

**DETERMINANTS OF UTILIZATION OF SKILLED BIRTH
ATTENDANCE AMONG WOMEN AGED 18-49 YEARS IN
BAMBA DIVISION, KILIFI COUNTY, KENYA**

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**Determinants of Utilization of Skilled Birth Attendance among Women
Aged 18-49 Years in Bamba Division, Kilifi County, Kenya**

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Technology**

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

Signature..... Date.....

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DEDICATION

Firstly I take this opportunity to thank the almighty God, for giving me the strength and good health to carry out this research study to completion. This work is dedicated to my parents, in-laws, my husband Muriithi and my son Raul for their resilience during the years I undertook the studies.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANC	Ante Natal Care
CHEWs	Community Health Extension Worker
FANC	Focussed Antenatal Care
HF	Health Facility
HIMS	Health Management Information System
ITROMID	Institute of Tropical Medicine and Infectious Diseases
JKUAT	Jomo Kenyatta University of Agriculture and technology
KDHS	Kenya Demographic Health Survey
KEMRI	Kenya Medical Research Institute
KNH	Kenyatta National Hospital
LBW	Low Birth Weight
MDG	Millennium Development Goals
MMR	Maternal Mortality Ratio
MOH	Ministry of Health
NGO	Non-Governmental Organizations
OBA	Output Based Approach

PTB	Preterm Births
SBA	Skilled Birth Attendants
SDG	Sustainable Development Goals
TBA	Traditional Birth Attendant
UON	University of Nairobi
UNFPA	United nations population fund
UNICEF	United Nations Children’s Fund
WHO	World Health Organization

DEFINITION OF TERMS

Ante Natal Care (ANC) refers to care given during pregnancy and aims at facilitating early diagnosis of complications. The woman starts care during first trimester and attends a minimum of four visits before delivery.

Delivery pack refers to essential material and equipment required in the delivering process at the health facility. It includes; forceps, scissors, needle holder, kidney dish, gallipot, cotton wool and a draping towel.

Maternal mortality refers to the death of a woman while pregnant or within forty-two days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related by the pregnancy but not from accidental causes.

Maternal mortality ratio is the number of maternal deaths per 100,000 live births.

Skilled attendant is a professional health worker with proficiency in midwifery skills

Skilled attendance is a service delivery intervention that ensures women's access to quality care, it ensures that there is availability of a skilled attendant and enabling environment of equipment, drugs and transport for referral to emergency obstetric care.

ABSTRACT

Improving maternal health through the provision of skilled care during delivery now falls in the Sustainable Development Goals (SDGs) number three which is to ensure healthy lives and promote wellbeing for all at all ages. However, the proportion of Skilled Birth Attendance (SBA) is generally poor in most developing countries, including Kenya with an estimate of 43%. This study was a population based cross sectional study conducted in Bamba division. It aimed at determining the factors associated with the utilization of SBA among women 18 to 49 years of age, who have delivered within the last 12 months. It used quantitative method (structured questionnaire) where random selection of households was done and qualitative data collecting methods where Focus Group Discussions and Key Informant Interviews were used. A total of 260 women participated in the quantitative survey and 47.7% of them sought skilled care in the health facilities while 52.3% delivered under unskilled care. The questionnaire identified; distance, prolonged labour, pregnancy problems, parity, maternal age, planned pregnancy, mosquito net use, maternal age, maternal education and place of residence as factors associated with SBA. Multiple factors were analyzed and factors such as living below 2km (OR=87.400, 95%CI=6.928-1102.645), pregnancy problems (OR=17.924, 95% CI=4.737-67.828), mosquito net use (OR=6.544, 95% CI=1.383-30.970) and prolonged labour (OR=148.494, 95% CI=30.208-729.449) were found to be positively significant with SBA. The FGDs and KIIs identified long distance, lack of transport, economic constraints, male dominance, ignorance, high illiteracy levels, insufficient health workers & health facilities as predictors of low utilization of SBA. This study concluded that the proportion of women seeking SBA was still low at 47.7%. Accessibility factors (long distances, poor roads, lack of transport), health facility factors and socio-cultural factors discouraged use of SBA. We recommend that more effort be put in addressing health facility shortages; more facilities to be established, the existing facility to be well equipped, more health workers to be employed. Also more sensitization on the benefits of SBA should be done in the locality,

adult education programs should be encouraged to ensure that the residents of Bamba are literate so that they can be able to make informed decisions concerning their health.

CHAPTER ONE

INTRODUCTION

1.1 Background review

Every day, pregnancy and child birth related complications account for approximately 830 maternal deaths around the world (WHO, 2015). According to the world health organization (WHO), 303,000 women of reproductive age died during and following pregnancy and childbirth in 2015. Nearly all 302,000 (99%) of the maternal deaths occurred in developing countries, the majority of which are in Sub-Saharan Africa 66% (201,000) and Southern Asia (66,000). These two regions accounted for 85% of global burden with Sub-Saharan Africa alone accounting for 56%. The global Maternal Mortality Ratio (MMR) is 216 maternal deaths per 100,000 live births while that of developing regions is 239 maternal deaths per 100,000 live births which is 15 times higher than in developed regions where the figure is only 12 deaths per 100,000 live births (WHO, 2015). There are large disparities between countries, but also within countries, and between women with high and low income and those women living in rural versus urban areas.

An estimated 8,000 women die annually due to pregnancy related complications in Kenya. Further the MMR in 2014 was estimated at 362 maternal deaths per 100,000 live births (KDHS & ICF, 2015) which is a reduction from an estimate of 520 maternal deaths per 100,000 live births as per the KDHS 2008 (KNBS & ICF Macro, 2010). The most common direct obstetric causes are postpartum hemorrhage, abortion complications and puerperal sepsis while indirect non-obstetric causes include human immunodeficiency virus (HIV/AIDS), malaria and tuberculosis. Most of them are preventable and treatable by access to emergency obstetric care including skilled birth attendance (Desai *et al.*, 2013).

Maternal mortality is defined as the death of a woman while pregnant or within forty-two days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental causes. It is a worldwide health and developmental challenge (WHO, 2005). Maternal death has a large impact on the baby the mother is carrying, the health and wellbeing of the family, the community, and the society in general (National research council, 2000). Further the National research council explains that children up to 10 years of age, whose mothers die, have a 3 to 10 times higher risk of dying within two years than children who live with their mothers. Maternal death is the most extreme consequence of poor maternal health. However, due to inadequate care during pregnancy and critical hours after birth, more than 30 million women in developing regions suffer from serious diseases and disabilities (WHO, 2007). These diseases and disabilities can be caused by both direct and indirect conditions. Maternal mortality caused by direct conditions would include temporary, mild or severe conditions which occur during pregnancy and within 42 days of delivery (such as haemorrhage, eclampsia or sepsis) or permanent/chronic conditions that persist beyond the puerperium (such as obstetric fistula, urinary or fecal incontinence, scarred uterus, pelvic inflammatory disease, palsy). Indirect conditions would include, for example, anemia, malaria, hepatitis, tuberculosis and cardiovascular disease (AbouZahr, 2003).

Reducing maternal mortality as well as improving maternal and reproductive health represents an important area of concern in the world today as well as in Kenya. Skilled birth attendance is among the indicators established for monitoring the achievements of the MDG 5 (National Roadmap, 2010), which now falls under the Sustainable Development Goals (SDGs) number three which is to ensure healthy lives and promote wellbeing for all at all ages (UNFPA, 2015). The SDGs establish a transformative new agenda for maternal health towards ending preventable maternal mortality; target 3.1 of SDG 3 is to reduce the global MMR to less than 70 per 100,000 live births by 2030 (WHO, 2015). Globally coverage of skilled attendance during childbirth increased

from 70 percent during the period 2005 to 2012 to 78% in 2014. However, despite steady improvement globally, millions of births were not assisted by a midwife, a doctor or a trained nurse. In sub-Saharan Africa approximately only half of all live births were delivered with the assistance of skilled birth attendant in 2015 (WHO, 2012; WHO, 2015). In addition, skilled attendance at birth in Kenya currently is estimated at 62% as per the Kenya Demographic Health Survey (KDHS) 2014 which was an increase from an estimate of 43% according to the KDHS 2008/2009 (KNBS & ICF Macro, 2010; KNBS & ICF Macro, 2015).

The low utilization of care during delivery may be responsible for the poor maternal health outcomes experienced in the country.

Globally, several initiatives have been taken to reduce maternal deaths and improve maternal health (Starrs, 2006). The Nairobi safe motherhood conference of 1987 led to the establishment of safe motherhood initiative. The specific action for this initiative include; provision of ANC, skilled assistance for normal deliveries, appropriate referral for women with obstetric complications, post-natal care, family planning and other reproductive health service. In addition to the above activities, training of traditional birth attendants (TBAs), community health workers and the provision of clean delivery kits to promote clean home deliveries and strengthening linkages between different levels of health facilities and the community are also considered key strategies to reduce maternal mortality (Maine & Rosenfield, 1999; Starrs, 2006; World bank, 2011).

Maternal health was further emphasized in the International Conference on Population & Development (ICPD) in 1994 also referred to as the Cairo consensus. It was remarkable in its recognition that reproductive health and rights, as well as women's empowerment and gender equality are cornerstones of population and development programmes. The 1994 ICPD program of action later called for a paradigm shift in policies and strategies from a single focus on family planning to the provision of comprehensive and quality reproductive health services. For Kenya, the ICPD recommendations were then

translated into the National Reproductive Health Strategy(NRHS 1997-2010) and implementation plan whose goal was to reduce maternal, perinatal and neonatal morbidity and mortality(United Nations, 1995; Starrs, 2006; National Roadmap, 2010).

Finally, maternal health was also reinforced in the United Nations Millennium summit of 2000, which adopted the global partnership to reduce extreme poverty and set out a series of time bound targets with a deadline of 2015 that became known as Millennium Development Goals (Starrs, 2006). The goal which aimed to improve maternal health consists of two targets: reduce maternal mortality ratio by three quarters between 1990 and 2015 and achieve universal access to reproductive health by 2015. Proportion of births attended by skilled birth attendants (SBAs) and coverage of ANC are the two main indicators to measure these targets and the presence of a SBA at delivery, either at home or at a health facility has been strongly emphasized throughout the international initiatives on maternal health (Starrs, 2006; United Nations, 2011).

1.2 Statement of the problem

The introduction of free maternity service in Kenyan health facilities is expected to address the inequitable access to maternity care across women of different socio-economic groups. Evidence reveals that, user fees delay care, may contribute to inappropriate home treatment, food and economic insecurity among others (Mwabu *et al.*, 1995; Hutton, 2004; Johnson *et al.*, 2012). An estimate of 56 percent of deliveries is not attended by skilled health professionals as per the 2008/2009 report (KNBS & ICF Macro, 2010). Hence the free maternity programme in government facilities is expected to increase utilization of skilled attendance at birth. Skilled attendance at birth is important in the prevention of maternal deaths (WHO, 2008) and the exemption of user fees is a step towards achieving the fifth millennium development goal.

In spite of undoubted progress towards greater coverage rates, however, studies done in African countries have shown that women continue not to attend ANC services and not

to seek skilled attendance at birth even after the exception of user fees (Bosu *et al.*, 2007; Mpembeni *et al.*, 2007). This has been attributed to long distances to the health facilities (Mpembeni *et al.*, 2007; De Allegri *et al.*, 2011), unavailability of drugs, limited health care workers and cultural practices (Griffith & Stephenson, 2001; Ridde *et al.*, 2012).

It is therefore important to understand who continues to remain excluded from access to maternal care services and determine factors that are associated with the utilization of skilled attendance at birth.

1.3 Justification for the study

The alleviation of maternity user fees in government facilities is expected to increase the utilization of skilled attendance at birth by pregnant women. However, factors associated to utilization of maternal care services goes beyond financial barriers. Therefore it is important to understand other barriers that may prevent wide coverage of skilled attendance at birth. The proposed study area was Bamba division within Kilifi County. It was one of the divisions with a low estimate of 21.6 percent of births delivered by a skilled birth attendant compared to an estimate of 32 percent in other divisions according to the Kilifi County HMIS July 2010 to June 2011. These estimates were quite low compared to the national estimate of 43 percent of births delivered in a health facility as per the KDHS 2008/2009 report. Therefore there was a need to determine the proportion of women who utilized skilled attendance at birth and understand factors that are associated with the utilization of skilled care during delivery in the division. A mixed method approach was employed during data collection in order to adequately understand the factors associated with use. In addition, local literature on the analyses of determinants of utilization date back to a time when user fees were still in place and are therefore no longer adequate to inform policy making. The study findings will be used to inform the County health department and local NGO's on the utilization of the skilled attendance at birth in the locality and other factors associated with skilled attendance at

birth. This will assist in the formulation of comprehensive policies that will target better service delivery, community awareness and programs tailor made for the locality.

1.4 Research questions

1. What proportion of women in Bamba division utilizes skilled birth attendance?
2. What factors are associated with the utilization of skilled birth attendance among women of reproductive age in Bamba Division?
3. What are the challenges experienced by women of reproductive age in Bamba division in the utilization of skilled birth attendance?

1.5 Objectives

1.5.1 General objective

To determine the factors associated with the utilization of skilled birth attendance by women of reproductive age in Bamba Division, Kilifi County.

1.5.2 Specific Objectives

1. To determine the proportion of women utilizing skilled birth attendance in Bamba Division.
2. To determine the factors associated with skilled birth attendance in Bamba Division.
3. To describe the challenges experienced by women aged between 18-49 years in the utilization of skilled birth attendance in Bamba Division.

CHAPTER TWO

LITERATURE REVIEW

2.1 Utilization of Skilled Birth Attendance

A Skilled attendant is an accredited health professional such as a midwife, doctor or nurse who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns (WHO, 2005). Their presence during delivery is an intervention that ensures women's access to an enabling environment, drugs and referral to emergency obstetric care. Skilled delivery care is also effective in the reduction of maternal mortality. Although skilled attendance at birth is considered to be the single most critical intervention for ensuring safe motherhood, majority of births are still conducted by unskilled attendants (WHO, 2005).

The use of skilled attendance at birth was reported to reduce maternal mortality rate by a range of 13 percent to 33 percent (Adegoke & van den Broek, 2009). A review done in Bangladesh showed reduced mortality rates from 3.8 to 1.4 per 1000 births and in some countries SBA was reported to double (Lee *et al.*, 2009). A hospital study done in Pakistan found an association between home deliveries and adverse birth outcomes such as postpartum haemorrhage and retained placenta or placenta pieces (Shah *et al.*, 2010).

Globally, during the period 2005 to 2012, 70 percent of women were assisted by a skilled attendant during birth. However access to skilled care is lowest in the WHO South East Asia and African regions with low income countries reporting 47 percent utilization of skilled attendance at delivery compared with 60 percent in middle income countries and 99 percent in upper income countries (WHO *et al.*, 2012). While, in Kenya according to the KDHS 2008-09 survey revealed that 44 percent of births are delivered

under the supervision of a skilled birth attendant, usually a nurse or mid-wife. This represents a marginal increase from 42 percent in 2003(KNBS & ICF Macro, 2010).

2.2 Importance of skilled birth attendance

Skilled attendants provide maternal care during pregnancy, childbirth, postpartum period and newborn care at health center's or family homes. Hospital births are important because complications can be treated there and women and babies can be referred in a timely manner to appropriate facilities to avoid death and disability. Therefore a skilled attendant should have the necessary equipment and adequate referral means to be effective on reducing maternal mortality(WHO, 2005).The history of successes in reducing maternal and newborn mortalities shows that skilled professional care during and after childbirth can make the difference between life and death for both women and their newborn babies. These professionals can avert, contain or solve many of the largely unpredictable life threatening problems that may arise during childbirth and thus reduce maternal mortality to surprisingly low levels(WHO,2004).For instance women's risk of developing obstetric fistula through prolonged obstructed labour is reduced if adequate access to skilled birth attendance and to necessary services is maintained(UNDP, 2015). But they do need a backup only a hospital can provide to help mothers who present problems that go beyond their competency (WHO, 2004).Skilled birth attendants can also provide the women with emotional and practical support assisting them to deliver healthy babies and promoting birth as a positive experience (WHO, 2005).

Every birth should be attended by a skilled birth attendant, and to this end, midwifery should be a recognized and regulated profession with adequate educational opportunities, career advancement and professional associations. Skilled birth attendants should work in functional teams at health care facilities that have sufficient human resources and supplies to continuously offer quality maternal and newborn health care services including emergency obstetric and newborn care and other sexual and

reproductive health services such as for family planning and sexually transmitted infections (UNFPA, 2015).

Facilities should also be geographically distributed with a minimum of five facilities providing emergency obstetric and newborn care services for each 500,000 inhabitants, of which at least one should be a comprehensive facility. Functional referral and transportation systems should be put in place to enable timely referral from basic to comprehensive emergency obstetric and newborn care facilities in case of complications (UNFPA,2015).

2.3 Factors affecting Utilization of Skilled Birth Attendance

2.3.1 Socio-demographic factors

Socio-demographic factors influencing the utilization of skilled delivery care include; maternal education level, income, marital status, residence, parity, maternal age, religion and cultural beliefs. These factors varies across literature, for instance Gabrysch and Campbell (2009) established that women with a higher maternal age has an increased likelihood of delivering in a health facility due to the association of older age with biological risks. However another study in Southern Tanzania indicated that younger women are more likely to deliver with the assistance of a skilled health worker compared to older women. This was attributed to the possibility of older women belonging to more traditional cohorts and thus less likely to use modern facilities (Mpembeni *et al.*, 2007). In addition another study found no association of maternal age with the utilization of SBA (Lwelamira & Safari, 2012).

