest health facility. However, 7.5% of the respondents were not aware of the availability of maternity services in a nearest health facility with another 5.5% refusing to answer. Only 9 (2.2% of the respondents) reported that maternity services were not available at the nearest health facility.

4.5.2 Duration of operation of health facilities

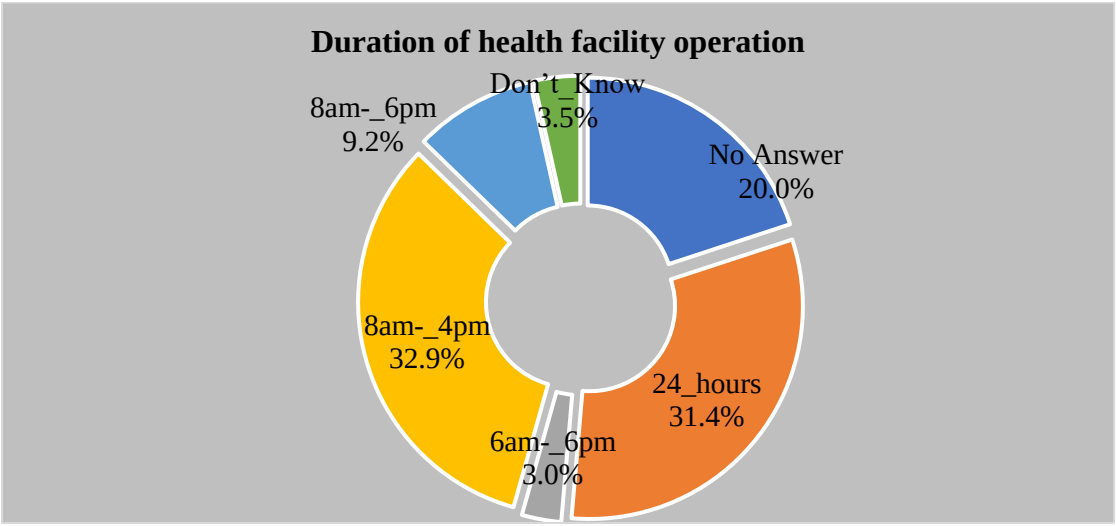

Figure 4.7: Duration of operation of health facility

Despite 85% of the respondents reporting availability of maternity services, only 31.4% of the health facilities were reported to be operational 24 hours in a day whereas 32.9% operated between 8.00 am to 4.00 pm, and 9.2% operational between 8am-6pm. Only 3.0% of the health facility operated between 6am and 6 pm. The study therefore established that only a few of the health facilities (31.4%) were operation both day and night, thus only a few were accessible for health service throughout the day and at night. This was in tandem with the report by 3 of the KII who also acknowledged that most of the facilities in the area, only operates during the day, mostly from 8am to between 5 pm and 6pm. one of KII reported, *" Basically the facility is a operates between 8 am to 5 pm, since we don't even have electricity and the nurse house, we are forced to close the health a facility early when there is light, however, in case we have pregnant women due for delivery coming at 5 pm, we usually open until late, use solar light and spot light, or sometimes we refer to the health center".* Most of the health facilities had limited access especially at night in the area of study and therefore respondents had limited access to skilled delivery services in the health facilities at night.

The fact that only 31.4% of the respondents reported health facilities providing maternity services to be operating 24 hours was noted to affect accessibility to skilled delivery. One of the participants reported: *"Most of the deliveries happen at night, it is may be by default since most pregnancies are conceived at night, when you go to the health facility, the nurses are not available and the facility is closed, but when you go to a TBA, you will always find her, she will cook for you and scrub your back during delivery."*

4.5.3 Access to skilled delivery and ANC services given distance from health facility

The study also sought to establish the level of access to skilled delivery services given the distance that respondents had to cover to the health facilities.

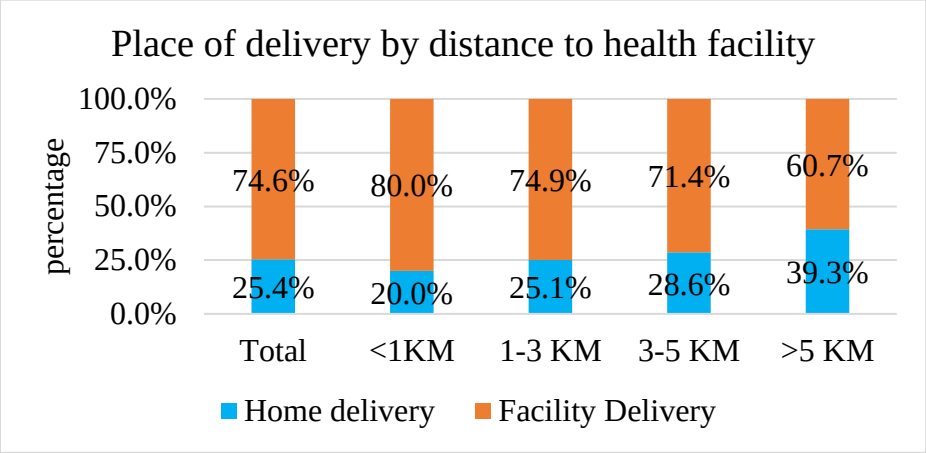

Figure 4.8: Percentage accessing skilled delivery by distance to health facility

The findings showed that with increase in distance from a health facility, fewer women were able to access the health facilities for skilled delivery services given that 80.0% delivered in the facility for those staying 1km away, 74.9% for women staying 1-3 Km away, 71.4% for those staying 3-5Km away and 60.7% for those staying beyond 5Km away. Given an increased distance from the health facilities, there was a significant increase in home-based deliveries.

Table 4.10: Mann–Whitney test results on distance from facility and place of delivery

Distance from health facility	Type of Delivery				Mann-Whitney test Statistics
	Home delivery		Facility delivery		
	Frequency	Percent	Frequency	Percent	
<1KM	80	80.0%	20	20.0%	U = 6 Median Home delivery = 20 Median for facility = 60 $n_1=n_2=10$ p= 0.2063
1-3KM	140	74.9%	47	25.1%	
3-5KM	40	71.4%	16	28.6%	
>5KM	17	60.7%	11	39.3%	
No response	5	71.4%	2	28.6%	
Total	**96**	**25.40%**	**282**	**76.6%**	

The researcher used Mann-Whitney U T-Test to statistically determine if there was a significant statistical relationship between distance covered to the health facility and type of delivery. The findings showed that the median latencies for facility delivery was 60 and home delivery 20. There was no significant statistical impact of distance from health facility on choice of place of delivery among women in the study area given that that the Mann–Whitney statistic (*U*) was 6 with a *p-value* of 0.2063.

This finding was further supported by a general lack of consensus on whether most women preferred delivering at a TBA because it was near and more accessible compared to a health facility. 37.2% generally supported this statement while 52% disagreed. 10% of the respondents either had no comment or declined to respond. A similar lack of consensus on whether it is likely that those who attend ANC will deliver at the health facility. While 46.4% of the respondents were generally in agreement with this statement, another 48.3% did not think this was likely.

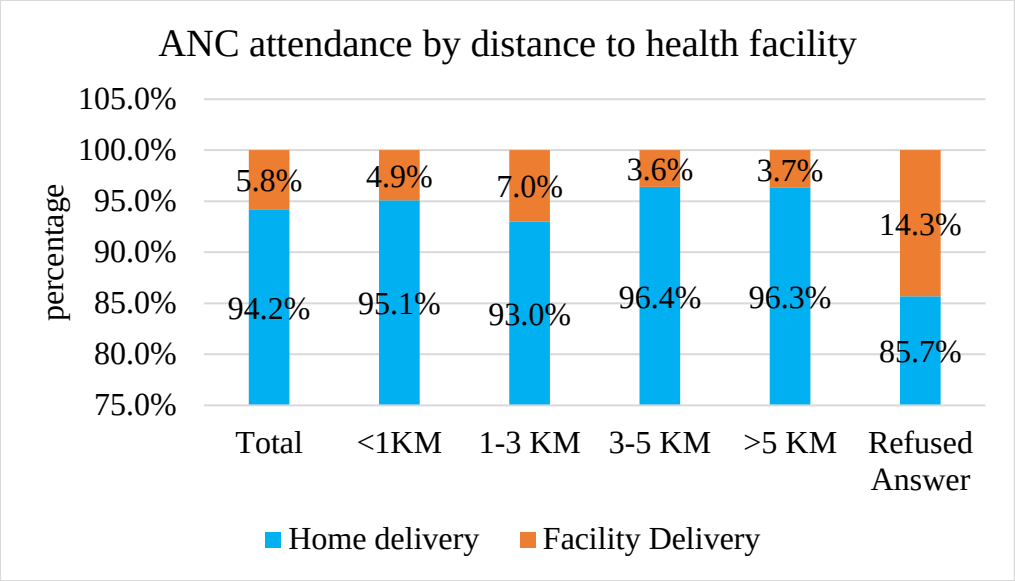

Figure 4.9: Proportion attending ANC services by distance to health facility

On comparing the relationship between ANC attendance and distance from the health facility, there was not so much difference on proportions attending ANC services based on the distance from health facility. On average, 94.2% attended ANC compared to 95.1% for those less than 1 kilometer; 96.4% for 3-5 kilometers and 96.3% for those coming further than 5 kilometers. Women who were between 1-3-kilometer distance from nearest health facility and those who could not give an average distance, reported a lower percentage than the average at 93% and 85.7% respectively. Chi square tests were further used to test if there was a significant statistical impact of distance covered to the health facility on ANC attendance.