A study done in Central Tanzania found that the likelihood for delivery in a health facility increased with increase in education level and being from a high income group (high Socio-economic status) while an increase in parity that is women in their third, fourth pregnancy or more have a low likelihood of using skilled care at birth (Lwelamira

& Safari, 2012). Similar results were observed in Uganda, where less educated and poorer mothers were more likely to have unskilled or no assistance during childbirth (Tann *et al.*, 2007). Mpembeni *et al.* (2007) found that women's education level and marital status affected the utilization of SBA. Another study done in a semi-urban settlement in Northern Nigeria found that mother's education, husband's occupation and age at first pregnancy were the main determinants of place of delivery. Statistically significant associations between non-formal education and home delivery, first pregnancy and home delivery were observed (Idris *et al.*, 2006).

In Ethiopia, studies conducted by Mekonnen *et al.* (2012) and Tsegay *et al.* (2013) established that lower parity, maternal education and husband's occupation influenced the use of skilled delivery care. In similar settings, a study conducted between October 2009 and August 2011 established that women with secondary and above level of education and those living in urban areas were more likely to seek skilled attendance at delivery (Mengesha *et al.*, 2013).

A study done in Uttarakhand established that, place of residence, education level of women, exposure to mass media, birth order and wealth index were significant predictors in explaining the use of maternal health services. In addition, traditional attitudes and cultural beliefs surrounding childbirth were identified to influence the use of skilled care at birth (Chimanker & Sahoo, 2011).

According to a Kenyan study done in 2009, women with three children and above, those with lower levels of education and low socio-economic status are more likely to practice unsafe delivery (Wanjira *et al.*, 2011). An analysis of the Kenya Demographic and health survey, 2003 done by Ochako *et al.* (2011) found that, marital status, place of residence, household wealth, education, ethnicity, parity, age at birth of the last child had strong influences on the type of delivery assistance received. While a later analysis of the KDHS 2008/2009 done by Kitui *et al.* (2013) established that being wealthy, more educated and lower parity strongly predicted where women delivered. Another study

done in Western Kenya found that factors associated with giving birth outside a health facility included; maternal age of thirty and above, five or more previous births, less than eight years of education (van Eijk *et al.*, 2006).

According to an Indian study, women of higher socio-economic status and education status, younger age and those with no previous births were more likely to use safe delivery care (Bloom *et al.*, 1999). While another study in India established that household socio-economic status and mother's education were important factors associated with the use of skilled attendance at delivery (Jat, 2011). In Eastern rural Nepal, women with first parity were more likely to deliver in a health facility compared to second or third parity women (Dahal, 2013).

A study in Bangladesh, found an association between cultural beliefs and the use of skilled professionals at birth. Home deliveries were estimated at 85 percent and women in this study reported that health facilities lacked privacy and space during delivery as well as after birth. The mother and the newborn are usually isolated immediately after delivery due to beliefs about pollution and impurity linked to the delivery process (Choudhury *et al.*, 2012). A hospital study done in Pakistan in 2007 established that, family traditions and lack of affordability were main reasons associated with home deliveries (Shah *et al.*, 2010).

Financial barriers reduce utilization of SBA particularly in women from poor households. According to a qualitative study done in 2009, financial limitations were reported as a barrier to institutional deliveries (Titaley *et al.*, 2010). Apart from discouraging the use of health care services financial incapacities have also been found to have indirect consequences such as; late treatment initiation, inappropriate or dangerous home treatment, extended illness without treatment, inability to work and compromised access to education among others (Mwabu *et al.*, 1995; Hutton, 2004; Bosu *et al.*, 2007; Johnson *et al.*, 2012). In an attempt to solve this problem some African countries such as Uganda -2001, Burundi and Zambia – 2006 abolished user

fees for mother and child services in the health facilities. This led to an abrupt increase in the utilization of curative services but no significant change was recorded in the preventive services following fee removal (Lagarde & Palmer, 2008).

In Burkina Faso, a study also showed that user fee alleviation secured equitable access to care across socio-economic groups (De Allegri *et al.*, 2011) while a literature review on disruptive effects of user fee exemption done by (Ridde *et al.*, 2012) indicated that there was an immediate and significant increase in service utilization, unavailability of drugs and delays in the distribution of consumables, perceived heavier workloads, feeling of being exploited, overworked and a low morale for health workers were identified as challenges to SBA. Although the abolishment of user charges encouraged the use of SBA, studies have shown that one quarter to one half of women continue not to seek skilled attendance at birth even after the reduction or exemption of user fees (Bosu *et al.*, 2007; Mpembeni *et al.*, 2007; Penfold *et al.*, 2007; De Allegri *et al.*, 2011). A study in India showed that women do not utilize free maternity services because they perceive the services as not culture sensitive than those offered by traditional birth attendants (Griffith & Stephenson, 2001). Another study in Burkina Faso found that the unavailability of drugs also discourage use of skilled attendance (Ridde *et al.*, 2012). A qualitative study in Indonesia revealed that limited availability of health care providers and also the respondent's perception that trained delivery attendants or institutional delivery were only aimed at women who experienced obstetric complications discouraged the use of skilled care at delivery (Titaley *et al.*, 2010).

2.3.2 Physical accessibility

Physical accessibility comprises of factors such as; distance to health facilities, means of transport and state of roads in the locality. Distance to health facilities exerts a dual influence on use, as a disincentive to seeking care in the first place and as an actual obstacle to reach facilities enhanced by lack of transport and poor roads (Thaddeus & Maine, 1994). Both quantitative and qualitative studies have identified distance in terms

of hours or kilometers an individual has to cover to reach the facility. For instance studies in Southern and Central Tanzania found that use of skilled attendants and health facilities during delivery decreased with increasing distance from nearest health facility. Women living more than 10 kilometers were found to have home deliveries (Mpembeni *et al.*, 2007; Lwelamira & Safari, 2012). A study among the Afar pastoralists of Ethiopia reported that lack of transport system led to 83.3 percent of home deliveries (Mekonnen *et al.*, 2012). Another study in Western Kenya, revealed that lack of means of transport and living more than one hour walking distance from the health facility led to 80 percent of women delivering outside a health facility (van Eijk *et al.*, 2006). According to the KDHS 2008/2009 analysis, majority of women cited long distance and lack of transport as reasons for not delivering in a health facility (Kitui *et al.*, 2013).

According to a Burkina Faso study, living within 5 kilometers from a health facility was positively associated with delivering in a health facility (De Allegri *et al.*, 2011). Choulagai *et al.* (2013) established that distance from health facilities and inadequate transportation were barriers to the utilization of SBA in mid and far Western Nepal.

A qualitative study in West Java province of Indonesia, 2009, reported long physical distance as a barrier to institutional deliveries (Titaley *et al.*, 2010).

2.3.3 Perceived benefit

This comprises of factors influencing the perception of facility delivery with skilled assistance that would benefit both the mother and the child. This perception is shaped by general awareness of danger signs of childbirth and interventions available at health facilities, individual past experiences with pregnancy, childbirth and health care service as well as planned pregnancy (Gabrysch & Campbell, 2009).

Women with unwanted pregnancies may be less likely to invest in skilled assistance at delivery than those who attach high value to the expected child. However, delivery care

may be sought due to the risk for the mother rather than the child (Raghupathy, 1996). A study in Kenya, established that the odds of home delivery are increased by 40 percent when pregnancy is either unwanted or not wanted at that time (Magadi *et al.*, 2000). While another study in Thailand, found no association between wanted ness and delivery care (Raghupathy, 1996).

Various studies established that women who use ANC may be more likely to use health facilities for delivery. For instance, in India, a study examined the effect of ANC utilization on the likelihood of using safe delivery care, a factor known to decrease maternal mortality. The study found that; women with a relatively high level of care (at the 75th percentile of the score) had an estimated odds of using trained assistance at delivery that was almost four times higher than women with a low level of care (at the 25th percentile of the score)(Bloom *et al.*,1999). Another study in Kenya, found an association between early timing of the first ANC visit and use of skilled professionals at delivery (Ochako *et al.*, 2011). Mekonnen *et al.* (2012), found an association between health facility delivery and antenatal care attendance. Similar results were observed in Eastern rural Nepal where the number of ANC visits was a strong influencing factor for choice of place of delivery (Dahal, 2013).

In Burkina Faso, attendance of at least 3 ANC visits was positively associated with health facility delivery (De Allegri *et al.*, 2011). Other studies done in western Nepal and Central Tanzania found that women who made four or more ANC visits were more likely to use skilled care during delivery (Choulagai *et al.*, 2013; Lwelamira & safari, 2012). In northwest Ethiopia, women who had ANC during pregnancy were four or more times likely to deliver under skilled care (Mengesha *et al.*, 2013). In similar settings, women who received ANC advice were likely to seek skilled delivery care at birth (Tsegay *et al.*, 2013). In Kenya optimal attendance of ANC was associated with use of SBA (Kitui *et al.*, 2013). In Nepal, women who made more than four ANC visits were five times more likely to deliver at a health facility (Karkee *et al.*, 2014).

In Tanzania and Kenya, studies established significant association between knowledge of pregnancy risk factors with use of skilled care at delivery (Mpembeni *et al.*, 2007; Wanjira *et al.*, 2011). Another study in mid and far western Nepal found that knowing danger signs of pregnancy and delivery (e.g. premature labor, prolonged labour, breech delivery, postpartum hemorrhage, severe headache) was associated with use of skilled care (Choulagai *et al.*, 2013).

In Ethiopia, history of prolonged labour or difficult labor was associated with use of skilled delivery care while “easy births” or non-complicated births promoted home deliveries (Tsegay *et al.*, 2013). Successful experiences of home deliveries by self or immediate relatives or neighbours discouraged use of health facilities at child birth (Dahal, 2013).

A qualitative study in Indonesia, 2009 reported that trained delivery attendants or institutional deliveries were only aimed at women who experienced obstetric complications (Titaley *et al.*, 2010).

In summary, challenges to seeking skilled attendance at birth include cost factor, long distances to the health facilities, lack of transport, unavailability of drugs, traditional practices among others. The majority of the studies discussed above used quantitative methods with few employing the qualitative aspect in exploring determinants of skilled attendance at birth. Therefore more studies with both quantitative and qualitative approach are needed to understand the factors associated with the utilization of skilled attendance at birth.

2.4 Conceptual Framework

This study explored different factors that may influence utilization of skilled attendance at birth. The selection of explanatory variables (independent variables) was based on their theoretical and empirical importance as reported in literature and they include;

socio-demographic factors, cultural factors, perceived benefit and access factors (see conceptual framework).

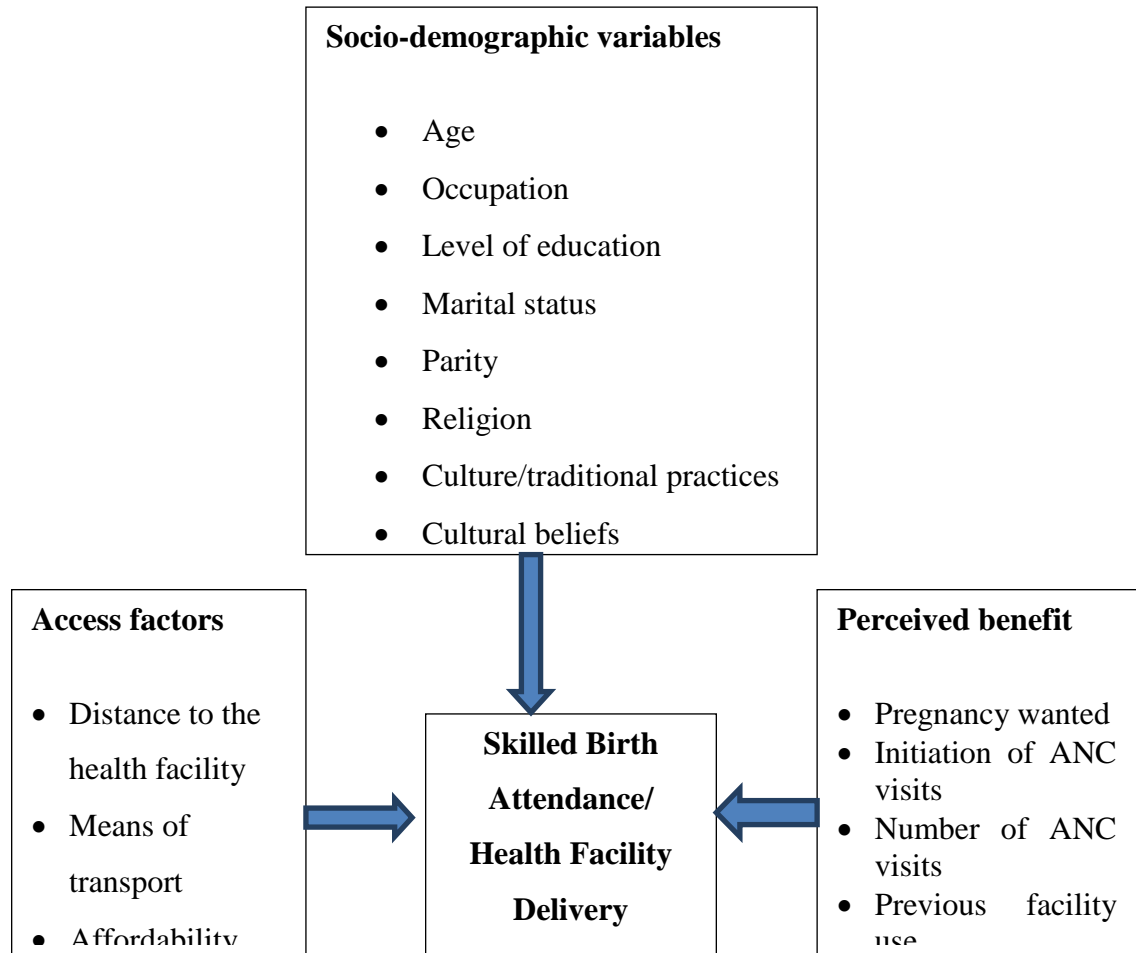


Figure 2.1: Conceptual Framework (Gabrysch & Campbell, 2009)

CHAPTER THREE

MATERIALS AND METHODS

3.1 Study design

This was a population based cross sectional study in which both qualitative and quantitative data were collected over a period of three months.

3.2 Study site

Bamba Division is in Ganze constituency within Kilifi County. It covers an area of 1,532.70 (sq.km). According to the 2009 population and census, Bamba division has a population of about 45,563 of which an estimate of 10,573 are women of child bearing age (15-49) years (Population census., 2009). The main ethnic group living in the study area are the Giriama. It has 5 locations namely Bamba, Mtsara wa Tsatsu, Ndigiria, Bandari and Mitangani with a total of 14 sub-locations and three Ministry of Health facilities (MOH) and two private owned health facilities. It borders Taita-Taveta District to the west, Malindi District to the northwest, Kilifi and Kaloleni Districts to the East and Mombasa and Kinango Districts to the South with coordinates 3° 31' 0" N and . It falls under Arid and semi-arid areas. It experiences a bi-modal rainfall pattern which is erratic rainfall of between 600 – 1000mm with an altitude of up to 520 meters above sea level. Farming is a major economic activity and it includes maize production, coconuts, cashewnuts, cassava and local cattle rearing with a few goats (Kilifi district strategic plan, 2005) (Appendix N- Map of study).

3.3 Study population

This comprised women of reproductive age (18-49) years who had delivered during the last twelve months prior to the study. Key informants were health workers specifically; nurses in-charge of maternal health care services, Community Health Extension Workers (CHEWs) and women leaders in the study area. Focus Group discussions consisted of women that met the study inclusion criteria.

3.3.1 Inclusion criteria

- Women with at least one complete pregnancy within the last twelve months, who had or not had a living child
- Must be residents of Bamba Division for not less than two years prior to the study
- Must have the mother and baby booklet or any booklet with ANC particulars
- Those who consented to be in the study

3.3.2 Exclusion criteria

- Girls below 18 years and women above 49 years old
- Immigrant women with infants
- Those without the mother and baby booklet or any booklet with ANC particulars
- Those who refused to consent

3.4 Study variables

3.4.1 Dependent variables

- Skilled Birth Attendance- It will indicate whether the delivery took place in a health facility (coded as one, 1) or if not (coded as zero, 0).

3.4.2 Independent variables

- Socio-economic and demographic factors - age, marital status, education level, religion, parity, occupation, monthly income.
- Cultural practices-beliefs, values, norms,
- Perceived benefit - pregnancy wanted, previous facility use during delivery, complications during pregnancy, health knowledge, ANC use (time of initiation of ANC, No. of visits, content of care).
- Access factors- distance to the health facility, means of transport, affordability.

3.5 Sampling

3.5.1 Sample size calculation

Sample size was calculated from the Fisher *et al*, 1998

$$N = \frac{z^2 \times pq}{d^2}$$

Where;

n = sample size

z = confidence interval

p= assumed prevalence of Skilled attendance at birth taken to be 21.6% (according to Kilifi HMIS July 2010 to June 2011)

q= 1-p

d= degree of accuracy which is 0.05 at 95% confidence interval

n= $\frac{(1.96)^2 \times 0.216 \times 0.784}{(0.05)^2}$

n =260

3.5.2 Sampling procedure

Multi-stage sampling was used. Stage one involved the selection of one location randomly from the five known locations in the study area. This was done by assigning the five locations different numbers and only one number was selected using Ms Excel. The list with the number of population clusters in the selected location was obtained from the county statistical officer and this was used as a sampling frame. Stage two of the sampling procedure involved the assigning of numbers to the households and then using Ms Excel to get random households until the calculated sample size was obtained. In some of the selected households, they lacked women who met the study inclusion criteria; they were replaced by using Ms Excel generated random numbers until the target sample size was reached. In each selected household, one woman who delivered within the last twelve months prior to the study was included after giving their consent. The participants to be involved in the Focus Group Discussions (FGDs) were purposively sampled according to their willingness to participate in the study. Since only one location was selected for the study as earlier described, and a location had 3 sub-locations. The study therefore had a total of 3 FGDs and each had eight women that met the study inclusion criteria. They were grouped based on their age so as to get various perspectives on the barriers to SBA. This is because trends differ across various age groups.