Table 4.11: Effects of distance covered on ANC attendance

Distance from health facility	ANC Attendance				Chi-Square statistics
	Attended ANC		Did not attend ANC		
	Frequency	Percent	Frequency	Percent	
<1KM	98	95.1%	5	4.9%	
1-3KM	174	93.0%	13	7.0%	$\chi 2 = 1.328$
3-5KM	53	96.4%	2	3.6%	df =3
>5KM	26	96.3%	1	3.7%	$p= 0.722$
No response	**6**	85.7%	1	14.3%	
Total	**357**	**94.2%**	**22**	**5.8%**	

The findings showed that there was no significant statistical impact of distance covered to health facility on ANC attendance among women with a *p-value* of 0.722.

Respondents noted that the reduced numbers in uptake of ANC and skilled delivery services was since transportation to the facility presented challenges. A respondent indicated: *"Safe and comfortable transport to health facilities around presents challenges to expectant women. You must know that their condition is delicate and therefore the roads need to be accessible and in good condition, and the means of transport available needs to be comfortable. However, most of these conditions are not met with given that most roads are poor, and the cheapest and easily available means of transport is a motorbike. With that it is easier for most pregnant women in labor to deliver at home."*

Another respondent indicated that: *"Some women have had a delivery along the way to a health facility just because they felt uncomfortable using a motorbike to the health facility on a poor road and having to cover over six kilometers of the uncomfortable ride to the health facility."*

4.5.3 Availability of maternity services, transport cost and duration of operation

	Min.	1st Qu	Median	Mean	3rd Qu	Max.	NA's
One-way cost to health facility	0.00	20.00	50.00	59.00	100.00	500.00	34
Number of HCWs at ANC	1	1	1	1.94	2	60	46
Number of HCWs at maternity	0	1	1	1.57	2	5	92

Table 4.12: Cost to facility and number of HCWs at the facility

Cost to the health facility also seemed moderate with the median cost reported as KES.50. Interestingly, most of the health facilities seemed to have only one health care worker (HCW) at ANC and maternity each. The lowest number of HCWs at a health facility was 1 while the highest was 60. Regrettably, some facilities, as reported by the respondents, did not have a single HCW at the maternity section. The highest number reported at a health facility was 5 HCWs.

4.6 Socio-Cultural Factors Defining the Utilization of Skilled Delivery Services

The study, in a bid to understand the socio-cultural factors determining skilled delivery service uptake, posed questions to respondents pertaining to the cultural attitudes and beliefs that were perceived as influencers on choice of type of delivery. The researcher sought to establish some of the attitudes and beliefs by women of childbearing age.

4.6.1 Knowledge, attitude and believes

To establish the knowledge of the respondents on risks in utilization of skilled delivery services, the researches asker questions to gauge the attitudes and level of knowledge of

the respondents on key believes and myths associated with pregnancy and delivery services.

Table 4.13: Attitudes and beliefs

Attitudes and beliefs	Strongly Agree	Agree	No comment	Disagree	Strongly Disagree	No response
Pregnant women need to attend ANC at least 4 times before delivery	37.47	56.58	1.49	1.74	0.99	**1.74**
Pregnant women need to plan for their delivery (probe in terms of money, place of delivery, materials used during delivery …)	41.94	50.37	1.74	3.72	0.50	**1.74**
It is safer to deliver at the health facility than at the TBA	51.12	42.18	1.24	3.22	0.99	**1.24**
Health facilities have better delivery equipment than the TBAs	53.60	40.20	1.74	1.49	0.25	**2.73**
TBAs usually treat pregnant women more gentle and safer than the HCW	3.47	6.45	4.96	62.28	19.11	**3.72**
HCW usually harasses women during ANC attendance and also during delivery	7.94	21.09	5.21	52.11	11.17	**2.48**
The cost of services at the health facility usually repulse women away from delivering the health facility	0.50	10.17	8.19	62.78	16.13	**2.23**
TBAs usually charge lower than health facilities	1.74	10.42	5.46	54.59	24.07	**3.72**
Most women prefer delivering at a TBA because it near and more accessible	4.71	32.51	7.94	44.42	7.94	**2.48**
It is likely that those who attend ANC will deliver at the health facility	15.88	30.52	3.22	44.17	4.21	**1.99**
TBAs can handle birth complications just as the HWC	**2.48**	**1.24**	**1.24**	**36.23**	**56.08**	**2.73**

Majority of the respondents (94.05%) agreed that pregnant women needed to attend ANC at least four times before delivery. Similarly, there was general agreement (92.31%) that pregnant women needed to plan for their delivery and that it was safer to deliver at the health facility than at the traditional birth attendant (93.30%). 93.80% of the respondents also agreed that health facilities had better delivery equipment than the TBAs. There was a significant relationship between the belief that pregnant women need to attend at least 4 ANC visits with the place of delivery, a significance also presented by the belief of those pregnant women who attended an ANC and those who delivered at a health facility.

When asked whether traditional birth attendants treated pregnant women more gently and safer than health care workers, most of the respondents disagreed (81.39%). Only 9.92 % of the respondents thought that TBAs were more gentle and safer. It was interesting to note, however, that several respondents (29.03%) thought health care workers usually harassed women during ANC clinics and during delivery with only 63.28% disagreeing. This case was affirmed during FGD session with TBA, one of the respondents said,

"Sometimes the women come to us because they believe we are gentle and treat them with dignity, they say at the health facility, the HCW usually harass then and sometimes they take so much time waiting", another TBA added, " you know when you receive a guest, you must treat the guest week, and therefore when we always provide them with food and drinks, place of sleep and also since most of the deliveries happen at night, we are always available."

Regarding cost of services, most respondents (78.91%) disagreed with the statement that the cost of services at the health facility usually repulsed women away from delivering at a health facility. Further, a similar proportion also disagreed with the belief that TBAs

usually charge lower than health facilities with about 12.16% of the respondents having a view that the TBAs charged lower. A KII at one of the health facilities reported that,

"the government actually pays a specific amount for every delivery reported, however sometimes this money delays and therefore we must have stop gap measures. this include telling the women to buy some of the consumable to be used during delivery like cotton wool, gloves, syringes."

There was general lack of consensus on whether most women preferred delivering at a TBA because it was near and more accessible. 37.22% generally supported this statement while 52.36% disagreed. 10.42% of the respondents either had no comment or declined to respond. A similar lack of consensus was revealed on whether it was likely that those who attended ANC would deliver at a health facility. While 46.40% of the respondents were generally in agreement with this statement, another 48.38% did not think this was likely. If there was a difference of opinion on whether most women preferred delivering at a TBA because of nearness and accessibility or on whether it was more likely that those who attended ANC would deliver at a health facility, there was little difference in opinion by the respondents on whether they thought TBAs were able handle birth complications just as health care workers. An overwhelming 92.28% did not think TBAs could handle birth complications just as well.

4.6.1 Decision making on utilization of skilled delivery services

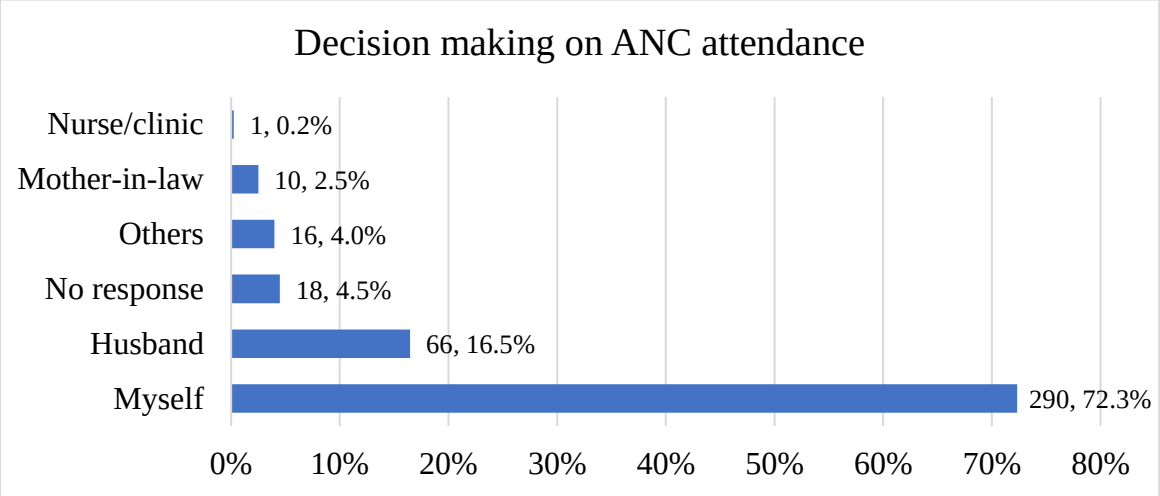

Figure 4.10: Decision making on ANC attendance

On decision making on whether to attend ANC or not, 290 (72.3%) of the respondents reported that it was their primary responsibility to decide whether or not to attend antenatal care clinics. 66 (16.5%) indicated the responsibility to be on their spouses and 10 (2.5%) on their mother-in-law. 18 (4.5%) of the respondents however declined to respond to this question.

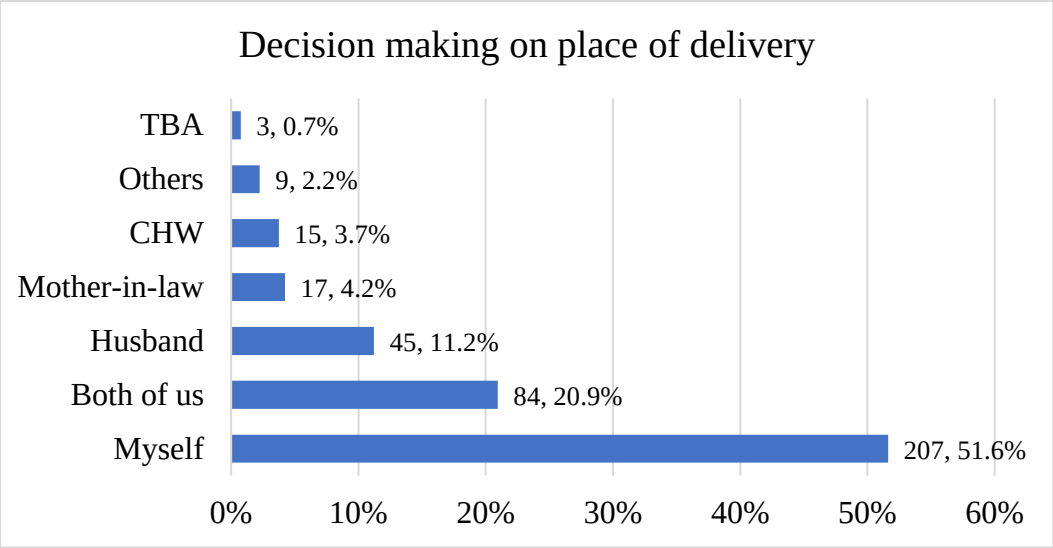

Figure 4.11: Decision making on delivery type

When asked, who made the decision on where the respondent gave birth the last time, 51.6% of the respondents mentioned that they made the decision themselves, while a significant proportion also mentioned they made a joint decision alongside their spouses (20.8%). Mothers-in-law (4.2%) and CHVs (3.72%) also seemed to influence the place of birth for several respondents, albeit to a small extent. And although the traditional birth attendants were the second most common service providers for delivery services, they did not have much of an influence on pregnant women's decision of a place to give birth.

4.7.5 Reasons for choice of place of delivery

An analysis of the reasons for the choices of place of delivery (home or facility) was done by the researcher. To begin with, respondents who delivered at the health facility were asked why the preferred to give birth at a health facility.

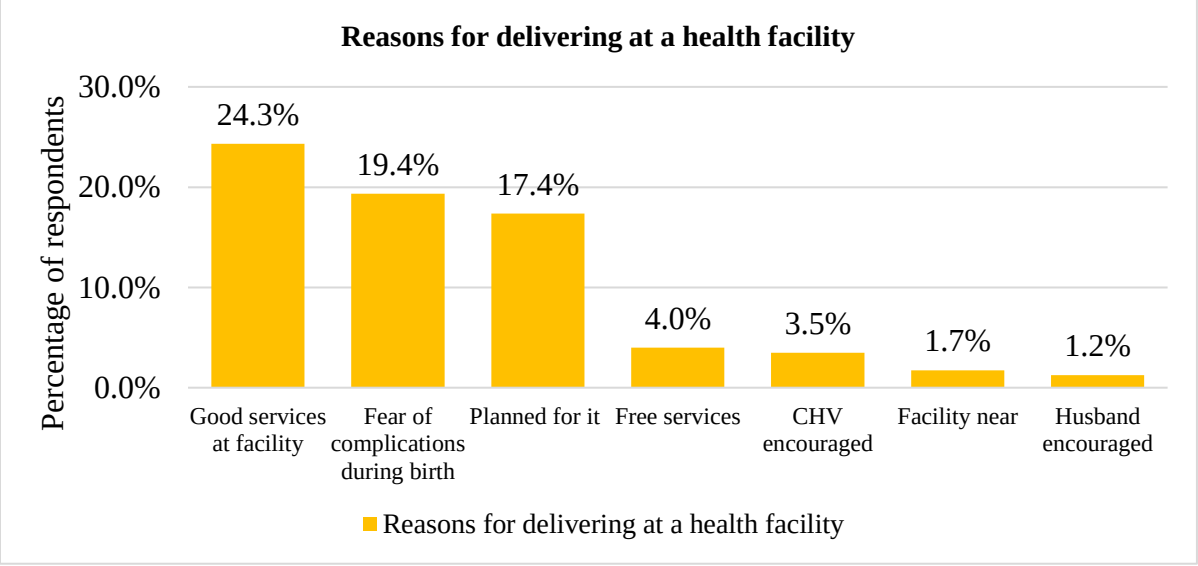

Figure 4.12: Reasons for delivering at a health facility

Majority of the respondents were motivated by the good services provide by the health facilities (24.3%) and the fear of complications during birth (19.4%), with another close

motivator being advance plans put in place to deliver at a health facility (17.4%). Free maternal delivery services offered at the health facilities (4.0%) and distance to facility (1.7%) did not seem to be much of motivators to deliver at a health facility. Spouses (1.24%) and CHVs (3.5%) also played minimal roles in persuading the respondent to deliver at a health facility.

Table 4.14: Reasons for delivering at home

Reasons for delivering at home	Frequency	Percent
Did not expect the labor	33	40.2%
TBA near	14	17.1%
Health facility far	10	12.2%
Transport problem	9	11.0%
Had no money	6	7.3%
Did not see the importance	5	6.1%
Fear of HCW	4	4.9%
Husband refused	1	1.2%

Similar to the trends observed under facility deliveries, respondents who delivered at home revealed that spouses' reservations (1.2%) did not seem to determine a pregnant woman's decision to give birth at home. Instead, unexpected labor (40.2%), the availability of a traditional birth attendant close to the respondent's home (17.1%), distance to health facility (12.2%), challenges with transport (11.0%) were the common factors leading to home deliveries. Some respondents having home deliveries, nevertheless, did not see the importance of giving birth at a health facility (6.1%) while 4.9% were afraid of health care workers.

4.7.6 Preferred place of delivery for next pregnancy and delivery assistant

Respondents were asked where they would like to deliver their next baby.

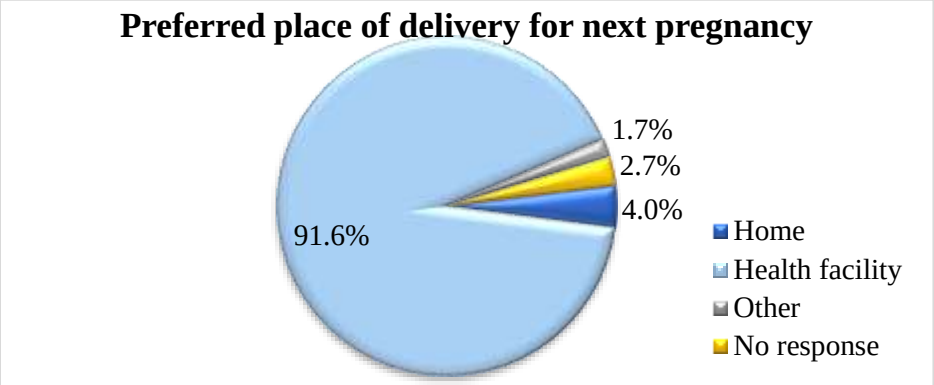

Figure 4.13: Preferred place of delivery for next pregnancy

Most of the respondents (91.6%) suggested a health facility as their preferred place of delivery for their next pregnancy. This suggested the need for advocacy to ensure health facilities meet the needs of pregnant women. Only 5.7% of the respondents indicated they would want to deliver anywhere else while 2.7% did not give a response.

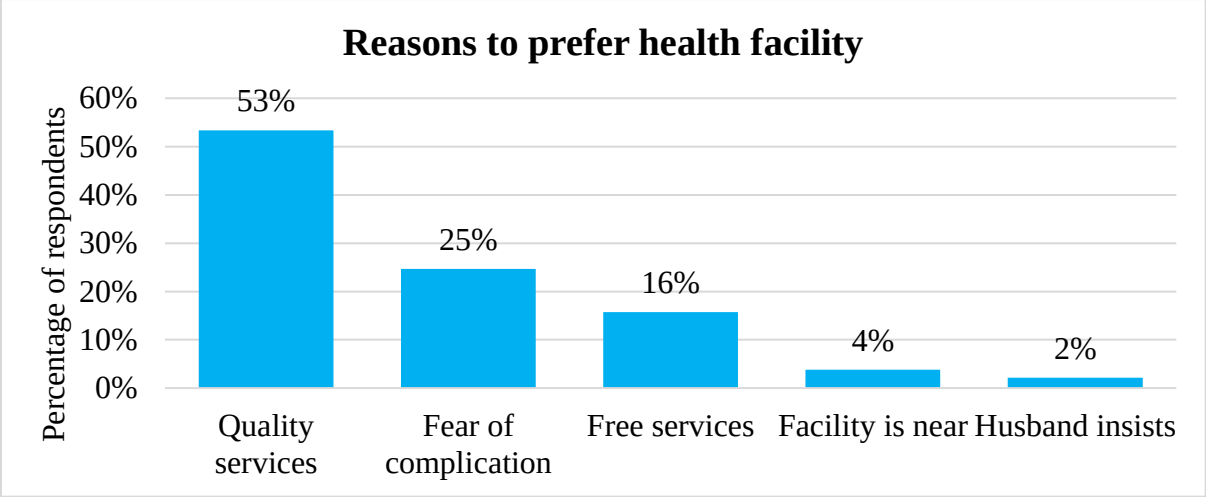

Figure 4.14: Reasons to prefer health facility

Respondents who cited preference for health facilities mentioned quality services (53.4%) as the main reason for their choice. Fear of complications (24.7%), and the allure of free services (15.7%) also seemed to influence respondents' preference to health facilities for their next delivery. Distance to facility (3.8%) and husband's opinion (2.2%) were also suggested as reasons to opt for a health facility for their next delivery.