The Key informant interviews (KIIs) were purposively sampled according to their expertise in maternal health care, accessibility and willingness to participate in the discussions. Each sub-location in the randomly selected location for the study had at least two key informants which consisted of one CHEW and a women leader while in each health facility in the selected location at least one nurse and a clinician were interviewed on the factors associated with the utilization of skilled delivery care services in the location. The study had a total of nine key informants.

3.6 Data collection

3.6.1 Data collection tools

Quantitative data was collected using structured questionnaires (Appendix D) which had closed-ended questions. The questionnaire collected information on socio demographic variables, place of delivery, ANC attendance and cultural practises concerning delivery. The questionnaires were prepared in English and translated to Kiswahili and were translated back to English to verify the original meaning in English. The questionnaires were administered by the researcher and research assistants because of high illiteracy levels among the study subjects. Qualitative data was collected using KII and FGD guide (Appendix F &G). They collected information on the challenges the women experience when seeking delivery care services in the health facilities.

3.6.2 Pretesting of the study instruments

The questionnaires were pre-tested in one village after the successful training of the research assistants. Pretesting was done at Bandari location on ten percent (n=26) of the study population who met the study inclusion criteria. It was done in a different location and not the one randomly selected for the study in order to avoid recruiting the same respondents and establish the questionnaire validity and reliability before the actual study. The verbal responses on the content of ante-natal care and skilled delivery care were verified by using the recorded information in the Mother and Baby card. Analysis was done to check on the appropriateness of the data collection tools, and the identified gaps and overlaps were rectified before the actual study took place.

3.6.3 Research assistants

Two research assistants were needed to assist in the data collection. Their main roles were; to act as guides as they are well versed with the study area and assist in the conduction of FGDs and questionnaire administration during the study. They were

recruited on the basis that they were able to communicate in the local language, at least have some training in a health related field such as community development, below 30 years of age and experienced in the data collection process. The principal investigator organized a two day training to ensure quality of the field operations was maintained before the pre-test of the tools was done. The training comprised of practical exercises on how to fill the questionnaires, how to conduct the interviews and field exercise. The investigator supervised the data collection process and quality checks were performed.

3.6.4 Data collection procedures

The women who consented to the study were asked to produce the mother and baby booklet or any other hospital card used during ANC visits and delivery in a health care facility. Drug samples such as iron folic tablets were shown to the women when asked on the type of interventions they received during ANC visits in the health facilities. Verbal responses were noted down and confirmed with the documentation on the cards. The women were also asked on their willingness to participate in the FGDs later on during the study after the successful completion of the questionnaire. The women who expressed some interest were identified and their phone numbers, questionnaire number, sub-location particulars were noted down.

The list of women to be involved in the FGDs was used to group them according to the sub-location particulars and age groups as follows; 18-27 years, 28-37 and 38-49 years (Omar *et al.*, 2001).FGDs were conducted in a central place such as a school, village elder's homes or dispensary to avoid any logistical inconveniences to the participants. The study scope, benefits, and how the results will be used was explained to the participants before the consenting process was done. Permission to record the discussions was sought before starting the discussions. An FGD guide was used as a data collecting tool. The topic of discussion was introduced by the researcher and study instructions were communicated; there is no right or wrong answers and all the participants should feel free to contribute at any given time. The lead researcher

moderated the discussion while the research assistant was taking notes and tape recording after seeking consent from the participants.

The key informants were identified before the actual interviews by the principal investigator and first contact was made to discuss their possibility of taking part in the study, convenient time and places for the interview. After the identification of the informants, the scheduled interviews were conducted at the place of choice of the key informant. The purpose, scope of the study, the procedures to be used in data collection, risks, benefits and how the results will be used were communicated to the participants before the interviews were done. The possibility of using a recording device was mentioned and informed consent was sought from the participant. The interviews were done based on an earlier prepared KII guide.

3.7 Data management and analysis

3.7.1 Quantitative data

All study participants received a unique participant identification number that was recorded on the questionnaire. Collected data from the study was thoroughly checked and validated for accuracy and completeness.

Data captured in questionnaires were double entered into an Ms Excel database, data cleaning done in Epi info version 7 and data imported to SPSS version 20 for analysis. The data was stored in flash disks/CD ROMs for backup before and after analysis. Data on the questionnaire was secured under lock and key while electronically stored data was password protected. Descriptive statistics were used to get the frequencies, percentages and summary statistics of the socio-demographic variables such as age, marital status. Chi-square tests were used to analyse associations of the categorical variables; education level of the participants, marital status, parity, occupation. The level of significance of the findings was at p value of less than 0.05.

Logistic regression comprising of both Univariate, multivariate analysis was done to find the association between the predictor and the outcome variable using forward selection method at 95% Confidence interval. This was applied to binary variables or quantitative study variables.

3.7.2 Qualitative data

The audio taped data was transcribed into full text and translated to English since Kiswahili language was used as a media of communication during the interviews. To ensure accuracy of the translation, the information was retranslated and checked by the researcher. The notes taken during the interviews and the transcribed data was typed on an Ms Word document and saved in flash disks as back up. The notes were read and re-read before sorting was done. Data analysis was done manually coding the responses into themes. These were then analysed through content analysis to derive themes relevant to answer the research questions. These themes were then categorized and summarized according to how they were discussed. Validation of the information was done before final conclusions were made.

3.8 Ethical considerations

The study was approved by the KNH/UON Ethical Review Committee and consent sought from Kilifi health department of health before the commencement of the research study (Appendix L &N). Prior to the study, sensitization meetings with chiefs and village elders were held to get permission to access the homesteads. The objectives of the study were explained and permission sought to carry out the study in the villages. Data collection emphasized on issues of confidentiality and privacy by restricting access to the information collected and coding of questionnaires.

After voluntary and informed consent had been explained, only the women, who met study requirements and signed the consent forms, were enrolled into the study. Each

study subject was informed about their right to decline or withdraw any time from participating in the study without feeling constrained. Respondents were assured of the confidentiality on the information given. Respondents were further assured that no person-identifiers would be used for publication. All information about the respondents was handled with utmost confidentiality and only used for intended purposes. The quantitative data collected using the questionnaires was used to estimate the proportion of women assessing skilled care during delivery and the qualitative data collected using FGDs and KIIs was used to identify challenges of skilled birth attendance in Bamba division. Such information will be used to design public health interventions suitable for the locality.

3.9 Study limitations and delimitations

The cross sectional nature of data collection could only provide evidence of statistical associations between independent variables and the use of skilled delivery care at birth and cannot establish cause effect relationship.

Data collection was based on self-report by the respondents and the validity of such responses would be uncertain. Therefore Recall bias would affect the validity of the findings and to minimize this mother and baby booklet was used to verify the verbal responses from the respondents.

Data collection was done partly by research assistants and this may have brought about a certain degree of interview variation. To minimize this effect, the research assistants were trained before data collection.

CHAPTER FOUR

RESULTS

4.1 Socio-demographics Characteristics of respondents

A total of 260 respondents were interviewed representing a response rate of 100%. This was possible because the questionnaires were administered. The mean age of the respondents was 27 and the minimum age was 18 and maximum age of the respondents was 47. Majority of the respondents were aged between 18-27 years (52.4%) and most of the respondents (41.9%) had more than four children. On religion, almost half of the participants had embraced Christianity (n=125, 48.1%), those with no religion were 92(35.4%) and those who were Muslims comprised 16.5% (n=43). Slightly more than half (60%, n=156) of the participants had no education and only 0.8% had college education. Farming was the most famous occupation followed by manual laborers and those in small business. Majority (60%) earned less than 1000 Kenya shillings(Table 4.1).

Table 4.1: Socio-demographic characteristics of the women aged between 18-49 years, Bamba division, Kilifi County

Variable	Frequency (%)
Maternal age	
18-27years	144(52.4%)
28-37years	102(39.2%)
38-49years	14(5.4%)
Parity	
1-2	68(26.2%)
3-4	83(31.9%)
Above 4	109(41.9%)
Marital status	
Married	241(92.7%)
Single	10(3.8%)
Divorced	5(1.9%)
Widow	4(1.5%)
Religion	
Christian	125(48.1%)
Muslim	43(16.5%)
No religion	92(35.4%)
Education level	
No education	156(60.0%)
Primary	100(38.6%)
Secondary	2(0.8%)
College	2(0.8%)
Husband education level	
No education	46(18.9%)
Primary	172(70.8%)
Secondary	23(9.5%)
College	2(0.8%)
Maternal occupation	
Business	30(11.5%)
Skilled trader	7(2.7%)
Unskilled	47(18.1%)
Subsistent farmer	176(67.7%)
Monthly income	
Below1000	156(60.0%)
1001-2000	50(19.2%)
2001-5000	25(9.6%)
Above 5000	11(4.2%)
I do not know	18(6.9%)

4.1.1 Accessibility of healthcare facilities and ANC

4.1.1.1 Place of delivery and kind of assistance at birth

The women who either delivered at home or on the way were 136 (52.3%) while 124 (47.7%) delivered in the health facility (Figure 4.1).

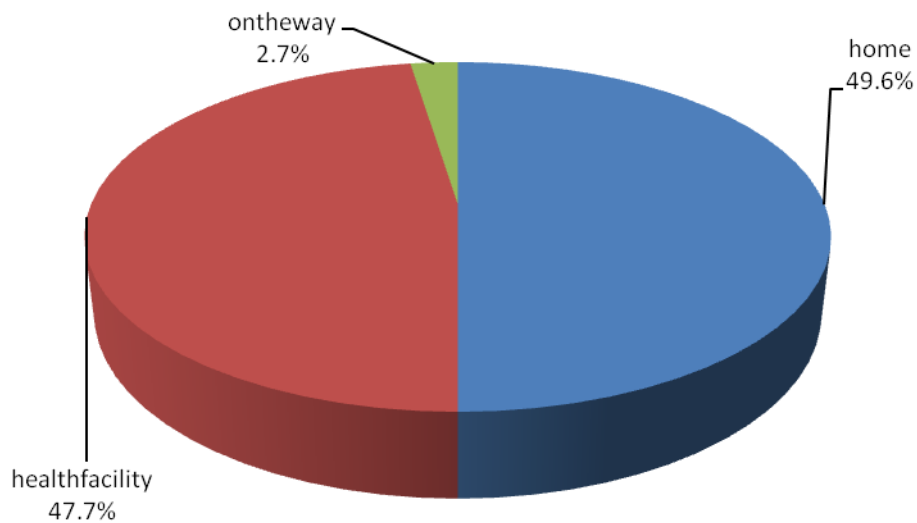


Figure 4.1: Place of delivery of women of Bamba location

The percentage of births that occurred under unskilled personnel were 136(52.3%) whereas 124(47.7%) were skilled assisted births (Figure 4.2). Among the unskilled births, 85(62.5%) were conducted by relatives, 39(28.7%) by TBAs and 12(8.8%) by self.

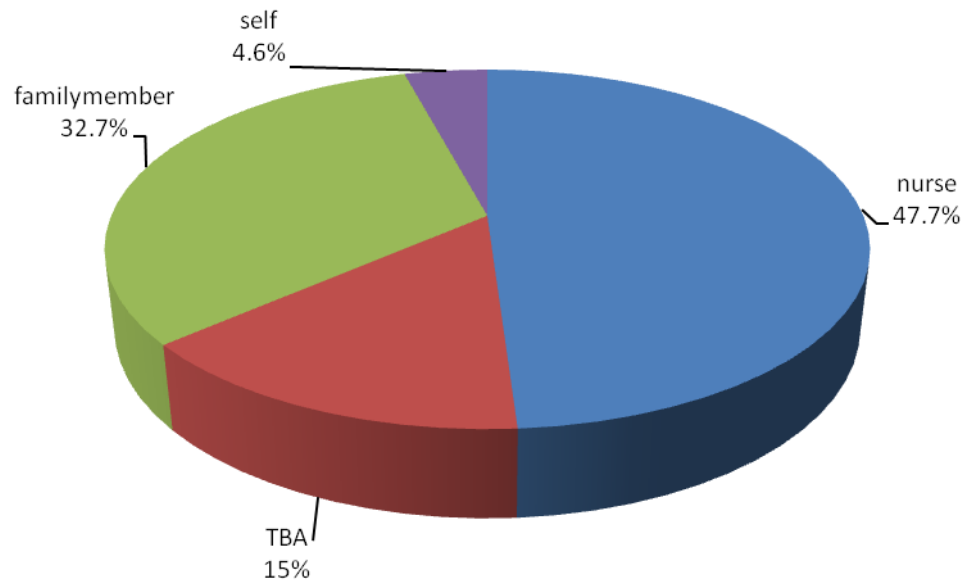


Figure 4.2: The kind of assistance sought at birth by women of Bamba location

The most cited reason for seeking TBAs was mainly related to distance (table 4.2).

Table 4.2: Reasons for seeking TBAs among the respondents of Bamba location

Reasons for TBA	Frequency (%)
Near to my house	29(74.4%)
I can able to look after my family	6(15.4%)
All the other deliveries were successful	4(10.2%)

The FGDs and KIIs revealed that the importance of seeking SBA is understood by the participants but this did not match their health seeking behavior. This has been contributed to a number of issues. For instance the FGDs revealed that, majority of the respondents in the various age groups reported that delivering in the health facilities under the care of trained personnel is important in ensuring that both the mother and the baby are well taken care of.

They also agreed on the fact that in case of problems that occur at birth, being in the Health Facility (H/F) is far much better than at home under the care of unskilled birth attendants.

“Deliveries in the hospitals are handled with trained personnel under clean environment for instance the use of gloves, delivering on clean beds among others and that H/F delivery reduced unnecessary complications such as excess loss of blood, which may arise and lead to death of the mother and or the newborn”(respondent from women aged 18-27 years).

Although majority of the women acknowledged the importance of H/F deliveries some of them still sought services from TBAs.

“The presence of TBAs in almost all the villages and near our homes has proved beneficial especially when labour pains occur at night, they manage most of the deliveries since health facilities are far and getting transport is a problem” (woman aged 18-27 years). Others reported that *“we prefer giving birth at home despite knowing the risks since we can be able to look after our older children/families”* (respondent woman aged between 38-49 years, Mwakwala). Majority of the respondents agreed on the fact that they still deliver at home because most of their earlier deliveries were successful and only those women with health problems should deliver at the health facilities.

In the KIIs, they agreed on the fact that utilization of SBA has improved over the years but more effort should be put to ensure that no pregnant woman still delivers at home.

“Majority of women have realized the importance of delivering in the H/F apart from a few who still deliver at home. This has mainly contributed by the increased number of outreaches that are conducted in the locality” (CHEW 1).

Another KII stated that “Utilization of SBA has improved but more sensitization needs to be done to ensure that no pregnant woman in the location still delivers at home” (sub-chief 1).

4.1.1.2 Means of transport

Majority of women who sought SBA used motorbikes 94(76.4%), followed by women on foot 23(18.7%), and some used cars 6(4.9%) (Figure 4.3).