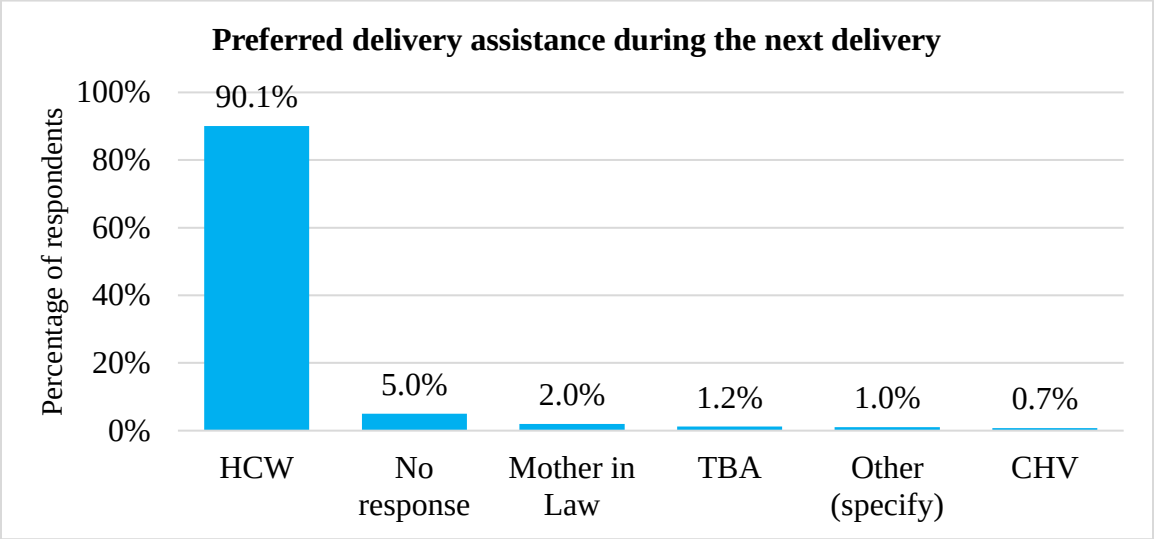

Figure 4.15: Preferred delivery assistance during the next delivery

With regards to the preferred delivery assistant respondents would most prefer to have for their next delivery, there was overwhelming preference for health care workers (90.1%) as the primary attendants for the respondents' next delivery. This was consistent with most respondents having the wish to deliver at a health facility and perhaps an indication of the faith that respondents have in services offered at health centers. TBAs, CHWs, mothers-in-law and others only accounted for about 5% of people respondents would like for assistance during birth.

4.7 Antenatal Clinic Attendance

The researcher was also interested in understanding ANC attendance among the respondents and how it translated into having a delivery at a health facility.

4.7.1 Attendance of ANC during last pregnancy and place of delivery

The respondents were asked whether they had attended ANC during their last pregnancy.

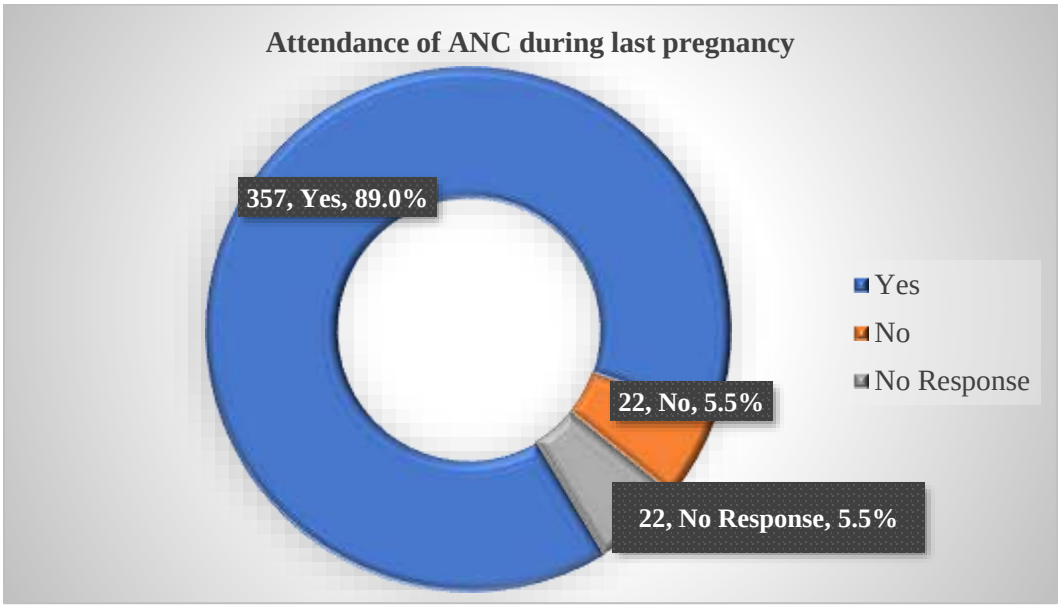

Figure 4.16: Attendance of ANC during last pregnancy

Majority of the respondents, 357 (89%) reported to have attended ANC during the last pregnancy, 22 (5.5%) did not attend ANC with the same percentage, 5.5%, declining to answer if they did attend ANC or not.

Table 4.15: Relationship between ANC attendance and type of delivery during last pregnancy

Attended ANC	Type of Delivery						Chi-Square statistics
	Home Delivery		Facility Delivery		No response		
	Count	Percent	Count	Percent	Count	Percent	
Yes	77	21.60%	269	75.40%	11	3.10%	$\chi 2 = 30.706$
No	15	68.20%	4	18.20%	3	13.60%	$df = 1$
Total	**92**	**25.20%**	**273**	**74.80%**			$p = 0.000$

A cross tabulation between the responses on attendance of ANC and type of delivery of the respondents was also generated. The findings showed that among the respondents who had delivered, 273 (74.8%) had delivered at a health facility where as 92 (25.2%) delivered either at home, by the road or on the way to the health facility hence may have lacked assistance from a skilled delivery attendant. Among those who had attended at least one ANC, 77 (21.6%) had a home delivery with 269 (75.4%) delivering at a health facility. At the same time, 15 (68.2%) of the respondents who had not attended any ANC service delivered at home. In both cases, 3.1% of those who attended ANC and 13.6% of those who did not attended declined to give a response to the place where they delivered. With a *p-value* of 0.000, this study established that ANC attendance had a significant impact on the choice of place of delivery among women.

A follow up question of interest to the researcher was the gestation period when the respondents attended their first ANC clinic. Most respondents were averagely seventeen and a half weeks pregnant by the time of their first ANC, with the respondents attending an average of four ANCs during their last pregnancy. The modal gestation at the start of

ANC was reported at 16 weeks. Additionally, 92.6% of the respondents reported to have been attended to by a health care worker at the ANC clinics, 2% were not attended to by a health care worker, 1.5% and 4% were not sure of who attended to them and declined respectively.

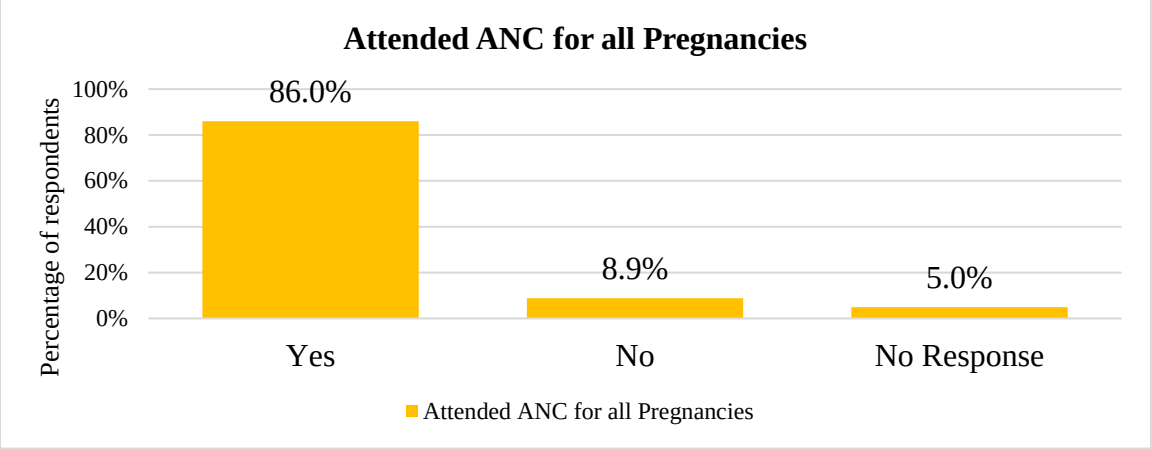

Figure 4.17: Attendance of ANC for all pregnancies

Eighty-six percent of the respondents reported to have attended ANC for all their pregnancies. The median number of times respondents sought ANC during their previous pregnancies remained the same (at 4 visits per pregnancy), suggesting that respondents did not get tired of attending ANC clinic during the pregnancies.

4.7.2 Risk estimation for ANC attendance and home delivery

The determination of chances of home deliveries despite attending ANC for respondents was also sought by the researcher. This was done through a cross tabulation of ANC attendance versus delivery type and an odds ratio generated from the results.

Table 4.16: Risk estimated in ANC attendance and Home delivery

	Delivery type		Risk Estimate			
				Value	Lower	Upper
	Home delivery	Facility delivery	Odds Ratio for Attended ANC (Yes / No)	0.076	0.025	0.237
Attended ANC	77 (22.3%)	269 (77.7%)	For cohort Type of Delivery (Home Delivery)	0.282	0.208	0.382
Did not attend ANC	15 (78.9%)	4 (21.1%)	For cohort Type of Delivery (Facility Delivery)	3.693	1.543	8.837
Total	92 (25.2%)	273 (74.8%)	N of Valid Cases	365		

The findings showed that the probability of a respondent who attended ANC delivering at home was 22.3% and at the same time, those not attending ANC had a probability of 78.9% delivering at home. This implies that, for the women who do not attend ANC visits, there was a high likelihood that they would not deliver at a health facility. Further from the odds ratio risk, women not attending ANC had an odds of 0.076 delivering at home as compared to those not attending ANC. From the analysis, there was a significant relationship between attending ANC and health facility delivery.

4.7.3 Reasons for attending ANC

The researcher was also interested in finding out the reasons for attending ANC.

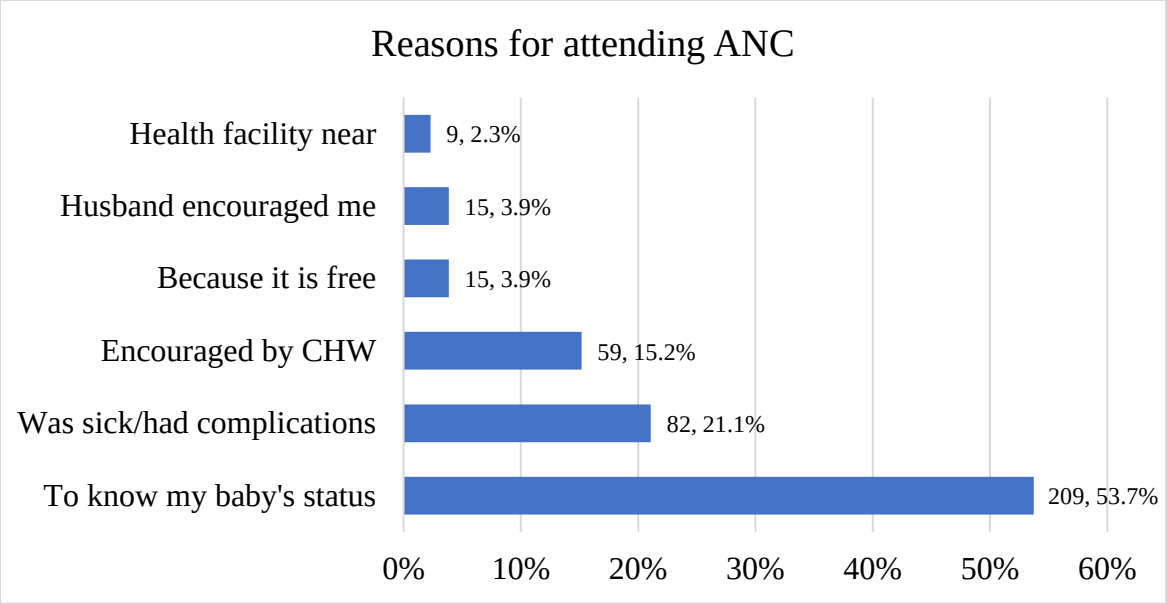

Figure 4.18: Reasons for attending ANC

The findings showed that the need to know the status of the child was the most popular reason for respondents who attended ANC noted by 209 (53.7% of the respondents). 82 (21%) also attended ANC because they were either sick or had complications. CHVs played a role in some respondents attending ANC (59, 15.2% respondents). Nevertheless, the cost of ANC did not seem to be much of a motivator to seek ANC as only 15, (3.9%) of the respondents indicated cost to be the reason for attending ANC. This was similar to motivation from the spouse 15, (3.9%) and distance from the facility having been indicated by 9 (2.3%) of the respondents.

CHAPTER 5: DISCUSSIONS, CONCLUSION AND RECOMENDATIONS

5.1 Introduction

In this chapter, the researcher discussed the findings in relation to the objectives of study providing the details on the findings, how they relate to the study objectives and to what significance can they be. The chapter further provides key issues identified and recommendations based on the findings.

5.2 Discussions

5.2.1 Demographic Characteristics and Skilled Delivery

The findings revealed that there was no significant relationship between age of women and place of delivery. Nevertheless, it was evident that women aged 30 years and above had higher probabilities of non-facility delivery compared to younger women given that women aged 30-34 years had a chance of 30.6% home deliveries, same with those aged 35-39 years and 40+ years whom there was a chance of 35.3% and 33.3% delivering at home respectively. This finding was similar to that of a previous study showing that age did not influence the uptake of skilled delivery services among women under the care of skilled birth attendants (Okoth, 2014). Similarly, findings from previous studies also revealed that mothers above 35 years of age were less likely to deliver in health facilities thus limiting their access to skilled delivery services [Wanjira, *et al*., (2011) and Kitui *et al*., (2013)]. There was however a contrary finding showing younger women (15-19) and women generally aged above 24 years commonly not using SBAs (Okoth, 2014*)*.

High proportions of the respondents (94.2%) were established to have attended antenatal care clinic during pregnancies. There was a significant relationship between parity and attendance of ANC on the type of delivery among women with a *p-value* of 0.003. This study also revealed that most women from the single (77.8%), married (74.8%), widowed (71.4%) and all divorced women (100%) had a strong preference for delivery at a health facility, while separated women showed equal likelihood of preference for home or facility delivery. Married women comparatively presented lower chances of preference for facility delivery compared to the various categories of unmarried counterparts. However, there was no significant relationship between marital status and choice of place of delivery. Like these findings, single (never married) women were reported to utilize the services of Skilled Birth Attendants more than their married women counterparts (Ochako *et al*., 2011 and Okoth, 2014). This was noted to be since most single women were younger and able to make their own decisions without necessarily depending on older people and spouses.

A separate study having similar findings revealed that ANC attendance among women was high, but there was a disparity in the number of women following through to the care of SBAs during delivery (Gitimu *et al*., 2015). Indeed, this study revealed that despite higher rates of ANC attendance, a number of women who after attending ANC services, they still end up not delivering at a health facility.

The number of times a mother had delivered was found to have a significant relationship with the place of delivery. There is feeling of having gone through the same process

severally contributed to mothers growing confidence on success in the delivery process irrespective of who was assisting. The study findings revealed that the parity of a women significantly influenced her choice between hospital delivery or home deliver, *(p=0.005)*: women who had delivered more than once were more likely to have their subsequent deliveries at home**.** A study in Uganda had similar findings indicating that women who had their first or second delivery were more likely to deliver under the care of a skilled birth assistant compared to those who had more than two deliveries (Kabakyenga *et al*., 2012); Their study further revealed that this was attributed to women having more deliveries holding the assumption that they had enough experience to have normal deliveries without the need for supervision.

On the other hand, an increase in education levels of respondents presented an increased preference for facility-based deliveries. Women with no education had a 33.3% chance of facility delivery, as compared to women who had achieved a higher education level. These results may be attributed to the increased level of understanding among the women who have gone to school as compared to those who haven't gone to school. At a *p-value* 0.000, the study established that education had a significant statistical impact on the type of delivery opted for among women. In addition, education helped women in developing greater confidence and abilities to make decisions pertaining to their health. Consequently, educated women in pursuit of quality health services presented a greater ability to utilize health care services to improve their health (Chi *et al*., 2015). Previous studies share in these sentiments of highly educated women increasingly taking up skilled

delivery services compared to less educated women (Moore, *et al.*, 2011, Fekadu & Regassa, 2014, Gitimu *et al.*, 2015, and Kamal, *et al*., 2015).

5.2.2 Economic Factors and Skilled Delivery

The finding of this study showed that most women had no occupational engagements closely followed by women who engaged in farming and causal labor. This may be attributed to the fact that the study was conducted in an area where 90% is rural with little formal employment opportunities hence the reason for listed occupations. With most of the respondents either having engagement in low paying occupations or no occupation, household financial income generally was low and therefore not so much could be available for health care per household. The study also revealed that there was no significant impact of occupation of women and their spouses on the type of delivery. Similar findings have also shown that occupational engagements of women did not affect the choice of place of birth of their newborns, whether at home or at a health facility (Cheptum*et al*., 2017).

In most cases, level of household saving on health is very minimal and is based on case by case. Despite pregnancy being a 9 months journey, most households will not take time to plan and save for the delivery process rather they handle the issue as they come. On average, the study revealed that each household have a monthly income of Kshs. 5,129 with the highest earning Kshs. 50,000. This to international standards, an average of Kshs. 170 per day, categorized as low-income earners. Even though there was no statistically significant relationship between household income and type of delivery, there

was a higher probability of women of higher income to deliver at a health facility as compared to those with low household income. This finding is supported by earlier studies have suggested that skilled delivery services and delivery in a health facility required expenses on transport and even user fees (Kitui *et al*., 2013). Additionally, in cases where women or households were unable to cater for these expenses, skilled delivery services were the last option, thus limiting their chances of choosing facility delivery. (Joshi *et al*., 2014 and Sialubanje *et al*., 2015). As much as the government waived the charges on facility delivery, the respondents also reported that this was not fully waived and sometimes, the mothers still had to pay some money for purchasing gloves and other consumable. Once mothers visited health facilities for services but failed to access quality services and this reduced their likelihood coming back for the same services (Srivastava *et al*., 2015).

5.2.3 Physical Factors and Accessibility to Skilled Delivery

For women to access skilled delivery services, they needed to present themselves to an existing health facility with the necessary infrastructure and human resource. Consequently, the findings of this study showed that most health facilities (84.8%) had maternity services. However, only 31.4% of the health facilities were reported to be operational 24 hours in a day. The fact that there are only a few of the health facilities operating for 24 hours, the skilled delivery services are only accessible to majority during the day. In earlier studies, evidence show that access to skilled assistance for most hours of the day and even at night, and presence of well-equipped facilities for delivery have an impact on the level of access to the facilities by women for delivery exists (Fenta, 2005).