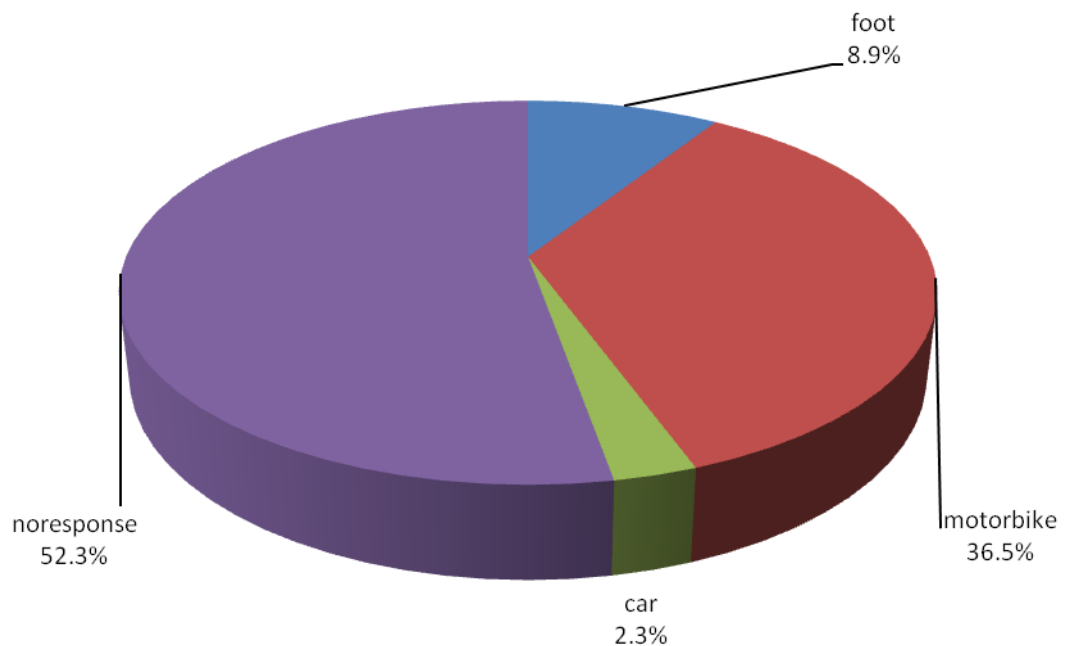


Figure 4.3: Means of transport used by those seeking SBA

4.1.1.3 Distance

Majority of the respondents reported that the distance to the health facility from their homes was more than ten kilometers (n=136, 52.3%), those living 6-10km were 61 (23.5%), those living 3-5km were 52(20%) and those living 0-2km were 11 (4.2%)(Figure 4.4)

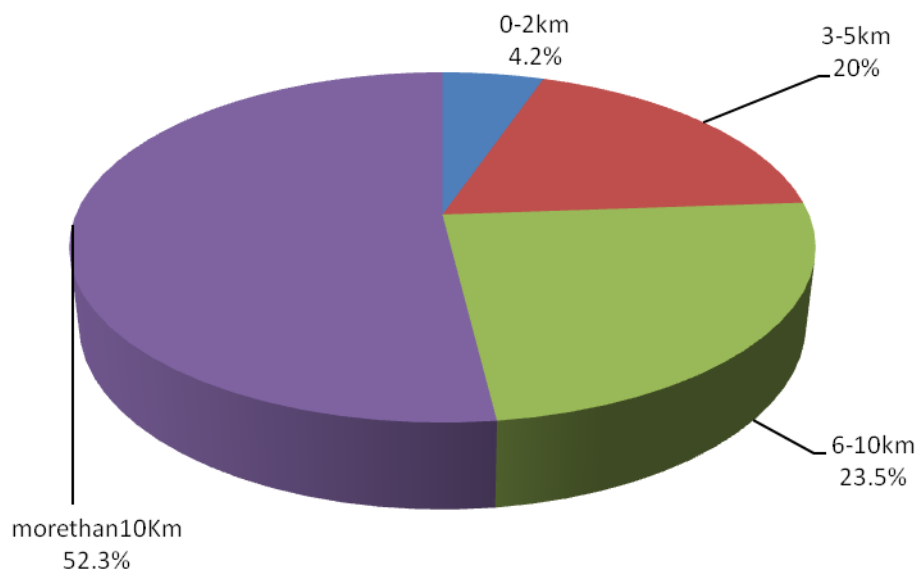


Figure 4.4: Distances from the respondent’s home to the health facility

Long distances and lack of transport during childbirth and especially when emergency referral was required were reported to be major problems that were mentioned across the FGDs and KIIs. *“We have to walk long distances (more than two hours) to the health facility to seek delivery care and sometime we are forced to deliver on the way to the health facility”* (women across all age groups). *“Some women have to walk for more than ten kilometers especially those living in Chapungu, Mwakwala and Maryango sub-locations”* (sub-chiefs 2, 3 and 4).

Transport charges were also reported to be high and majority of the women could not afford the cost and walking to the health facility was the only option they had if they decided to seek skilled assistance.

“Motorbikes charge as much as 300 Kenya shillings to take one to the health facility, and most of the time we do not have that money. Therefore walking to the H/F is the only option we have and at times we do not reach to the health centre as we end up delivering on the road” (respondent from women aged 38-49 years).

Concerns were raised on the poor conditions of roads connecting to the nearest referral facility which is Kilifi county hospital. The roads were reported to be impassible even with a little downpour.

“Transport of patients to the referral facility in most cases is a challenge as the ambulance has to be contacted from Kilifi, which may be unavailable. This led to the dispatchment of ambulances to Bamba division but the ambulances remain packed in the police station compound due to lack of drivers and pregnant women with emergencies still continue to suffer”(sub-chief 3, nurse).*“Poor road network has also led to few pregnant women accessing the health facility since the only means of transport is motorbike and not every woman can afford the high transport fees charged”* (sub-chief 3 & CHEW 2).

4.1.1.4 ANC Services

Ninety nine percent (n=258) of the respondents had attended ANC services from a health facility and a majority of them 257(99.6%) sought the services from a government facility. Two hundred and twenty (85.3%) of the women had at least three ANC visits with a majority starting the ANC services during their second trimester (4-6 months) as shown in Figure 4.5 below.

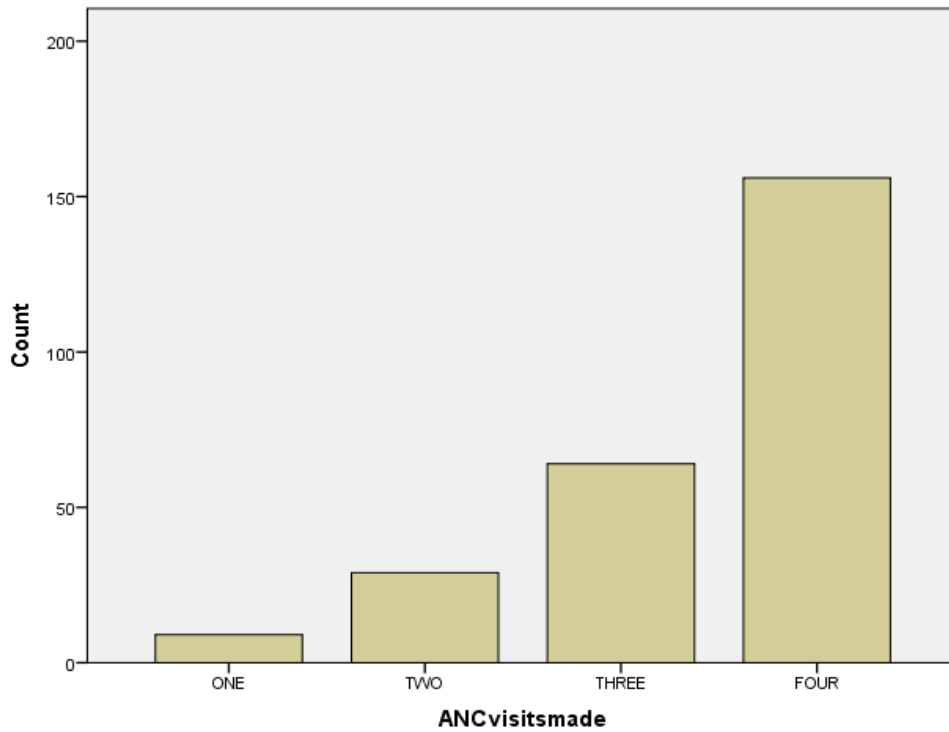


Figure 4.5: The ANC visits made by the participants

Among the 260 women respondents, 55(21.3%) started ANC clinics when they were 0-3 months pregnant, 155(60.1%) had their first ANC visit when they were 4-6 months pregnant while 48(18.6%) had their first ANC visit when they were 7-9 months pregnant (Figure 4.6).

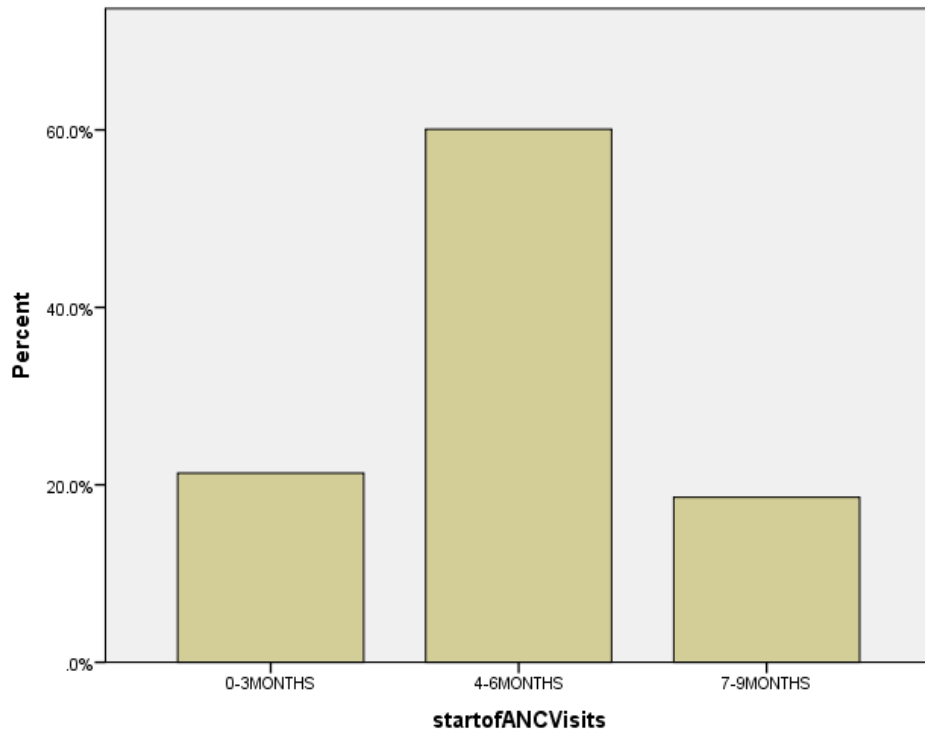


Figure 4.6: Initiation of ANC in the health facility

Similarly, the qualitative tools established that though ANC attendance was reported to be optimal among the respondents, some of them still sought some services from the TBA's.

“We go to TBAs during pregnancy so as to get abdominal massages which is important in reducing pregnancy discomforts and pains. They use some oils and herbs to do the abdominal massages, and we are also given some roots to boil and drink the concoctions in case one suffers from stomach discomforts such as bloating”(respondent from women aged 18-27 years).

Other women reported that they only attend the ANC clinic when they experience some health problems.

“ I started going to the clinic when I was almost seven months pregnant and suffering from severe headache and nausea. The headache was so severe that I could not go about my daily routine in my house” (respondent from women aged 28-37 years).

Another woman confessed that she experienced vaginal bleeding and that forced her to attend ANC clinics to seek medical intervention.

4.1.1.5 Permission sought before ANC initiation

Among the 90(39.4%) participants who reported to have sought permission before starting the ANC visits in the health facility, 84(93.3 %) of them sought the permission from their husbands, 4(4.4%) from their mother in laws and 2(2.2%) from their own mothers (Figure 4.7).

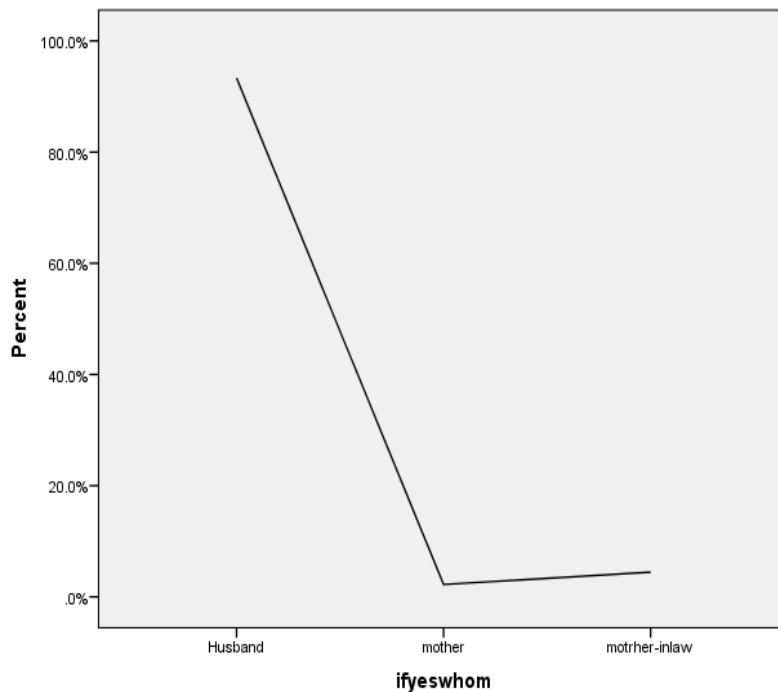


Figure 4.7: The person from whom permission was sought before ANC initiation

Some of the participants in the FGDs and KIIs stated that their husbands were the decision makers in matters concerning their health and their life in general. Majority of the women have to ask for permission before seeking any services from the health facility. In cases of emergency referral, some of them refuse to provide money to cater for transport and other hospital charges that may be needed.

“Our husbands deny us the chance to deliver in the H/F mainly because our earlier deliveries occurred at home and were successful” (respondent from women aged 38-49 years).

“My husband denied me the opportunity to deliver my fourth born in the hospital and insisted that his mother was experienced in helping women give birth and furthermore all the other children were successfully delivered at home” (respondent from women aged 38-49 years).

41.1.6 ANC Interventions

ANC interventions included; iron/folic drugs, tetanus injection, malaria drugs and mosquito net use. Among the 260 respondents, 228(85.4%) had used iron/folic drugs. One hundred and ninety six (76.0%) respondents were given the tetanus injection. Two hundred and twenty three (85.8%) respondents reported that they sleep under treated mosquito nets and majority of the respondents 242(93.8%) reported to have been given malaria drugs in the health facility while 16(5.6%) reported not to have been given (table4.3).

Table 4.3: Frequencies on the type of ANC interventions reported by women respondents aged 18-49 years

Interventions	Frequencies
Iron folic drugs Yes	228(85.4%)
No	30(11.6%)
Tetanus injection Yes	196(76.0%)
No	62(24.0%)
Malaria drugs Yes	242(93.8%)
No	16(6.2%)
Mosquito net use Yes	223(85.8%)
No	37(14.2)

In the qualitative study majority of women acknowledged the importance of attending ANC clinics during pregnancy and this was similar to the questionnaire results. They believed that ANC was good for the health of the mother and the baby. They further went ahead and mentioned the kind of interventions offered in the health centers during ANC visits.

“We are given anti-malarial drugs, iron-folic tablets, mosquito nets and some tests are also done to us; weight, blood pressure, stool, urine and HIV test” (respondent from women aged 18-27 years).

4.1.1.7 Planning pregnancy and prolonged labour

Sixty one percent of the respondents did not plan to have the pregnancy. Of this, 95.6% accidentally had the pregnancy and 3.8% reported that it was God’s plan for them to get the pregnancy while 0.6 % reported that their husbands forced them to get pregnant. In the qualitative study male dominance was also revealed in matters of family planning,

where women were denied the use of family planning methods resulting to unplanned pregnancies.

The respondents who had not experienced any prolonged/difficult labour among women who had previously given birth were 166(71.2%) while 67(28.8%) had experienced difficult labour in their previous pregnancy.

4.1.1.8 Health related problems experienced during pregnancy period

Majority of the women, 198(76.2%) reported not to have experienced health challenges during their most recent pregnancy while 62(23.8%) reported that they had experienced some health problems. The cited problems experienced by the women were abdominal pain, vaginal bleeding, severe headache, painful urination, genital ulcers, body weakness and flatulence (bloating).

Health workers that included nurse, clinical officer and CHEWs were interviewed further on the frequency of pregnancy emergencies such as, home births, obstructed labour, maternal deaths and neonatal deaths.

“Home deliveries are common particularly for those women who have previously given birth at home and this has been as a result of short labour pains or abrupt labour pains and the long distances to the H/F” (nurse).

“Most women claim that labour pains occur at night and since there is no available transport to the health facility then they have to give birth at home” (clinician).

“Deliveries on the way occur due to precipitate labour pains, and they are approximated at three in a month” (clinician).

“Maternal deaths are not so common in the H/F but mainly occur in the referred cases. From July last year to date at least three mortalities occurred; one was from ante-partum bleeding, another was due to a retained second twin which was transversal lie and the third was as a result of pre-eclampsia condition” (nurse).

Availability of essential amenities in the health facilities

Lack of essential amenities such as drugs(lignocaine), child delivery equipment(scissors, needle holder, draping towel) and inadequate labour beds were also reported and this negatively affected the utilization of SBA.

“There are few health facilities that are reported to be serving the entire division, which have inadequate staffs and facilities to cater for the population. Long waiting time at the facility has also discouraged pregnant women from seeking care during pregnancy and at birth. In addition, the local health facility lack essential amenities such as, minor theatre and yet it has been upgraded to a sub-county hospital” (Sub-chief 2).

Inadequate space in the maternity ward was also reported to be a challenge.

“Minimal space in the maternity ward has led to lack of privacy in the H/F hence making women not feel free during labour”(nurse)

Lack of a maternity shelter in the locality has also contributed to majority of women being sent home when they experience false labour pains. Some of them do not manage to make the journey back to the health facility when they experience true labour pains.

“We are sent home whenever the labour pains subside since the health facility does not have a maternity ward where pregnant women can wait as labour pains progresses and this discourages us to walk back to the facility once we experience actual labour mainly for fear of being sent back home again and the long walking distance to the facility (respondent from women aged 18-27 years).

Inadequate staff in the health facility was also reported to discourage the use of SBA.

“Ideally the H/F should have a nurse/mid-wife in the maternity wing, another one in the in-patient ward but only one nurse serves both the in-patient ward and the maternity ward” (nurse and clinician). “Shortages of health worker’s such as nurses has led to poor service delivery in the H/F” (CHEW 2).

Lack of essential delivery equipment and drugs was also noted to affect service delivery in the H/F.

“There are only three delivery packs in the health facility which are incomplete and this compromise on service delivery. Each delivery pack is supposed to have two forceps, two scissors, needle holder, kidney dish, gallipot, cotton wool and a draping towel. Most of the times razor blades are used to cut the cord instead of scissors hence posing a risk of injuries to the care provider and also some of the equipment have rusted such as forceps and scissors. There is only one laboring bed in the maternity ward” (nurse). “Insufficient drugs in the H/F also discourage women from giving birth in health facility. For instance unavailability of lignocaine which is used to alleviate pain when stitching women’s birth canal after an incision is made during the delivery of the baby. Hence resulting to the women being stitched without the drug making them experience more pain that could have been minimized with the use of the drug” (nurse).