Convenience of access to health facilities results in a reduction in maternal mortality and morbidity while also improving pregnancy outcomes. With only 32% facilities are accessible for 24 hours, and with most of the respondents expressing that majority of deliveries happen at night, higher chances would then be non-facility delivery in areas where there are no 24 hours delivery services.

This study established that with increase in distance from a health facility, fewer women were able to access the health facilities for skilled delivery services given that 80% delivered in the facility for those staying 1km away, 75% staying 1-3 Km away, 71% 3-5Km away and 61% beyond 5Km away. Despite the significant increase in home deliveries with increased distance from the health facility, the study findings showed that there was no significant statistical impact of distance from health facility on the choice of place of delivery and even on ANC attendance. This may also be attributed to the reported average cost of transport to the facility at a moderate cost of Kshs. 50 for one-way travel, hence a little transportation burden for women who are travelling to health facility for services. On average, over 80% of the facilities were categorized as level 2, most women were had these category of facilities as the nearest health facility and with an average of 1 HCW in the ANC and at the maternity, and some not having even as single staff working at the maternity, a higher likelihood is that most women would spend much time to receive services.

Previous study findings have revealed that the presence of affordable transportation and condition of roads impacts on the decision taken by women on delivery at health facilities (Gnecchi *et al*., 2009). The poor condition of reads as noted by some respondents

hampered the access to health facilities as this study noted that some women had had to deliver on their way to the hospital. The need to avoid unnecessary transport and other costs was also noted by a study to be a factor encouraging home deliveries (Assfaw, 2010).

5.2.4 Socio-Cultural Attitudes and Beliefs

On the socio-cultural beliefs, attitudes and practices, views and beliefs, the findings of this study revealed that majority of the respondents held the view that pregnant women needed to attend ANC at least four times before delivery. Similarly, the study established that pregnant women needed to plan for their delivery. It was also agreeable among most respondents that it was safer to deliver at the health facility than at the traditional birth attendant given that health facilities had better delivery equipment than the TBAs. Poor care seeking behavior around childbirth was revealed to have resulted in women experiencing prolonged and obstructed labor and led to obstetric fistula and other complications; even to maternal deaths. Cultural believes, attitudes and practices have previously been identified as key factors that greatly influenced one's actions and perceptions towards utilization of skilled delivery services (Mwaniki *et al*., 2002). This study however, revealed a clear understanding among respondents, of the need to have facility deliveries and to discern facts from myths that have previously revolved around facility delivery.

Contrary to the beliefs that traditional birth attendants are more friendly to pregnant women and treat them nicely, more gentle and safer as compared to health care workers,

the study revealed that this was not the case and most of the women reported that they are aware the traditional birth attendants are not more gently and safer compare to health care workers even. It was also established that TBAs were not able to handle birth complications just as well, as was confirmed by the TBAs as a changing belief within the society and the fact that they have been engaged in referral and providing health education to the pregnant women has helped change the myths and believes.

A confirmation by TBAs that they usually treat the pregnant women as their visitors when they come for services, they usually offer meals and being very friendly hence some women would only prefer to visit them for delivery. This narrative was same as the finding in a study conducted in rural Bangladesh reviewing the reasons for preference of TBA deliveries in rural Bangladesh which found out that improper handling and harassment at facility delivery therefore had the capabilities of tainting the image of services offered. In fact, traditional home deliveries have been noted to offer services such as birthing position, hot water post-delivery and an array of pre and post delivery services that encouraged women to seek the services of TBAs that then can encourage women to prefer TBAs in instances where skilled delivery attendants harass them (Sarker *et al*., 2016). Consequently, it remains essential that health workers offer quality services without any poor practices that taint their image thus reducing preference for facility delivery.

5.2.5 Antenatal Clinic Attendance

Findings presented by this study showed that most women (89.0%) attended ANC with only 5.5% having not attended ANC. There was also a higher proportion (75.4%) of facility delivery for women who had attended at least one ANC service. Further statistical tests revealed that ANC attendance had a significant impact on the place of delivery. In an earlier study, findings after a statistical analysis showed that ANC attendance had an impact on women opting for skilled birth attendants at a p-value of 0.001 (Gitimu *et al*., 2015). This study also established that most women were averagely seventeen and a half weeks pregnant by the time of their first ANC visit, with an average attendance of four ANCs during their last pregnancy. The modal gestation at the start of ANC was reported at 16 weeks.

The findings showed that majority of the respondents (91.6%) would prefer a health facility delivery in future. The reasons given for health facility delivery for the next birth was established to include quality services, fear of developing complications and the allure of free services. An overwhelming preference for health care workers as assistants during delivery for next pregnancies was also revealed by this study.

5.3 Conclusion

Utilization of skilled delivery services in Suna west sub-county as revealed by this study on average is at 74.6%. This is higher than the national average of 61.8% (KDHS 2014). This may be attributed to the concerted efforts by the ministry of health working together with the development partners to ensure pregnant mothers attend ANC and subsequently

deliver at a health facility. However, there are other factors which have been identified from the study t have influence on decision of pregnant women on utilization of skilled delivery services. From the findings of the study, the researcher concluded the following:

Being older and the fact that one has delivered more than one baby are risk factor for not delivering at health facility; there is a high likelihood for older women to deliver at home as compared to younger women. At the same time, women who have delivered more than once are more likely to deliver their subsequent pregnancies at home. In addition, women who are more educated are more likely to deliver at a health facility as compared to less educated women. In addition, the fact that a pregnant woman is married or not does not significantly influence the choice of place of delivery. However, there are a large percentage of women who attend ANC clinic but end up not delivering at the health facility.

With respect to socio economic factors, the researcher concluded that occupation of the mother or the spouse does not in any way influence the choice of place of delivery. This is the same case with the household income and cost of delivery at the health facility. In addition, the fact that facility delivery is free is not in any way a motivating factor to the pregnant mothers to attend ANC and even to opt for facility delivery, or rather the information provided to the women through the CHV has played a key role in sensitizing the mothers on the need to know the risk associated with pregnancy. Despite the government rolling out the free maternity services in 2013, in most cases women are still required to buy consumable and drugs which are used in delivery process.

On Physical factors, areas where the distance to the nearest health facility is higher has reported higher rates of home delivery as compared to areas where pregnant mothers do not walk longer distance. Few health service providers and duration of operation may have influence to place of delivery, though not significant but due to the fact that most deliveries happen either late in the day or in the night.

Over the years, the number of women who visit TBAs for pregnancy and delivery services has reduced. engagement of the TBAs in mobilizing pregnant women for skilled delivery and referral, health education and change of attitude among the community members on beliefs and practices have helped to improve skilled delivery service utilization above the national average. There is a large percentage of pregnant women who have dropped off after attending ANC services but end up not delivering at a health facility based on perceptions and beliefs about type of services from the TBAs.

5.4 Recommendations

Based on the findings of the study, the researcher recommends the following for policy and planning.

5.4.1 Recommendation from the Study

1. Health education during pregnancy should be customized to fit different categories of women. Depending on the demographic characteristic, the health service providers, community health volunteers and everybody responsible to provide services during pregnancy and delivery, should be capacity build to conduct risk assessment for individual women factors based on their demographic characteristics and be able to provide health education focusing on the risk.

2. The government should roll out strategies to enroll most of the households in national NHIF funds so that in case of emergencies during pregnancies, there is a health insurance to cushion the households on the low household income. The government should also consider investing more on consumable to be used during delivery to lighten the weight among women.
3. The county government should put up strategies to help improve the hospital infrastructure, ensure that all health facilities are able to conduct deliveries, are connected to national grid with a health care worker available within the health facility for 24 hours. The improvement on infrastructure should also include investing in good roads to enhance movement between health facility and the community.
4. Community health volunteers plays a very important role in the community in referral and educating the pregnant women on the importance of skilled delivery. The government should develop a policy document and standards for engaging the TBAs and CHVs to educate the community to change the perceptions and believes about health facility delivery and TBA delivery. There should be greater investment in building the capacity of the CHVs wand equip them with information on pregnancy and deliver and use them as delivery of change in community perceptions.

5.4.2 Recommendation from the Study

From the findings of the study, Suna West Sub county in Migori County has reported a higher skilled delivery rate than the national average. The fact that CHVs have been engaged to provide health education and even the TBA to refer may play a factor in these figures. There is therefore a need to conduct a qualitative study to understand the impact the CHVs and the TBAs have had in improving skilled delivery services.

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APPENDICES

Appendix I: Household Questionnaire

QUESTIONNAIRE NUMBER	COMMUNITY UNIT	VILLAGE	DATE
Name of the Research Assistant			

HOUSEHOLD QUESTIONNAIRES FOR MOTHER 15 - 42 YEARS IN SUNA-WEST SUB-COUNTY

Informed consent

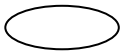
Hello, my name is _____, and I am working for a student of Kenyatta University studying for MPH (M&E) who in consultation with the Migori County MoH are conducting a study on maternal and child health and more specifically looking at the factors which influences the Women of reproductive health decision in utilization of ANC and Maternity services during pregnancy and delivery. The study therefore seeks to collect some information from women of Reproductive age who are the primary users of these services.

As much as the information collected will be used for academic purposes, the results obtained will also be used to advice the county MoH and even the national MoH to create policies and strategies which may promote the improvement of utilization of services during pregnancy among women of reproductive health and therefore your participation will be highly appreciated.

The interview will take about 30 minutes to complete and whatever information you provide will be treated strictly confidential and shall not be shared by any third party but

only used for the purpose mentioned above. Further, your identification will not appear anywhere as only codes will be used to identify all the respondents.

Remember, participation in this interview is voluntary and you may choose not to answer any question which you don't feel comfortable answering although the more questions answered the better for the study.

Do you accept of decline to participate?? Accept:  Decline 

Continue only if the respondent accepts:

DEMOGRAPHIC CHARACTERISTICS

Age of the respondent (Ask the year of Birth and calculate) Y.O.B……Age (years)……

What is your highest level of education? (captured incomplete secondary as complete Primary)

None	Incomplete Primary	Complete primary	Secondary	College/University
1	2	3	4	5

What is your marital status?

Single	Married	Separated	Widow	Divorced
1	2	3	4	5

What is your occupation?

None	Business	Farming	Casual laborer	Permanently employed
1	2	3	4	5

If married, what's the occupation of your partner?

None	Business	Farming	Casual laborer	Permanently employed
1	2	3	4	5

What is your household's main source of income?

No source of income	Business	Farming	Casual laborer	Permanently employed
1	2	3	4	5

On average, how much do you think your family earn per month? Kshs:

_____

What is your religion?

None	Protestant	Catholic	SDA	Muslim	Traditional	Other
1	2	3	4	5	6	7

How many people live within your household including you? *Adults* (……) *Children* (…….)

How many times have you ever given birth *(Parity)? Including both living and the ones who passed away*

None (currently pregnant)	Once	times	More than 3 times
1	2	3	4

How many times have you ever been pregnant (*Gravida*)? *Including all pregnancies, born, aborted or miscarried:* _____*:* Times.

Characteristics of the Nearest Health Facility

What is the approximate distance from your home to the nearest health facility?

< 1 KM	1-3 KMs	3-5 KMS	>5 KMS
1	2	3	4

What is the duration of operation of the nearest health facility?

8am-4pm	8am-6pm	6am-6pm	24 hours	Don't Know
1	2	3	4	5

Does the nearest health facility offer maternity services?

Yes	No	Don't Know
1	2	3

What is the duration of operation of maternity services?

Day time Only	24 hrs	Don't Know
1	2	3

What is the approximate one-way cost of reaching to the facility where you attended your last ANC? _____

How many health care workers are available to serve pregnant mothers at the facility? *(note the number)*

At ANC		Don't Know
At Maternity		Don't Know

Is there a designated maternity at the health facility?

Yes	No
1	2

ANC CLINIC ATENDANCE AND PLACE OF DELIVERY

During your last pregnancy, did you attend ANC clinic

Yes	No
1	2

At what gestation did you first attend ANC clinic? ……Weeks

How many times did you attend the ANC clinic before delivery? ……..times

During the visits, were you attended to by a health care worker?

Yes	No	Don't Know
1	2	3

If YES what are some of the reason that prompted, you to attend ANC?

Was sick/had complications	Health facility near	Husband encouraged me	To know my baby's status	Encouraged by CHW	Because it is free
1	2	3	4	5	6

If NO what are some of the reason that prompted, you not to attend ANC?

No health problems	Commitments at home	Husband refused	TBA was near	No money	Fear of nurses	Facility is far	Didn't see the importance	Other *(specify)*
1	2	3	4	5	6	7	8	

When you attended the ANC, did you receive any advice on birth plan and where to deliver?

Yes	No
1	2

Considering your previous pregnancies, did you manage to attend ANC clinic for all the pregnancies?

Yes	No
1	2

If YES, is do you remember the number of times you attended ANC before delivery?

1st Pregnancy(latest)	2nd pregnancy	3rd pregnancy	4th Pregnancy

If NO what are some of the reasons why you decided not to attend ANC?

……

……

……

When you attended ANC during your last pregnancy, did you receive health education on maternal health?

Yes	No
1	2

If YES, who gave the health talk?

Nurse/Clinician	CHW	Other (*Specify*)	Don't Know

Who usually make decision on where to attend ANC and Delivery services?

Myself	Husband	Mother in law	Other *(Specify)*

Delivery

Where did you deliver your baby *(last born)?*

Home	Health facility	Roadside	TBAs House	Other *(specify)*
1	2	3	4	

Who assisted during the deliver your baby *(last born)?*

Trained HCW	CHW	TBA	Mother in Law	Other *(specify)*
1	2	3	4	

If you delivered at the health facility, what were some of the reasons? *(skip if did not deliver at HF)*

Free services	Good services at facility	Fear of complications during birth	Planned for it	Facility near	Husband encouraged	CHW encouraged	Other *(specify)*
1	2	3	4	5	6	7	

If you delivered at the home, what were some of the reasons? *skip if delivered at HF)*

Did not expect the labour	Transport problem	HF far	Husband refused	Had no money	Fear of HCW	TBA near	Did not see the importance	Other *(specify)*
1	2	3	4	5	6	7	8	

Who decides where you gave birth?

Myself	Husband	Both of us	Mother in law	TBA	CHW	Other *(specify)*
1	2	3	4	5	6	

Where would you like to give birth to your next baby?

Home	Health facility	Other *(specify)*
1	2	

If at HOME, what are some of the reasons why?

Cheap	TBA near	TBA offer better services	Husband insists	Fear of HCW	Did not see the importance	Other *(specify)*
1	2	3	4	5	6	

If at THE HEALTH FACILITY, what are some of the reasons why?

Fear of complication	Free services	Quality services	Husband insists	Facility is near	Other *(specify)*
1	2	3	4	5	

Who would you love to assist you during your next delivery?

HCW	TBA	Mother in Law	CHW	Other *(specify)*
1	2	3	4	

Give reasons for your answer above?

……

……

……

……

Attitudes and beliefs

Please give your view on the following statements

Statement	Strongly Agree	Agree	No Comment	Disagree	Strongly Disagree
Pregnant women need to attend ANC at least 4 times before delivery.					
Pregnant women need to plan for their delivery *(probe in terms of money, place of delivery, materials used during delivery …)*					
It is safer to deliver at the health facility than at the TBA					
Health facilities have better delivery equipment's than the TBAs					
TBAs usually treat pregnant women more gentle and safer than the HCW					
HCW usually harasses women during ANC attendance and also during delivery					
The cost of services at the health facility usually repulse women away from delivering the health facility					
TBAs usually charge lower than					

health facilities					
Most women prefer delivering at a TBA because it near and more accessible					
It is likely that those who attend ANC will deliver at the health facility					
TBAs can handle birth complications just as the HWC					

***********Thank you for your time*********

Appendix II: FGD Questions Guide: Traditional Birth Attendants

Facilitators Name		Note takers Name	
Group Discussing	Place of discussion	Number of participants	Age Variance (Max and Min)
Date		Facilitators Signature	

Introduction:

My name is…….and I interested to in know about the factors that affects the decision of women of reproductive health in utilizing skilled delivery services right from ANC attendance and delivering at a health facility in Suna West Sub-County.

I hope that your answers to my questions will help me understand the situation and hence it will help the MoH to improve maternal health care in this area. The discussion will take approximately 40-60 minutes.

First, I would like to ask you some general questions about your community:

1. How does the community get information about maternal health care? Can you give some examples?
2. What is your role in the community on pregnancy and delivery?
3. How do men deal and participate in maternal health care issues more so during pregnancy and childbirth?
4. Do the mothers seek care on pregnancy and delivery? When mothers are pregnant, do they usually see a health worker? Traditional birth attendants (TBAs)? What do women do when they are pregnant? Why?
5. What is the preference of delivery place? Why?

6. What are the practices and experience of the mother on selection of delivery place? Why do you think most of mothers who are pregnant seek care for pregnancy and delivery where they do (either TBA of Facility)?
7. Who is responsible for making decisions in health seeking in the family? Do women look for help when they experience difficult labor?
8. How much do you charge for delivery?
9. What are your opinions on quality of health care? Do the existing services help mothers during pregnancy and childbirth?
10. Do the traditional practices hurt the laboring mother? Can you give some examples?
11. How can and how should this community prevent maternal death during pregnancy and childbirth? What is the role of mothers and the community in reduction of maternal morbidity and mortality?

Thank you for participating in this discussion, they were extremely helpful. Before ore we finish, I would like to hear from you if the discussion was more helpful in assisting to reduce pregnancy related issues in the community? What are your suggestions to the government?

Do you have any question for us? If anyone would like to speak with me in private, I will stay behind so that we may have a chat.

Appendix III: FGD Questions Guide: CHVS and Male Partners

Facilitators Name		Note takers Name	
Group Discussing	Place of discussion	Number of participants	Age Variance (Max and Min)
Date		Facilitators Signature	

Introduction:

I am called …….and I interested to in know about the factors that affects the decision of women of reproductive health in utilizing skilled delivery services right from ANC attendance and delivering at a health facility in Suna West Sub-County.

I hope that your answers to my questions will help me understand the situation and hence it will help the MoH to improve maternal health care in this area. The discussion will take approximately 40-60 minutes.

First, I would like to ask you some general questions about your community:

1. How does the community get information about maternal health care? Can you give some examples?
2. How does the community help a laboring mother when they have problems? Do you know mothers who have been forced to delivery problems? How does the community respond to this?
3. How do men deal and participate in maternal health care issues more so during pregnancy and childbirth?

4. Do the mothers seek care on pregnancy and delivery? When mothers are pregnant, do they usually see a health worker? Traditional birth attendants (TBAs)? What do women do when they are pregnant? Why?
5. What is the preference of delivery place? Why?
6. What are the practices and experience of the mother on selection of delivery place? Why do you think most of mothers who are pregnant seek care for pregnancy and delivery where they do (either TBA of Facility)?
7. Who is responsible for making decisions in health seeking in the family? Do women look for help when they experience difficult labor?
8. What are the factors influencing selection of delivery assistance and place of home/HF? Why? Can you give some examples?
9. What is the difference between giving birth at health facility or home? Why? What are the differences of assisting by HW, CHEW/TBAs, and mothers? Why?
10. What are your opinions on quality of health care? Do the existing services helping mothers during pregnancy and child birth?
11. What are the religious, traditional and cultural practices of the community during pregnancy and childbirth?
12. Do the traditional practices hurt the laboring mother? Can you give some examples?
13. How can and how should this community prevent maternal death during pregnancy and childbirth? What is the role of mothers and the community in reduction of maternal morbidity and mortality?