“Another instance is when a patient is prescribed for an injection; he has to purchase the drug and the syringe at the nearby chemist. At other times pregnant women lack essential anti-malarial drugs and even iron folic tablets” (clinician).

Traditional beliefs/ practices

Many traditions have been abolished in the study population with the exception of a few which are still being followed. For instance some women reported that delivering in the health facility requires one to give the new born a name before one is discharged from

the hospital which is against their traditions and practice where the new born is given a name one week after birth. Hence they prefer to deliver at home where they will be able to follow their traditions and take the newborn to the H/F only after the naming ceremony is over.

“Traditionally a pregnant woman is supposed to deliver with the company of other mature women, but this is not possible in the health facility since the woman has to be left under the care of the mid-wife or nurse” (CHEW 2).

Some women have been reported to still hold onto taboos which involve seeking traditional intervention when they experience problems during pregnancy and at birth. *“A pregnant woman in my village sought a traditional medicine a man when she was experiencing problems and was instructed that once the labour pains start she should immediately contact the TBA since she is not supposed to see the baby before certain traditional procedures are done and if she defies the instructions the baby will die”*(sub-chief 2).

“Myths associated with vaccines such as tetanus toxoid vaccine being misconceived as a family planning injection has made women to shy away from the H/F”(sub-chief 1)

Poverty and ignorance – husbands have been reported of ignoring the health workers advice on referrals in cases of emergencies during pregnancy and at birth.

“Husband’s ignorance on health worker’s instructions has led to homebirths where multiple lives have been lost. For instance a man from Maryango sub-location ignored the nurse order of transferring the wife to another facility for an operation and instead took the wife home where she labored for several days and gave birth to dead twins and the mother died after a day due to over bleeding”(sub-chief 3).

“Ignorance on the signs of labour has also led to late communication on the start of the labour pains leading to home births” (CHEW 3).

Illiteracy- High illiteracy levels have been reported among the residents. “*Majority of the residents are primary school dropout who had no sufficient knowledge on the importance of SBA and labour signs*” (sub-chief 2).

Lack of family obligation- “*pregnant women prefer giving birth at home with either the help of a relative or a TBA so that they can be able to attend to the other older children who would have been left alone if they sought skilled delivery care at the hospital*” (CHEW 1).

4.1.2 Determinants of Skilled Birth Attendance

Pearson Chi-square tests were done on all categorical variables; some of the variables were not significant at p value of less than 0.05. These factors include; husband education, occupation of both the husband and mother, use of ANC services, knowledge of required ANC visits, initiation of ANC visits, total ANC visits made during the most recent pregnancy and the types of ANC interventions(malaria, iron/folic and tetanus injection) given during the ANC visits. Some of the variables that predicted the utilization of skilled delivery care in the health facility were; Problems experienced during the pregnancy, maternal education, difficult labour, distance, planned pregnancy, maternal age, parity, mosquito net use, monthly income and sub-location (Appendix I& J).

4.1.2.1 Logistic regression analysis of determinants of skilled birth attendance

Some factors were found to be independently significant with the utilization of skilled care at birth; parity, maternal age, mosquito net use, distance, previous difficult labour, pregnancy planned and pregnancy problems (Appendix K).

Women with previous prolonged or difficult labour were thirty times more likely to deliver in a health facility than those who had no difficult labour during delivery (OR=33.667, 95% CI=13.481-83.350).

Distance between the participants homes and the health facility was another significant finding where women living 6-10kilometers had a forty nine times probability of seeking unskilled assistance than those women living 0-2kms (OR=49.4, 95% CI=26.71-91.605).

Similarly, women who had experienced previous pregnancy problems had an eight times higher probability of delivering in a health facility under skilled assistance than those women who had not experienced any pregnancy problems (OR=8.104, 95% CI=0.360-18.012).

Women with 1-2 children were three times more likely to seek skilled assistance during delivery than those women with more than two children (OR=3.111, 95% CI=1.663-5.854).

Mosquito net use among pregnant women was associated with SBA (OR=3.540, 95% CI=1.604-7.601).

Women who had planned their pregnancy were likely to deliver in the health facility than those with unplanned pregnancies (OR=5.541, 95% CI=3.341-9.172).

Another finding was that mothers aged below thirty years were likely to deliver in the health facility than those aged above thirty years (OR=1.286, 95% CI=0.210-7.780).

Multiple factors were associated with delivering in the health facility as shown in table 4.4 below and a few were significant; pregnancy problems, distance, difficult labour and mosquito net use. Women who had some difficulty in their previous labour (OR=148.494, 95% CI=30.208- 729.449) were more likely to deliver in the health facility than those who did not experience prolonged/ difficult labour. Distance from the participants home and the health facility was also a strong predictor of SBA, women living below 2 km had a 87 times likelihood of using skilled attendance at birth than those living more than 10 km(OR=87.400,95%CI=6.928-1102.645). Women who

experienced problems during the pregnancy were more likely to seek skilled attendance than those who had no health related problems (17.924, 95% CI=4.737-67.828). In addition, mosquito net use among women also predicted the utilization of skilled attendance at birth (OR=6.544, 95% CI=1.383- 30.970).

Table 4.4: Logistic regression of some selected study factors

Variable	frequencies	Univariate analysis		Multivariate analysis	
		p-value	Odds ratio(confidence intervals)	p-value	Odds ratio(confidence intervals)
Distance					
0-2km	11(4.2%)	0.004	4.8(0.601-38.505)	0.001	87.400(6.928-1102.645)
3-5km	52(20%)	0.002	14.3(6.903-30.017)	0.000	38.776(10.026-149.963)
6-10km	61(23.5%)	0.025	49.4(26.702-91.606)	0.004	6.282(1.787-22.082)
More than 10km	136(52.3%)		Reference		
Pregnancy problem					
Yes	62(23.8%)	0.001	8.10(0.360-18.012)	0.001	17.924(4.737-67.828)
No			Reference		
Pregnancy planned					
Yes	101(38.8%)	0.022	5.541(3.341-9.172)	0.056	2.633(0.975-7.109)
no	159(61.2%)				
Difficult labour					
Yes	67(28.8%)	0.001	33.12(13.012-83.45)	0.001	148.494(30.208-729.949)
No	166(71.2%)		Reference		
Mosquito net use					
Yes	223(85.8%)	0.008	3.540(1.64-7.66)	0.018	6.544(1.383-30.970)
No	37(14.2%)		Reference		

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussions

5.1.1 Proportion of women utilizing skilled attendance at birth

Among the participants who took part in the quantitative study, 47.7% had skilled attended births while 52.3% delivered under unskilled care. Of these women, those assisted by TBAs are 15%, 32.7% by relatives and 4.6% by self. The low SBA results are also similar to other studies done in other countries (Idris *et al.*, 2006; Lwelamira & Safari, 2007; Mpembeni *et al.*, 2007; Mrisho *et al.*, 2007) and also comparable to studies done in other parts of the country such as Western Kenya and Nyandarua South District (van Eijik *et al.*, 2006; Wanjira *et al.*, 2011). More women should be encouraged to seek care in the health facilities since unskilled birth attendants are more preferred in the locality. These estimates are low when compared to the WHO estimates and KDHS survey. Globally, the proportion of births attended by a skilled health personnel from 2007-2014 was estimated to be 74%. In the European and American region SBA was estimated at 98% and 96% respectively, 68% in South East Asia, 67% in Eastern Mediterranean. While in the Who African region 51% of women delivered under skilled personnel, which is lower compared to other regions (WHO, 2015). In Kenya according to the most recent KDHS survey 2014 SBA and health facility deliveries nationally were 62% and 61%, in Coast region were 58.2% and 57.7% while in Kilifi county were 52.3% and 52.6% respectively (KNBS & ICF Macro, 2015).

5.1.2 Factors associated with Skilled Birth Attendance

This study identified various predictors of SBA and they include; maternal age, parity, place of residence, low income, planned pregnancies, pregnancy problems, distance and prolonged labour. Distance, prolonged/difficult labour, mosquito net use and pregnancy

problems strongly predicted the use of SBA. The study findings were similar to studies done in other parts of the country that established that living less than ten kilometers from the H/F and transport availability predicted the use of SBAs (Kitui *et al.*, 2013; van Eijik *et al.*, of transport, successful home deliveries and easy births predicted the use of unsafe delivery practices (Dahal, 2013; Mpembeni *et al.*, 2007; Lwelamira & Safari, 2012).

Access to the health facility was a strong factor that associated with SBA, women who lived within 0-2 kilometers (less than an hour walking distance) from the health facility were more likely to deliver in the health facility while those living more than 10 kms mostly had home deliveries. This finding was due to the fact that transport to the health facilities was not readily available and the only available transport was motorbikes which charged expensively and majority of the women are poor hence cannot meet the transport charges opting to deliver at home or even walk to the health facility. Some of the women opted to walk and they ended up delivering on the road side. Also poor states of the roads limit women from accessing the health facilities on time. Similar results were observed in other studies, for instance, lack of transport and living more than one hour walking distance led to 80% of women delivering outside the health facility (Choulagai *et al.*, 2013; Kitui *et al.*, 2013; Mekonnen *et al.*, 2012; van Eijik *et al.*, 2006). In a Burkina Faso study, women who lived within 5 kilometres from the health facility delivered under skilled care (De Allegri *et al.*, 2011). Also studies in Tanzania found that an increase in distance led to a decrease of health facility births and SBA. Women living more than 10 kilometres were found to deliver at home under unskilled care (Lwelamira & safari, 2012; Mpembeni *et al.*, 2007).

Similar results were reported in the KIIs and the FGDs where transport was identified to be a major barrier to the utilization of SBA especially when emergency referral was required. They reported that means of transport in the locality are not readily available and this is majorly contributed by the poor conditions of roads especially during the rainy season. Motorbikes and bicycles were reported to be used as the main means of

transport due to the poor road network since vehicles cannot move with ease in the locality and this always results to delays in getting appropriate skilled care. Distance as a barrier to SBA was observed elsewhere (Okeshola & Sadiq, 2013).

Another significant result revealed use of SBA was higher among women who had a history of prolonged or difficult labour. This was also established in other studies, where women with successful experiences of home deliveries promoted the use of unskilled delivery care (Dahal, 2013) and an Ethiopian study found that prolonged labour was positively associated with the use of SBA while “easy” births/non-complicated births promoted home deliveries (Tsegay *et al.*, 2013). Women who had some difficulties during birth were more likely to deliver at the H/F than those with precipitate or easy births. The possible explanation for this finding is that the women were initially exposed to life threatening conditions and they are aware that having skilled attendance is effective in keeping both the baby and mother alive.

This study also established that women who had experienced some health related issues during the pregnancy period sought skilled delivery care in the health facilities. This result was comparable to other studies (Choulagai *et al.*, 2013; Mpembeni *et al.*, 2007; Wanjira *et al.*, 2011). The possible explanation for this is that such women sought skilled care at birth as they were aware that the health risks that they had experienced when pregnant could be life threatening to themselves or the baby. The most mentioned problems experienced in pregnancy were; vaginal bleeding, less or no fetal movements, severe abdominal pains and body weakness.

In addition, mosquito net use among women was found to be a positive factor to the use of skilled attendance at birth. The possible reason for the finding is that women who had and were using a mosquito net were more knowledgeable on the importance of preventing themselves from contracting malaria and were also aware of the benefits of seeking skilled care during delivery.

5.1.3 Challenges experienced by women seeking Skilled Birth Attendance

The other reason that led to low utilization of SBA was insufficient facilities and health workers. A Key Informant reported that lack of a maternity shelter in the division encourages home delivery as those women who are sent home after having false labour pains are discouraged to make the long walk back to the health facility once true labour pains present. The maternity shelter could avoid home births from women who are willing to have hospital deliveries since they will be kept in the facility till true labour pains present themselves. Lack of essential equipment such as delivery pack and unavailability of drugs (lignocaine) limits the number of women that are being attended at birth. Insufficient health workers also affect service delivery especially when more than one woman is ready to give birth and requires the attention of a midwife/nurse and yet only one nurse is available. Long waiting time due to few health workers and a few health facilities in the region affect utilization of SBA as the women seek other readily available alternatives and in this case TBAs are the most tempting option as they are found in almost every village. This not only saves the women's time but it also enables them to be around their homes and take care of their other children whom might have been left alone if the mother sought skilled attendance at the health facility. This was similar to an Indian study (Ridde *et al.*, 2012; Titaley *et al.*, 2010).

According to the qualitative study traditional beliefs and cultural practices are still evident among the women and they inhibit them from utilizing skilled care at birth. For instance, some women had been advised by traditional healers that they are not supposed to hold their newborn baby immediately from birth until some traditional ceremonies have been conducted and failure to do that the newborn will die. Such fears prevent the women from seeking skilled care. This was similar to a Nigerian study that found out, child delivery was regarded as a natural process and as such children should be delivered at home (Okeshola & Sadiq, 2013). Comparable results were observed elsewhere (Chimankar & Sahoo, 2011; Choudhury *et al.*, 2012; Shah *et al.*, 2010).

Illiteracy and ignorance among women was also a reason that led to home births. This is because some women are not aware of the health benefits of SBA, others communicate that they are in labour very late when the actual labour has start leading to home births and unpleasant outcomes such as severe injuries to the mother and baby that may result to loss of life that may have been avoided if they could have sought skilled care. The possible explanation is that, educated women are more likely to deliver in the health facilities due to an increase in knowledge of the benefits of preventive healthcare and awareness of health related services. They also have better communication skills and ability to demand better services. This was also observed in other studies (Chimanker & Sahoo, 2011; Idris *et al.*, 2006; Mekonnen *et al.*, 2012; Tsegay *et al.*, 2013).

Male dominancy and illiteracy of women was also a challenge in the utilization of skilled care at birth among women. This was due to the fact that women were not in charge of matters concerning their health and always depended on their men folk approval before they seek skilled care in the health facility. The women followed their husband's demands and some go to the extent of denying them money to cater for transport to the referral facility in cases of emergency referral, husbands dictated to their women not to use any family planning methods resulting to unplanned pregnancies and some even deny their women to deliver in the hospitals and insist that their mothers and great grandmothers delivered at home. This result was also observed elsewhere (Magoma *et al.*, 2010; Mrisho *et al.*, 2007). The possible explanation for this is that husband's encouragement has a positive influence on the utilization of skilled care at birth.

Economic constraint was another reason that negatively affected the utilization of skilled attendance at birth. Majority of women earn less than a thousand shillings and are mostly manual laborers and this limit them from affording transport fees in cases of emergency to the referral facility and any additional hospital charges though the delivery fee was abolished by the government. Comparable results were observed elsewhere (Shah *et al.*, 2010; Titaley *et al.*, 2010).

5.2 Conclusions

Proportion of women utilizing skilled birth attendance was estimated at 47.7% which is quite low despite the abolishment of user fees by the government. Therefore this pose a challenge to both the national and county governments to establish the reason for such low turn outs of deliveries conducted in the health facility even after removing the cost factor.

Factors that determine the utilization of skilled birth attendance were identified as; long distances to the health facilities, mosquito net use, prolonged difficult labour and pregnancy complications.

Challenges identified by the study were; poor condition of roads in the locality, insufficient means of transport, insufficient health care workers, insufficient health facilities that are ill equipped and lack of decision making power among women affected them from making informed choices and always depended on their husbands, mother in laws and own mothers before taking an action. This was partly due to high illiteracy levels and low socio-economic status.

5.3 Recommendations

- I. Long distances to the health facilities has been a discouraging factor for pregnant women hence high home deliveries in the locality. Hence both the national and county governments should built more health facilities with maternity shelters in order to ensure ease of access to health services and the women with obstetric complications and those a week to their due date can be admitted and proper care provided to them in order to prevent fatalities that occur when women deliver while on their way to the H/F and at home when abrupt labour occurs.

- II. The improvement of roads should be done to ensure that the movement of people is assured in all different types of weather conditions. Lack of ambulance drivers has also been reported regardless of the availability of ambulances in the locality, therefore the county government should employ drivers to facilitate the transport of patients to the referral facility.
- III. The national and county governments should employ enough health care workers and equip the health facilities. For instance health facilities with deliveries of more than eighty per month and approximately three daily should have at least ten delivery packs. Therefore more delivery packs should be availed in the health facilities. The present buildings should also be refurbished; window nets replaced and more maternity and laboring beds to be supplied in the health facility.

5.4 Future Research

This study recommends future research on areas concerning reasons why most women get unplanned pregnancies regardless of subsidized family planning methods in most government health facilities.

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APPENDICES

Appendix A: Informed Consent Form - Quantitative Study

**TITLE: DETERMINANTS OF UTILIZATION OF SKILLED BIRTH ATTENDANCE,
BAMBA DIVISION, KILIFI COUNTY**

Principal investigator: Sophia W. Mwinyikione

Introduction:

Good morning/afternoon?

My name is Sophia W. Mwinyikione. I am a postgraduate student at the Jomo Kenyatta University of Agriculture and Technology (JKUAT), College of Health Sciences (COHES) located in Kenya Medical Research Institute (KEMRI). The study has been authorized by the KNH/UoN Ethical Review Committee and the protocol number is P344/05/2014. I am here with my research team to conduct a study on utilization of skilled attendance at birth in Bamba division. I would like to seek your permission, please listen as the consent form is read for you below. I would be very grateful if you will assist me by agreeing to be a participant in this study.