Thank you for participating in this discussion, they were extremely helpful. Before ore we finish, I would like to hear from you if the discussion was more helpful in assisting to reduce pregnancy related issues in the community? What are your suggestions to the government?

Do you have any question for us? If anyone would like to speak with me in private, I will stay behind so that we may have a chat.

Appendix IV: KII Question Guide -Health Service Provider

QUESTIONNAIRE NUMBER	PERSON INTERVIEWED (CADRE)	PLACE OF INTERVIEW	DATE
Name of the Interviewer			

Accessibility of Health facility

How many health facilities are in the community?

How far/near are they to the community members?

Availability of ANC and Maternity services

Number of HCW available to provide services

Duration of operation of the facilities

Availability of equipment's and drugs

Skills Atitudes and beliefs

Are the HCW trained on Obstetric care

Frequent refresher trainings on Obstetric care

What are some of the perceived Attitude of the HCW, probe about quality of services, time of reporting, how they talk to the pregnant mothers

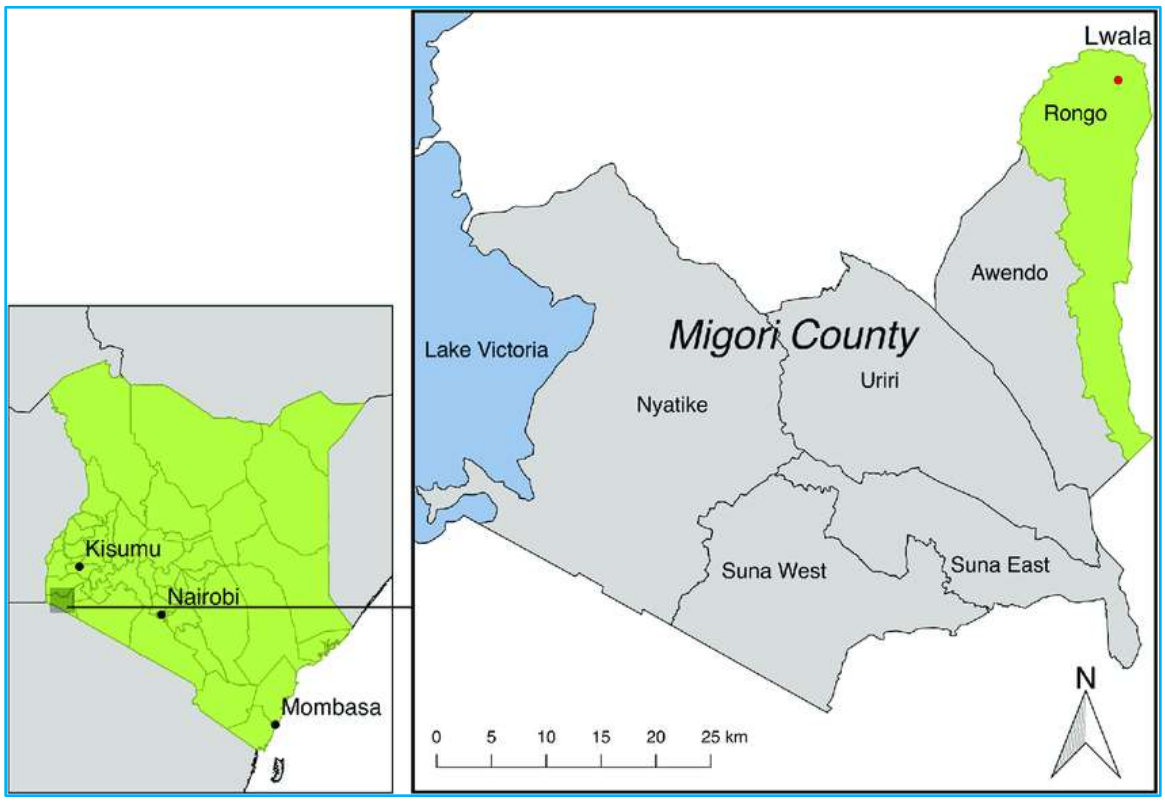
Cultural beliefs that affect seeking of health care during pregnancy

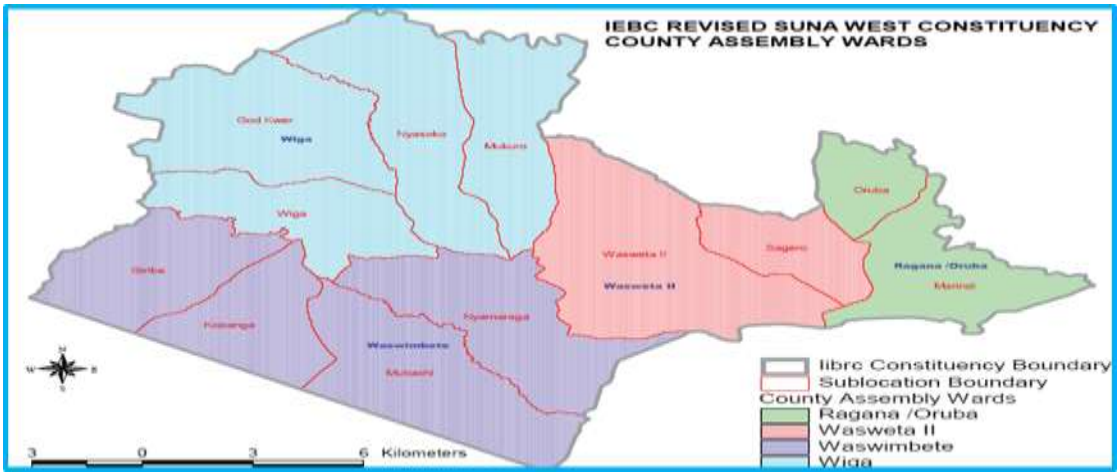
Perceived attitudes and practices of the TBA

Fees paid to the health facility for ANC and delivery, probe if the user fee usually affects the attendance of health facility for the services

Community's perception on saving for health care

Appendix V: Study Area Map





Map of the study area; source: google[2]

[2]*https://www.google.co.ke/search?biw=1745&bih=885&tbm=isch&sa=1&q=migori+county%3A+by+sub+county+boundaries&oq=migori+county%3A+by+sub+county+boundaries&gs_l=psy-*

Appendix VI: Research Clearance- Suna-Migori County

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. NACOSTI/P/16/99982/8229

Date: 22nd January, 2016

Agunga Chris Duncan
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Determinants of utilization of skilled delivery services among the women of reproductive age in Suna-West, Migori County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Migori County** for a period ending **19th January, 2017.**

You are advised to report to **the County Commissioner and the County Director of Education, Migori County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

SAID HUSSEIN
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Migori County.

The County Director of Education
Migori County.

Appendix VII: Research Authorization-NACOSTI

NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349,310571,2219420
Fax: +254-20-318245, 318249
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Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref No. NACOSTI/P/16/99982/8229

Date:
22nd January, 2016

Agunga Chris Duncan
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *"Determinants of utilization of skilled delivery services among the women of reproductive age in Suna-West, Migori County, Kenya,"* I am pleased to inform you that you have been authorized to undertake research in **Migori County** for a period ending **19th January, 2017.**

You are advised to report to **the County Commissioner and the County Director of Education, Migori County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

SAID HUSSEIN
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Migori County.

The County Director of Education
Migori County.

Appendix VIII: Ethical Approval – Kenyatta University

KENYATTA UNIVERSITY
ETHICS REVIEW COMMITTEE

Email: chairman.kuerc@ku.ac.ke
secretary.kuerc@ku.ac.ke
ercku2006@gmail.com
Website: www.ku.ac.ke

P. O. Box 43844 - 00100 Nairobi
Tel: 8710901/12
Fax: 8711242/8711575

Our Ref: KU/R/COMM/51/527 Date: 31st August, 2015

Aguga Chris Duncan
Kenyatta University,
P.O Box 43844, Nairobi

Dear Duncan,

RE APPLICATION NUMBER PKU/392/I361– "DETERMINANTS OF UTILIZATION OF SKILLED DELIVERY SERVICES AMONG THE WOMEN OF REPRODUCTIVE AGE IN SAUNA WEST, MIGORI COUNTY, KENYA.".

1. IDENTIFICATION OF PROTOCOL
The application before the committee is with a research topic **"Determinants of utilization of skilled delivery services among the women of reproductive age in Sauna West, Migori County, Kenya"** received on 5th August, 2015 and discussed on 25th August, 2015.

2. APPLICANT
Aguga Chris Duncan

3. STUDY SITE
Sauna West, Migori County, Kenya

4. DECISION
The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines **AND APPROVED that the research may proceed for a period of ONE year from 31st August, 2015.**

5. ADVICE/CONDITIONS
i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
ii. Serious and unexpected adverse events related to the conduct of the study are reported to this board immediately they occur.
iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
iv. Submit an electronic copy of the protocol to KUERC.

If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.

PROF. NICHOLAS K. GIKONYO
CHAIRMAN ETHICS REVIEW COMMITTEE

I Aguga Chris Duncan accept the advice given and will fulfill the conditions therein.

Signature..... Dated this day of 07/09/2015 2015.

cc. Vice-Chancellor