The purpose of the study

The aim of this study is to understand factors that are associated with utilization of Skilled Birth Attendance in this community. These are services that have been introduced to pregnant women to ensure that medical attention is provided to them during delivery. Skilled care at birth promotes the management of pregnancy related complications such as hemorrhage (heavy bleeding), difficult labour among others.

The information you provide will therefore be used to assess the utilization of skilled attendance at birth in Bamba and the findings will be communicated to the local health departments for the purpose of improving the poor maternal outcomes in the locality.

Risks, benefits and adverse events

a. Nature and degree of risk

This study will be using a structured questionnaire to collect information from you and the process is entirely safe since verbal responses will be required for each question and therefore no health risks will be encountered. There may be questions that might appear uncomfortable and invade your privacy but it is necessary for you to answer them with honesty.

b. Minimization of risk

Participation in the study is voluntary and the questionnaire will only be administered to those who wish to take part. In case of illiteracy among some respondents, more time will be provided in explaining the study purpose before enrolling them to the study.

c. Unknown conditions

The study will use interview administered questionnaire which is a non-invasive method. Hence no health problems are anticipated to arise due to any study procedures during the data collection period.

d. Benefits

This study has no direct benefit to the study participants but the study results will be used to improve on the use of Skilled Birth Attendants, which is an important intervention in ensuring reduced maternal deaths, co-infections during birth and birth injuries.

e. Adverse events treatment

Non-invasive methods will be employed during the study procedures and therefore there is no adverse events that will be anticipated.

f. Adverse events facilities

This study will not collect any human specimens and therefore no facilities will be required to deal with any adverse events arising from study procedures.

g. Financial responsibilities

The principal investigator will be responsible for any eventualities that arise during the data collection process.

Confidentiality of research data

a. Direct identifiers

Participant's names will not be used during the data collection process but instead they will be identified by specific numbers assigned to them by the principal investigator. Their telephone numbers and locator information will be retained to assist in the planning of Focus Group Discussions.

b. Data protection

Questionnaires will be coded and keyed in password protected databases in order to prevent unauthorized access. This is to ensure that the data collected is used only for the intended purposes.

c. Data location

Signed consent forms and the filled questionnaires will be filed and locked in cabinets after data entry.

d. Data uses

The research data from this study will not be used in other studies in the future.

Additional information

i. Private records

The mother and baby card or any other hospital card with details on ANC interventions acquired during the period of pregnancy will be used to confirm verbal responses from the participant's.

ii. Contact information

For any enquiries in the event of any research related questions, comments or complaints, the following persons will be available for contact:

44102 Principal Investigator:
Sophia W. Mwinyikione
Telephone: 0722743621
Email: waithera.soffy@gmail.com

The Secretary,
Prof, M.L. Chindia
KNH/UON - Ethical Review Committee
P.O. BOX 19676-00202 Nairobi
Tel: (254) (020) 2726300 Ext

At this point, do you want to ask me anything about the study?

Appendix B: Consent Form

Please tick as appropriate

By signing this form, I agree that:	YES	NO
The study has been explained to me		
All my questions were answered		
Possible harm and discomforts and possible benefits (if any) of this study have been explained to me		
I understand that I have the right not to participate and the right to stop at any time		
I understand that I may refuse to participate without consequence		
I have a choice of not answering any specific questions		
I have been told that my personal information will be kept confidential		
I understand that no information that would identify me will be released or printed without asking me first		
I understand that I will receive a signed copy of this consent form		

I hereby consent to participate in this study:

Initials of Participant: _____

Signature: _____ Date: _____

Name of Researcher: _____

Signature: _____ Date: _____

Appendix C: Informed Consent Form - Qualitative Study

**TITLE: DETERMINANTS OF UTILIZATION OF SKILLED BIRTH ATTENDANCE,
BAMBA DIVISION, KILIFI COUNTY**

Principal investigator: SOPHIA W. MWINYIKIONE

Introduction:

Good morning/afternoon?

My name is Sophia W. Mwinyikione. I am a postgraduate student at the Jomo Kenyatta University of Agriculture and Technology (JKUAT), College of Health Sciences (COHES) located in Kenya Medical Research Institute (KEMRI). The study has been authorized by the KNH/UoN Ethical Review Committee and the protocol number is P344/05/2014. I am here with my research team to conduct a study on utilization of skilled attendance at birth in Bamba division. I would like to seek your permission, please listen as the consent form is read for you below. I would be very grateful if you will assist me by agreeing to be a participant in this study.

The purpose of the study

The aim of this study is to understand factors that are associated with utilization of Skilled Birth Attendance in this community. These are services that have been introduced to pregnant women to ensure that medical attention is provided to them during delivery. Skilled care at birth promotes the management of pregnancy related complications such as hemorrhage (heavy bleeding), difficult labour among others.

The information you provide will therefore be used to design public health messages intended to encourage pregnant women in seeking delivery care services from skilled health workers in the health facilities.

Risks, benefits and adverse events

a. Nature and degree of risk

This study will be using either an FGD or KII guide to collect information from you and the process is entirely safe since verbal responses will be required in the discussion or in the interviews and therefore no health risks will be encountered. There may be questions that might appear uncomfortable and invade your privacy but it is necessary for you to answer them with honesty.

b. Minimization of risk

Participation in the study is voluntary and the discussion will only take place after the participants give their consent. In case of illiteracy among some respondents, more time will be provided in explaining the study purpose before enrolling them to the study.

c. Unknown conditions

The study will use KII and FGD guides which are non-invasive data collecting methods. Hence no health problems are anticipated to arise due to any study procedures during the data collection period.

d. Benefits

This study has no direct benefit to the study participants but the study results will be used to improve on the use of Skilled Birth Attendants, which is an important intervention in ensuring reduced maternal deaths, co-infections during birth and birth injuries.

e. Adverse events treatment

Non-invasive methods will be employed during the study procedures and therefore no adverse events will be anticipated.

f. Adverse events facilities

This study will not collect any human specimens and therefore no facilities will be required to deal with any adverse events arising from study procedures.

g. Financial responsibilities

The principal investigator will be responsible for any eventualities that arise during the data collection process.

Confidentiality of research data

a. Direct identifiers

Participant's names will not be used during the data collection process but instead they will be identified by specific numbers assigned to them by the principal investigator.

b. Data protection

The KII and the FGD guides will be coded and keyed in password protected Ms. Word documents in order to prevent unauthorized access. This is to ensure that the data collected is used only for the intended purposes.

c. Data location

Signed consent forms and the filled guides will be filed and locked in cabinets after data entry.

d. Data uses

The research data from this study will not be used in other studies in the future.

Additional information

i. Audio-visual recordings

Tape recorders may be used during the interviews and the discussions after consent is provided. Responses will remain anonymous and no names will be mentioned in the report. The recorders will assist the researcher in note making after the discussions to ensure that all relevant points discussed are captured. Strict measures will be observed in securing the data in the tape recorders and only the researcher and the assistants will be allowed to interact with the data. After data transcription the tapes will be stored in locked cabinets.

ii. Contact information

For any enquiries in the event of any research related questions, comments or complaints, the following persons will be available for contact:

Principal Investigator:

Sophia W. Mwinyikione

Telephone: 0722743621

Email: waithera.soffy@gmail.com

The Secretary,

Prof, M.L. Chindia

KNH/UON - Ethical Review Committee

P.O. BOX 19676-00202 Nairobi

Tel: (254) (020) 2726300 Ext 44102

At this point, do you want to ask me anything about the study?

Appendix D: Questionnaire (English)

**DETERMINANTS OF UTILIZATION OF SKILLED BIRTH ATTENDANCE,
BAMBA DIVISION, KILIFI COUNTY**

Questionnaire No:.....

Date:

Household no:.....

Name of interviewer:.....

INSTRUCTIONS

- a) Explain the purpose of the interview to the mother.
- b) Ask for consent before proceeding with the interview.
- c) Make sure all questions that apply to the participant are answered.
- d) Do not read the answers to the participant but tick on the responses given.

PART A: RESPONDENTS SOCIO- DEMOGRAHIC CHARACTERISTICS

1. How old are you? -----

- 1. 18-27 years
- 2. 28-37 years
- 3. 38-49 years

2. What is your marital status?

- 1. Married
- 2. Single
- 3. Divorced
- 4. Widowed

3. What is your religion?

1. Christian
2. Muslim
3. No religion
4. Others specify

4. What is your highest level of education?

1. Primary
2. Secondary
3. College
4. Others specify

5. If married, what is your husband's level of education?

1. Primary
2. Secondary
3. College
4. Others specify

6. What is your occupation?

1. Business woman
2. Skilled trader(tailor, hairdresser)
3. Unskilled/casual laborer
4. Subsistent Farmer
5. Others specify

7. What does your husband do for a living?

1. Business
2. Casual work
3. Officework
4. Farming

8. What is your monthly income (Ksh)?

1. Less than 1000
2. 1001 - 2000
3. 2001 - 5000
4. Above 5001

9. How many deliveries have you ever had?

1. None
2. One
3. Two
4. three
5. four
6. more than four

PART B- Factors associated with utilization of SBA

10. How far is the nearest health facility to your home?(to be converted to kilometres;0-2; 3-5; 6-9; >10)

1. Less than 30mins
2. Within one hour
3. Within two hours
4. More than two hours

11. Where did you give birth in your last pregnancy?

1. Health facility
2. Home
3. On the way
4. Others specify

12. If the birth was in a health facility, were you charged for the services? (skip to qns.14 if delivery was not in a health facility in the questions above)

- 1) Yes
- 2) No

13. What means of transport did you use to seek delivery care in the health facilities?

- 1) Foot
- 2) Bicycle
- 3) Motor bicycle
- 4) Car
- 5) Others

14. In your earlier deliveries, did you experience prolonged/difficult labour? (skip to Question. 15 for first time births)

- 1) Yes
- 2) no

15. Who assisted you during your last delivery?

- 1) Nurse/midwife
- 2) TBA
- 3) Family member
- 4) Others specify

16. If TBA is mentioned above, list the reasons for the choice?(probe for reasons)

- 1) Near to my house
- 2) I can be able to look after my family
- 3) All the other deliveries were successful
- 4) Others

17. Are there any cultural practices that hinder women in this community from delivering in a hospital with the care of a skilled professional?

- 1. Yes
- 2. No

18. If yes above, list the cultural beliefs that hinder women from utilizing skilled professional during delivery?

.....
.....
.....

19. Did you seek Ante-natal care services during the pregnancy?

- 1. Yes
- 2. No

20. If yes, where did you seek the services from?

- 1. Government clinics- dispensaries
- 2. private clinics
- 3. Traditional birth attendants/ traditional places

21. If ANC was sought from a government facility, were you charged for the services?

1. no fee charged
2. 50-100
3. 100-200
4. Above 200

22. Before you started ante-natal care, was it necessary for you to get permission from anyone to attend the ante-natal care?

1. Yes
2. No

23. If yes, whom did you ask permission?

- 1) Husband
- 2) Uncle
- 3) Mother
- 4) Mother-in-law
- 5) Other specify

24. Was the last pregnancy planned?

- 1) Yes
- 2) No

25. If the pregnancy was not planned, give reasons for having the pregnancy?(probe)

1. Husband forced me
2. It was accidentally conceived
3. Grandmother wanted many grandchildren
4. Others

26. How many antenatal care visits is a pregnant woman supposed to make during the whole pregnancy period?

1. One
2. Two
3. Three
4. Four
5. More than four

27. How many ANC visits did you make during the pregnancy?

1. One
2. Two
3. Three
4. Four
5. Others specify

28. At which month of the pregnancy did you start ante-natal care?

1. 0-3 months (0-12 weeks)
2. 4-6 months(13-24 weeks)
3. 7-9 months (25-36 weeks)
4. I Don't know

29. Were the following tests done to you during the ANC visits? (tick against the component and indicate the no. of times each was done throughout the pregnancy) **confirm responses from ANC booklet.**

1. Were you weighed?
2. Was your height measured
3. Blood pressure
4. Urine sample
5. Blood sample
6. Fetal heartbeat
7. Did someone examine your eyes
8. HIV test

30. Did you take any drugs to prevent you from getting malaria? Not considered here are instances when the drug was taken because you had malaria.

1. Yes
2. No

31. Did you take any folic/iron acid drugs during the pregnancy? (samples of the tablets will be shown)

1. Yes
2. No

32. During this pregnancy were you given any injection in the arm to prevent the baby from getting Tetanus (convulsions) after birth?

1. Yes
2. No

33. Do you sleep under a treated mosquito net?

1. Yes
2. No

34. Do you remember having any pregnancy related problems with previous pregnancy?

1. Yes
2. No

35. List any danger signs during pregnancy? (Do not read for them, let the interviewee mention and you tick where necessary).

1. Vaginal bleeding
2. Severe headache
3. Difficulty in breathing
4. Baby is moving less or not moving at all
5. Painful urination
6. Genital ulcers
7. Feeling very weak or tired

Appendix E: Kijitabu Cha Maswali/ Dodoso

UTAFITI KUHUSU VIZUIZI VINAVYO WAFANYA KINA MAMA WAJA WAZITO KUKOSA KUTUMIA HUDUMA ZA UZAZI ZINAZOTOLEWA NA WAKUNGA WALIO HITIMU

Nambari ya mhojiwa

Tarehe ya usajili

Nambari ya nyumba/ruji

Jina la anaye hoji

Maagizo ya anayetekeleza mahojiano

- a) Eleza umuhimu wa mahojiano haya kwa mama anayehojiwa.
- b) Omba ruhusa ya kushiriki kwenye mahojiano kabla ya kuanza.
- c) Hakikisha kila swali linamhusu mshiriki limejibiwa.
- d) Usimsomee mshiriki majibu ila weka alama kwa jibu/majibu yafaayo baada ya mshiriki kutaamka jibu/majibu.

Sehemu A – YANAYO MHUSU MSHIRIKI

1. Una miaka mingapi?

- 1) 18-27
- 2) 28-37
- 3) 38-49

2. Je, wewe

1. Umeolewa
2. Hujaolewa
3. Umeachwa/umepewa talaka
4. Umjane

3. Dini yako ni ipi kati ya hizi?

1. Mkristo
2. Muislamu
3. Sinadini
4. Eleza kama dini yako si kati ya zilizotajwa hapo juu

4. Kiwango chako cha elimu ni kipi?

1. Shule ya msingi
2. Sekondari
3. College/taasisi
4. Eleza kama si kati ya majibu yaliyotajwa hapo juu

5. Kama umeolewa,kiwango cha elimu cha mumeo ni kipi?

1. Shuleyamsingi
2. Sekondari
3. College/taasisi
4. Eleza kama si kati ya majibu yaliyotajwa hapo juu

6. Unafanya kazi gani?

1. Biashara
2. Kazi inayohitaji ujuuzi (kushona nguo, mwalimu)
3. Kazi isiyohitaji ujuzi (vibarua)
4. Ukulima wa kawaida
5. Eleza kama si kati ya yaliyotajwa hapo juu

7. Mume wako anafanya kazi gani?

1. Biashara
2. Kazi inayohitaji ujuuzi (kushona nguo, seremala, ofisi, mwalimu)
3. Kazi isiyohitaji ujuzi (vibarua)
4. Ukulima wa kawaida
5. Eleza kama si kati yayaliyotajwa hapo juu

8. Mapato yako ni ya kiwango gani kwa kila mwezi?

1. Chini ya 1000
2. Kati ya 1001-2000
3. Kati ya 2001-5000
4. Zaidi ya 5001

9. Hadi sasa umezaa mara ngapi?

1. Sijazaa
2. Moja
3. Mbili
4. Tatu
5. Nne
6. Zaidi ya nne

SEHEMU B: MATUMIZI YA HUDUMA ZA KUJIFUNGUA

10. Je, Kituo cha afya kina umbali gani kutoka nyumbani kwako?(ibadilishwe kutoka kwa masaa iwe kilomita;0-2; 3-5; 6-10; > 10)

1. Chini ya dakika 30
2. Saa moja hivi
3. Masaa mawili
4. Zaidi ya ,masaa mawili

11. Ulizalia wapi?(Kama jibu sio jawabu namba 2,ruka hadi swali la 14).

1. Kituo cha afya
2. Nyumbani
3. Njiani
4. Eleza kama si kati ya majibu yaliyotajwa hapo juu

12. Kama ulijifungulia kwenye kituo cha afya,je ulitozwa ada yeyote?

- 1) Ndio
- 2) La

13. ulitumia usafiri upi ili kutafuta huduma za ukunga kwenye kituo cha afya?

- 1) Kwa mguu
- 2) Kwa baiskeli
- 3) Kwa pikipiki
- 4) Kwa gari
- 5) Eleza kama si kati ya majibu yaliyotajwa hapo juu

14. Umepata kujifungua kwa shida hapo mbeleni? (ikiwa amejifungua kwa mara ya kwanza,ruka hili swali hadi swali la 15)

1. Ndio
2. La

15. Je,ulipokuwa ukijifungua, ulipata usaidizi kutoka kwa nani?(ikiwa jibu sio mkunga wa kienyeji, ruka hadi swali la 16).

1. Muuguzi
2. Mkunga aliyehitimu
3. Mkunga wa kienyeji
4. Mtu katika ukoo wangu
5. Eleza kama si kati ya yaliyotajwa hapo juu

16. Ikiwa ulisaidiwa na mkunga wa kienyeji ,eleza sababu ya kuchagua huduma zake?

- 1) Yuko karibu na nyumba yangu
- 2) Naweza angalia familia yangu
- 3) Nimewahi jifungua salama hapo mbeleni
- 4) Eleza kama si kati ya yaliyotajwa

17. Je, kuna mila za kitamaduni zinazozuia wanawake kutojifungua kwenya kituo cha afya chini ya usimamizi wa hudumu wa afya waliohitimu?

1. Ndio
2. La

18. Ikiwa jibu ni “ndio” hapo juu, zitaje mila za kitamaduni hizo

19. Je, ulitafuta huduma zinazotolewa kwa akina mamawajawazito?

1. Ndio

2. La

20. Ikiwa jibu lako ni “ndio” hapo juu, ulitafuta huduma hizo wapi?

1. Kliniki za serikali/ zahanati

2. Kliniki za kibinafsi

3. Mkunga wa kienyeji/ sehemu za uzazi za kitamaduni

21. Ikiwa ulipata huduma za uja uzito kwenye kliniki za serikali, ulilipa kiasi gani cha pesa kwa huduma hizo?

1) Sikutozwa ada yeyote

2) 50-100

3) 100-200

4) Zaidi ya 200

22. Je, ilikulazimu kuomba ruhusa kutoka kwa yeyote kabla ya kuanza huduma za uja uzito kwenye kituo cha afya?

1. Ndio

2. La

23. Ikiwa jibu ni, “ndio” kwa swali lililoulizwa hapo juu, uliomba ruhusa hiyo kutoka kwa nani ?

1. Mume wangu
2. Mjomba
3. Mama
4. Mama mkwe
5. Eleza kama si kati yayaliyotajwa hapo juu

24. Je, ulipanga kupata mimba?

1. Ndio
2. La

25. Ikiwa umejibu, “La” hapo juukuna jambo lolote lililo kushawishi upate mimba?

1. Mume wangu alinilazimisha
2. Nilipata bila kutarajia
3. Nyanya alitaka wajukuu zaidi
4. Eleza kama si kati yaliyotajwa hapo juu

26. Je ,mwanamke mja mzito anastahili kutembelea kituo cha afya mara ngapi kutafuta huduma za wanawake wajawazito?

1. Moja
2. Mbili
3. Tatu
4. Nne
5. Zaidi ya mara nne

27. Je, Ulitembelea kituo cha afya kwa huduma za wanawake wawazito mara ngapi ulipokuwa na mimba?

1. Moja
2. Mbili
3. Tatu
4. Nne
5. Eleza kama si kati ya yaliyotajwa

28. Je ,ulianza huduma zinazopewa akina mama waja wazito ulipokuwa na mimba ya miezi mingapi?

1. 0-3(wiki 0-12)
2. 4-6(wiki13-24)
3. 7-9(wiki 25-36)
4. Nimesahau

29. Je ,ulipotembelea kituo cha afya kutafuta huduma hizo,ulifanyiwa uchunguzi ufuatayo. nakili uchunguzi ulifanywa mara ngapi (tumia kadi ya kliniki)

1. Uzito
2. Urefu
3. Kupimwa kasi ya damu
4. Mkojo
5. Kutolewa damu
6. Kupimwa mdundo wa moyo wa mtoto
7. Kuchunguzwa macho
8. kupimwa virusi vya ukimwi (HIV)

30. Je, ulitumia dawa zozote za kujikinga na malaria ulipokuwa mja mzito? (kama dawa ilitumiwa ikiwa mama mjamzito alikuwa akiugua malaria usinakili)

1. Ndio
2. La

31. Je, ulitumia dawa za kuongeza damu mwilini?(onyesha sampuli ya dawa)

1. Ndio
2. La

32. Je, umepata kudungwa sindano inayo kinga mtoto kupata ugonjwa wa pepo punda?

1. Ndio
2. La

33. Je, una lala ndani ya neti?

1. Ndio
2. La

34. Je, unakumbuka kama ulipata shida zozote ulipokuwa mja mzito?

1. Ndio
2. La

35. Taja dalili hizo (usisome dalili,ila mshiriki akitaja weka alama pahali pafao)

1. Damu kutoka sehemu za siri
2. Kichwa kuuma sana
3. Kupumua kwa shida
4. Mtoto kupunguza kucheza/kutocheza
5. Mkojo kutoka kwa uchungu
6. Kutapikakwakupitakiasi
7. Vidonda katika sehemu za siri
8. Kuchoka kwa haraka/kusikia kisunzi



Appendix F: Key Informant Interview Guide

DETERMINANTS OF UTILIZATION OF SKILLED BIRTH ATTENDANCE, BAMBA DIVISION, KILIFI COUNTY

Participant no-----

Date-----

Name of interviewer-----

INSTRUCTIONS

- a. Explain the purpose of the interview to the key informant
- b. Ask for permission to record the discussion proceedings
- c. Use the guide to stay within the subject matter
- d. There is no wrong or right answer in this discussion

General Questions

1. In this community how is the health seeking behavior of women
 - In relation to ANC
 - Delivery care
2. What are your comments on the utilization of these services; ANC and skilled attended births by the women of this community
(Probe if perceived as optimal or suboptimal)
3. What hinders or facilitates utilization of skilled attendance at birth
 - I. Are there any traditional beliefs or customs that hinders women from utilizing care during pregnancy and at birth
 - II. Accessibility and availability of health facilities in the community
 - III. Other factors

4. What kind of community support do you have for facilitating any pregnancy related emergencies

Health care workers

5. How common are these conditions in this community?
 - I. Pregnancy emergencies -home deliveries ,obstructed labour, deliveries on the way)
 - II. Maternal deaths
 - III. Neonatal deaths
6. What measures can be taken to prevent the above stated conditions in the community? (probe)

Appendix G: Focus Group Discussion Guide (English)

**DETERMINANTS OF UTILIZATION OF SKILLED BIRTH ATTENDANCE,
BAMBA DIVISION, KILIFI COUNTY**

Group no & age-----

Date-----

Name of moderator-----

INSTRUCTIONS

- a) Explain the purpose of the discussion to the group of women
- b) Ask for permission to record the discussion proceedings
- c) Use the guide to stay within the subject matter
- d) The group members should introduce themselves
- e) There is no wrong or right answer in this discussion and everyone is free to share their opinion, experience regarding the issues to be discussed.

Questions

- 1. Where do women in this community seek care when pregnant?
 - If TBAs probe for reasons and what services are offered by the TBAs.
 - If it's the health facility or mobile clinics, the services offered should also be mentioned.
- 2. Where do pregnant women seek delivery services
 - TBA give reasons
 - Health facility (probe)
- 3. Is there any importance in utilizing
 - ANC
 - SBA/ Health facility delivery

4. Are there any traditional beliefs and or practices in this community?
 - Regarding pregnancy
 - Delivery
5. Are there any problems /challenges experienced by pregnant women when seeking;
 - ANC
 - Skilled birth attendance
6. What do you think can be done to improve the problems discussed;
 - ANC
 - SBA
7. How does the community get information on health issues?
 - Channels of communication
8. Do men of this community support their wives ;
 - during the period of pregnancy until delivery
 - How do they help?
9. Are there any other issues that the community is currently facing?

Appendix H: Mwongozo Wa Mahojiano Wa Vikundi

**UTAFITI KUHUSU VIZUIZI VINAVYO WAFANYA KINA MAMA WAJA
WAZITO KUKOSA KUTUMIA HUDUMA ZA UZAZI ZINAZOTOLEWA NA
WAKUNGA WALIO HITIMU**

Nambari ya kikundi kinachohojiwa-----

Tarehe ya usajili -----

Nambari ya nyumba/ruji-----

Jina la anaye hoji-----

Maagizo ya anayetekeleza mahojiano

- a) Eleza umuhimu wa mahojiano haya kwa akina mama wanaohojiwa.
- b) Omba ruhusa ya kushiriki kwenye mahojiano kabla ya kuanza na ruhusa ya kunakili mjadala.
- c) Tumia mwongozo huu kuendesha mahojiano
- d) Hamna jibu sahihi au jibu lisilofaa, hivyo basi kila mmoja wenu awe huru kuchangia maada hii wakati wowote

Maswali

1. Wanawake katika jamii hutumia huduma zifuatazo wakiwa waja wazito
 - huduma za Wakunga wa kienyeji, watoe sababu na pia waeleze zile huduma wanazozipata kwa wakunga wakienji
 - Ikiwa huenda kwenye vituo vya afya pia waeleze ni huduma zipi wanazozipata huko
2. Wanawake waja wazito hupata wapi huduma za wakunga wakati wa kujifungua
 - Ikiwa ni kwa wakunga wa kienyeji waeleze zaidi
 - Ikiwa ni kwenye vituo vya afya , waeleze zaidi
3. Je, kuna umuhimu wa kutumia huduma zifuatazo;
 - Huduma za akina mama waja wazito

- Wakunga waliohitimu/ kuzaalia kwenye kituo cha afya
4. Kunauwezekano kuwa Katika jamii hii kuna mila na tamaduni
 - Kuhusu uja uzito
 - Kujifungua/ kuzaa
 5. Je kuna changamoto zozote zinazo wakumba akina mama waja wazito wakati wakitafuta huduma zifuatazo;
 - Huduma za akina mama waja wazito
 - Wakunga waliohitimu
 6. Je, kulingana na maoni yako, mambo gani yanaweza kuboresha changamoto ulizozitaja hapo juu kuhusiana ;
 - Huduma za akina mama waja wazito
 - Wakunga waliohitimu
 7. Je, jamii hii hupata maalezo ama matangazo ya afya kupitia njia gani
 8. Je wanaume katika jamii hujihusisha vipi na wake zao;
 - Wakati wa uja uzito hadi wanapo jifungua
 - Wanaume husaidia vipi?
 9. Je kuna mambo / changamoto zozote zinazo kumba jamii hii

Appendix I: Pearson Chi-Square Results on the Study Variables

Variable	Frequencies	Pearson value	p-value
Maternal age		10.372	0.005
18-27years	144(55.4%)		
28-37years	102(39.2%)		
38-49years	14(5.4%)		
Parity		14.341	0.001
1-2	68(26.2%)		
3-4	83(31.9%)		
Above 4	109(41.9%)		
Marital status		4.392	0.222
Married	241(92.7%)		
Single	10(3.8%)		
Divorced	5(1.9%)		
Widow	4(1.5%)		
Religion		4.218	0.121
Christian	125(48.1%)		
Muslim	43(16.5%)		
No religion	92(35.4%)		
Education level		18.502	0.001
No education	156(60.0%)		
Primary	100(38.6%)		
Secondary	2(0.8%)		
College	2(0.8%)		
Husband education level		2.433	0.487
No education	46(18.9%)		
Primary	172(70.8%)		
Secondary	23(9.5%)		
College	2(0.8%)		
Maternal occupation		10.489	0.033
Business	30(11.5%)		
Skilled trader	7(2.7%)		
Unskilled	47(18.1%)		
Subsistent farmer	176(67.7%)		

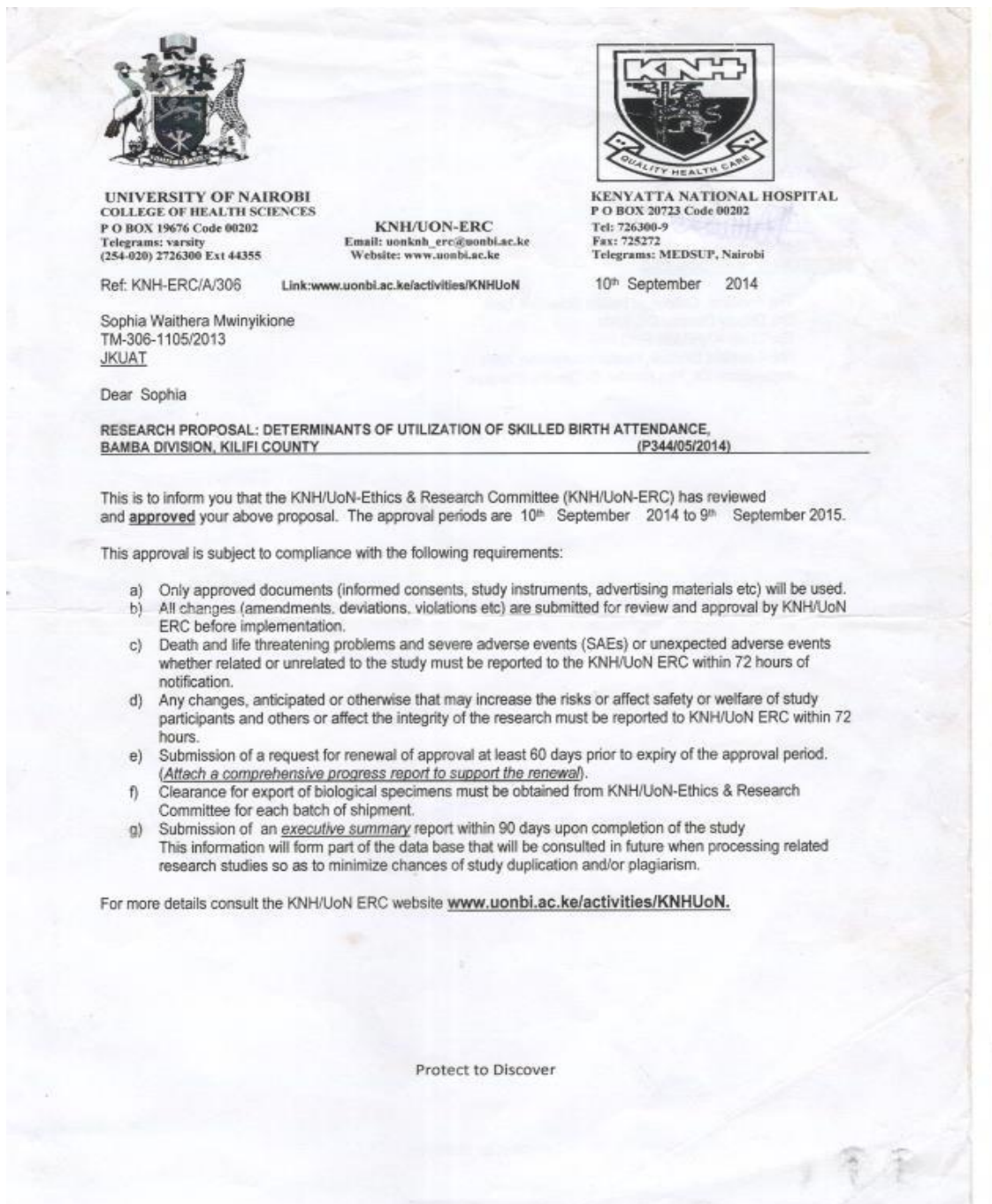
Appendix J: Continuation of the Pearson Chi-Square Results

Monthly income			
Below 1000	156(60.0%)	8.892	0.064
1001-2000	50(19.2%)		
2001-5000	25(9.6%)		
Above 5000	11(4.2%)		
I do not know	18(6.9%)		
Distance		38.927	0.001
0-2km	11(4.2%)		
3-5km	52(20%)		
6-10km	61(23.5%)		
More than 10km	136(52.3%)		
Pregnancy problem		50.673	0.001
Yes	62(23.8%)		
No	198(76.2%)		
Pregnancy planned		5.061	0.024
Yes	101(38.8%)		
No	159(61.2%)		
Difficult labour		83.650	0.001
Yes	67(28.8%)		
No	166(71.2%)		
Start of ANC		0.924	0.630
0-3MNTHS	55(21.3%)		
4-6mnths	155(60.1%)		
7-9mnths	48(18.6%)		
Mosquito net use		7.385	0.007
Yes	223(85.8)		
No	37(14.2)		
Tetanus injection		1.958	0.152
Yes	196(76.0%)		
No	62(24.0%)		
Iron folic drugs			
Yes	228(88.4%)	0.884	0.347
No	30(11.6%)		
Malaria drugs		3.634	0.054
Yes	242(93.8%)		
No	16(6.2%)		

Appendix K: Logistic Regression of Some Study Variables

Variable	frequencies	Univariate analysis OR(95% CI of OR)	Multivariate analysis
Maternal age		0.006	0.107
18-27years	144(55.4%)	1.286(0.210-7.878)	0.105(0.007-1.626)
28-37years	102(39.2%)	3.261(0.510-20.865)	0.043(0.003-0.712)
38-49years	14(5.4%)		
Parity		0.001	0.114
1-2	68(26.2%)	3.111(1.663-5.854)	3.070(0.765-12.314)
3-4	83(31.9%)	4.980(2.782-8.921)	1.399(0.461-4.242)
Above 4	109(41.9%)		
Distance		0.004	0.001
0-2km	11(4.2%)	4.8(0.601-38.505)	87.400(6.928-1102.645)
3-5km	52(20%)	14.3(6.903- 30.017)	38.776(10.026-149.963)
6-10km	61(23.5%)	49.4(26.702-91.606)	6.282(1.787-22.082)
More than 10km	136(52.3%)		
Pregnancy problem		0.000	0.000
Yes	62(23.8%)	8.10(0.360-18.012)	17.924(4.737-67.828)
No	198(76.2%)		
Pregnancy planned		0.022	0.056
Yes	101(38.8%)	5.541(3.341-9.172)	2.633(0.975-7.109)
No	159(61.2%)		
Difficult labour		0.001	0.001
Yes	67(28.8%)	33.12(13.012-83.45)	148.494(30.208-729.949)
No	166(71.2%)		
Mosquito net use		0.008	0.018
Yes	223(85.8)	3.540(1.64-7.66)	6.544(1.383-30.970)
No	37(14.2)		

Appendix L: Ethical Approval



Yours sincerely



PROF. M.L. CHINDIA
SECRETARY, KNH/UON-ERC

- c.c. The Principal, College of Health Sciences, UoN
 The Deputy Director CS, KNH
 The Chair, KNH/UoN-ERC
 The Assistant Director, Health Information, KNH
 Supervisors: Dr. Yeri Kombe, Dr. Drusilla Makworo

Protect to Discover



THE COUNTY GOVERNMENT OF KILIFI
OFFICE OF THE COUNTY HEALTH EXECUTIVE SECRETARY

Telephone: 0712881963
0738534479

Email: OSwabah@gmail.com
oswabah@kilifi.go.ke

When Replying/Telephoning quote
REF: DOH/KLF/RESCH/VOL.I/16

P.O. BOX 519
KILIFI, KENYA

Date 22 October 2014

SOPHIA WAIHERA MWINYIKIONE
PO Box 273-80108
Kilifi
waihera.soffy@gmail.com

Dear Madam,

RE: Authorization to Carry Out Study in Bamba Division, Kilifi County

The Research Committee of the Department of Health, Kilifi County, has received your request to carry out a study entitled **"DETERMINANTS OF UTILIZATION OF SKILLED BIRTH ATTENDANCE, BAMBA DIVISION, KILIFI COUNTY"**.

After going through the proposal, we grant approval to proceed with your research. This should not exceed a time period of 90 days. Please note you can always ask for an extension, should you need it.

Upon completion of the study, you will be required to share the results with the county health management team.

Good luck!

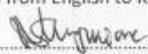

Dr Barbara Mambwa


Research Co-ordinator/Chairperson

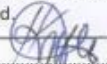
Kilifi County Department of Health

Translation certificate

I SOPHIA MWINYIKON^E has translated the questionnaire, Focus Group Discussions guide and Consent form from English to Kiswahili.

Signature  Date 25/5/14

I  DR. YERI KOMBE
Has confirmed that the translations done by the above person from English to Kiswahili have the same meaning and when translated back to English consistency in the meanings is maintained.

Signature  Date 26/5/14

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

IRB CHAIR CURRICULUM COMPLETION REPORT

Printed on 01/21/2014

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EXPIRATION DATE 09/13/2014

IRB CHAIR
COURSE/STAGE: Basic Course/1
PASSED ON: 09/13/2013
REFERENCE ID: 11275519

REQUIRED MODULES	DATE COMPLETED	SCORE
Role and Responsibilities of an IRB Chair	09/12/13	4/4 (100%)
IRB Chair Meeting Responsibilities	09/12/13	3/4 (75%)
The IRB Chair's Role Outside of the IRB Meeting	09/13/13	4/5 (80%)

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiler Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

Appendix M: Map of study Area

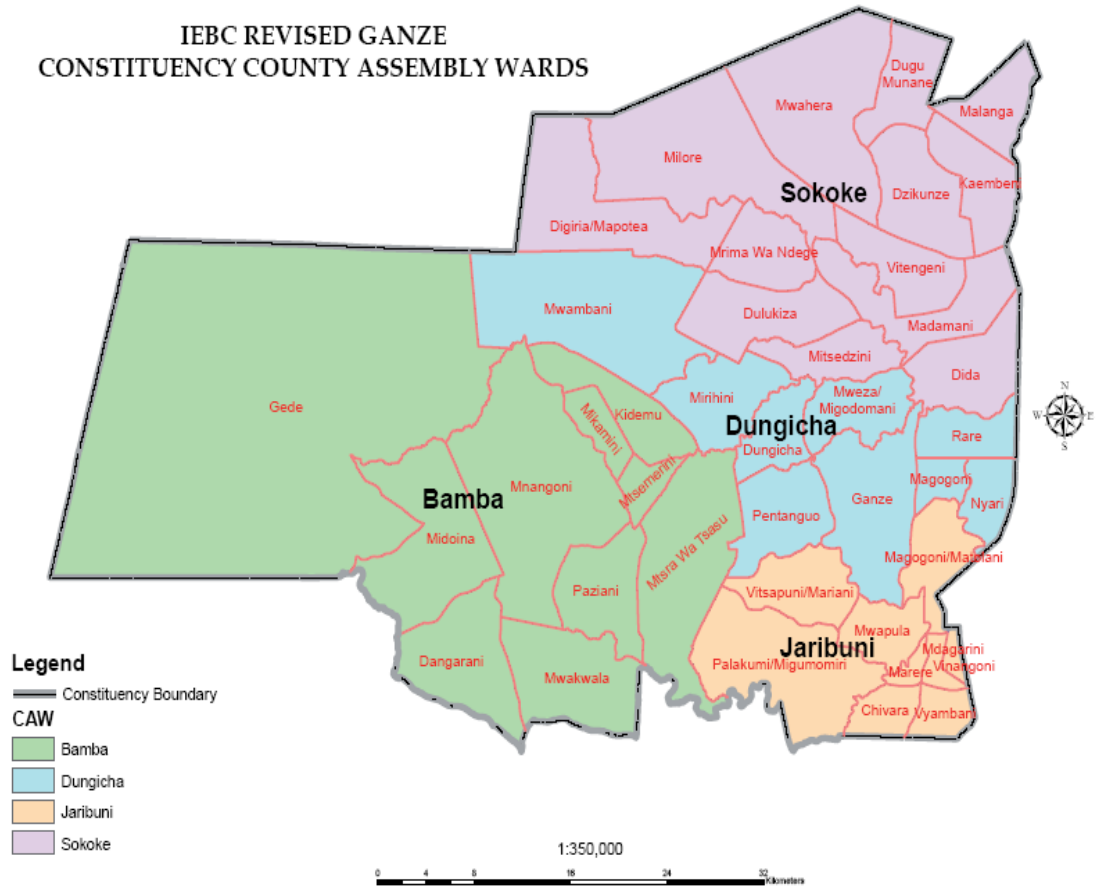


Figure A.1:Source- IEBC boundary map

Appendix N: Research Article Publication

International Journal of Community Medicine and Public Health Mwinyikione SW et al. <i>Int J Community Med Public Health</i> . 2016 Jun;3(6):1495-1502 http://www.ijcmph.com		pISSN 2394-6032 eISSN 2394-6040	
Research Article		DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20161618	
A quantitative study on the determinants of utilization of skilled birth attendance, Bamba division, Kilifi			
Sophia W. Mwinyikione^{1*}, Yeri Kombe², Drusilla Makworo³			
¹ Department of Public Health, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya ² Kenya Medical Research Institute, Nairobi, Kenya ³ Jomo Kenyatta University of Agriculture and Technology-College of Health Sciences, Nairobi, Kenya			
Received: 04 April 2016 Accepted: 07 May 2016			
*Correspondence: Dr. Sophia W. Mwinyikione, E-mail: waihera.soffy@gmail.com			
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ABSTRACT Background: Improving maternal health by three quarters is the fifth millennium development goal that is set to be achieved through the provision of skilled attendance during delivery. However, the proportion of Skilled Birth Attendance (SBA) is generally poor in most developing countries, including Kenya with an estimate of 43%. This study aimed at determining the factors associated with the utilization of SBA among women 18 to 49 years of age, who had delivered within the last 12 months. Methods: This study was a population based cross sectional study conducted in Bamba division. It used a structured questionnaire where random selection of households was done. Logistic regression of multiple factors was done to identify the determinants of SBA. Results: A total of 286 women participated in the survey and 47.2% of them sought skilled care in the health facilities while 52.8% delivered at home under unskilled care. The questionnaire identified factors such as distance (OR=73.195, 95% CI=5.993-873.936), pregnancy problems (OR=6.389, 95% CI=2.057-19.844), mosquito net use (OR=6.389, 95% CI=2.057-19.844) and prolonged labour (OR=110.671, 95% CI=24.618-497.523) to be highly significant with SBA. Conclusions: This study confirmed that the proportion of women seeking SBA was still low. Long distance to the health facility was the most significant predictor of SBA. Therefore more effort should be put in addressing long distances to the health facilities in order to ensure that SBA is embraced by women. Keywords: Maternal mortality ratio, Skilled birth attendance, Unskilled birth attendance, Maternal health			
INTRODUCTION		highest at 500 maternal deaths per 100,000 live births while eastern Asia had the lowest MMR of 37 per 100,000 live births. In addition Southern Asia had 220 maternal deaths per 100,000 and Western Asia had MMR of 71 per 100,000 live births. ¹ In Kenya the MMR is estimated at 488 maternal deaths per 100,000 live births which present an increase from 414/100,000 live births in 2003 as per the 2008/2009 KDHS report. An estimate of 8,000 women die annually due to pregnancy related complications. ² Skilled birth attendance is among the indicators established for monitoring the achievements of	
Globally, there were an estimated 287 000 maternal deaths in 2010, yielding a maternal mortality ratio (MMR) of 210 maternal deaths per 100,000 live births. The developing countries account for 99% (284,000) of the global maternal deaths, majority of which are in sub-saharan Africa (162 000) and Southern Asia (83 000). The MMR of 240 per 100,000 live births in developing regions is 15 times higher than 16 per 100,000 in developed regions. The MMR in sub-saharan Africa was			
International Journal of Community Medicine and Public Health June 2016 Vol 3 Issue 6 Page 1495			

the MDG 5.³ Skilled delivery care prevents both direct and indirect causes of maternal deaths such as, infection, shock, blood loss, convulsions and surgical procedures such as caesarean delivery. Use of skilled attendance at birth was reported to reduce maternal mortality rate by a range of 13% to 33%.^{4,5} Globally, during the period 2005 to 2012, 70% of women were assisted by a skilled attendant during birth. However access to skilled care is lowest in the WHO South East Asia and African regions with low income countries reporting 47% coverage of skilled attendant at delivery compared with 60% in lower middle income countries and 99% in upper middle income countries.³ In addition, skilled attendance at birth in Kenya was estimated at 43% according to the Kenya Demographic and Health Survey (KDHS), 2008/2009.⁷

The low utilization of care during delivery may be responsible for the poor maternal health outcomes experienced in the country. The introduction of free maternity service in Kenyan health facilities is expected to address the poor maternal health outcomes experienced and the inequitable access to maternity care across women of different socio-economic groups. Evidence reveals that, user fees delay care, may contribute to inappropriate home treatment, food and economic insecurity among others.^{8,9} Currently, 56% of deliveries are not attended by skilled health professionals as per the 2008/2009 report.² Hence the free maternity programme in government facilities is expected to increase utilization of skilled attendance at birth. Skilled attendance at birth is important in the prevention of maternal deaths and the exemption of user fees is a step towards achieving the fifth millennium development goal.³ In spite of undoubted progress towards greater coverage rates, however, studies done in African countries have shown that women continue not to attend ANC services and not to seek skilled attendance at birth even after the exemption of user fees.^{10,11} This has been attributed to long distances to the health facilities, unavailability of drugs, limited health care workers and cultural practices.^{10,11}

It is therefore important to understand who continues to remain excluded from access to maternal care services and determine factors that are associated with the utilization of skilled attendance at birth.

METHODS

This study was done in Bamba division in Garze constituency within Kilifi county. It covers an area of 1,532.70 sq.km. Bamba division has a population of about 45,563 of which an estimate of 10,373 are women of child bearing age 15-49 years.¹² The main ethnic group living in the study area are the Giriama. It has five locations including Bamba, Misara wa Tsutsu, Ndigiria, Bandari and Mitangani with a total of 14 sub-locations and three Ministry of Health facilities (MOH) and two private owned health facilities. Farming is a major economic activity and it includes maize production, coconuts, cashew nuts, cassava and local cattle rearing with a few goats.¹³

This was a population based cross sectional study and the study population constituted women of reproductive age (18-49) years, who had delivered during the last twelve months prior to the study and who had or not had a living child. The sample size was calculated using fisher's formula based on the prevalence of skilled attendance at birth taken to be 21.6% (according to Kilifi HMES July 2010 to June 2011. Multi-stage sampling was used, one location was randomly selected and the list with the number of population clusters was used as a sampling frame.

Random households were selected and included in the study and if any of the selected households did not have women who met the study inclusion criteria they were replaced by using Ms Excel generated random numbers until the target sample size was reached. In each selected household, all women who delivered within the last twelve months prior to the study were included after giving their consent. In cases where more than one wife was in a household, each woman was considered separately as long as they met the study inclusion criteria regardless of whether they were cooking from one pot.

Ethical clearance was given by KINH/UN Ethical clearance committee and permission to collect data in Bamba division was given by the Kilifi county department of health. Informed Consent was sought from the study participants who met the study inclusion criteria and enrolment was based on whether they agreed to take part by signing the informed consent form. A structured questionnaire was used that was administered by the researcher and research assistants, the questionnaire was originally prepared in English and translated to Kiswahili to allow ease in the data collection process.

Respondents were asked on social demographic characteristics (age, place of residence, parity, religion, marital status, level of education), access factors (distance to the health facility, means of transport) and perceived benefit (pregnancy wanted, initiation of ANC visits, no. of ANC visits, previous facility use). Data captured in questionnaires was entered in Epi info version 7 for data cleaning and data imported to SPSS vs. 20 for analysis. The dependent variable was Skilled Birth Attendance and according to this study those women who delivered in the health facility were coded as one while those who delivered outside the health facility coded as zero. Descriptive statistics and Pearson chi-square tests were done on all study variables. Univariate and multivariate logistic regression done on some selected factors.

RESULTS

A total of 286 respondents were interviewed representing a response rate of 100%. This was possible because the questionnaires were administered by the researcher and research assistants. Majority of the respondents were aged between 18-29 years (70.3%) and most of the respondents (40.9%) had more than five children. On

religion, almost half of the participants had embraced Christianity (n=141, 49.3%), those with no religion were 97, (33.9%) and those who were Muslims comprised 16.8 % (n=48). Slightly more than half (57%, n=163) of the participants had no education and only 2% had college education. Farming was the most famous occupation followed by manual laborers and those in small business. Majority (65%) earned less than 1000 Kenya shillings. The distance between participant's home and the health facility ranged from within 30 minute walk and over two hours. Majority (75.9%) of the participants lived more than 5km from health facility (Table 1).

Health seeking behaviour of respondents

The women who either delivered at home or on the way were 151 (52.8%) while 135 (47.2%) delivered in the health facility. Among the home deliveries, 97 (33.92%) were conducted by relatives, 42 (14.7%) by TBAs and 12 (4.2%) by self. The deliveries conducted by skilled attendants were 135 (47.2%). The most common cited

reason for seeking traditional birth attendants was their nearness to the respondent's home (Table 2).

Univariate analysis: Further analysis using univariate logistic regression was done on the variables that showed some relevance with delivering in the health facility after chi-square tests were done. Some factors were found to be independently significant with the utilization of skilled care at birth (Table 3).

Women with previous prolonged or difficult labour were thirty times more likely to deliver in a health facility than those who had no difficult labour during delivery (OR=30.667, 95% CI=12.481-75.350). Distance between the participants homes and the health facility was another interesting finding where women living 0-2 km had a 21 times probability of seeking skilled assistance in the health facility than those women living more than 10 km (OR=21.636, 95% CI=4.672-100.191) among others as indicated in Table 3.

Table 1: Descriptive statistics of the socio-demographic characteristics of the respondents.

Variable	Frequency (%), n = 286	Variable	Frequency, n = 286
Social-demographic factors		Husband education	
Maternal age		No education	51(17.8%)
18-29years	201 (70.3%)	Primary	192(67.1%)
30-39years	79 (27.6%)	Secondary	24(8.4%)
40-45years	6 (2.1%)	College	1(0.3%)
Parity		Maternal occupation	
1-2	76 (26.6%)	Business	37(12.9%)
3-4	93 (32.5%)	Skilled	8(2.8%)
Above5	117 (40.9%)	Unskilled	54(18.9%)
Marital status		Farmer	184(64.3%)
Married	267(93.4%)	Housewife	3(1.0%)
Single	10(3.5%)	Husband occupation	
Divorced	4(1.4%)	Business	44(15.4%)
Widowed	5(1.7%)	Skilled	53(18.5%)
Location/place of residence		Farmer	42(14.7%)
Pazani	71(24.8%)	Unskilled	128(44.8%)
Chapungu	73(25.5%)	Monthly income	
Maryango	71(24.8%)	Below1000	186(65%)
Mwakwala	71(24.8%)	1001-2000	58(20.3%)
Religion		2001-5000	28(9.6%)
Christian	141(49.3%)	Above5000	14(4.9%)
Muslim	48(16.8%)		
Traditional/no religion	97(33.9%)		
Maternal education			
No education	163(57.0%)		
Primary	118(41.3)		
Secondary	3(1.0%)		
College	2(0.7%)		

Multivariate analysis: Binary logistic regression of multiple factors using forward selection method was done on the eight factors that were found to be independently significant with the utilization of SBA. Only four out of the eight were significant (as shown in table 3). Women who had some difficulty in their previous labour (AOR=110.671, 95% CI=24.618-497.523) were more likely to deliver in the health facility than those who did not experience prolonged/ difficult labour. Distance from

the participants home and the health facility was also found to be a strong predictor of SBA, women living below 2 km had a 73 times likelihood of using skilled attendance at birth (AOR=73.195, 95% CI=5.993-873.936) than those living more than 10 km. Women who experienced problems during the pregnancy and those who reported to use mosquito nets were more likely to seek skilled attendance (Table 3).

Table 2: Descriptive statistics of variables on health seeking behaviour of women.

Variable	Frequency	Variable	Frequency
Assistance at birth		ANC visits made	
Nurse	110 (38.5%)	One	10 (3.5%)
Midwife	25 (8.7%)	Two	33 (11.5%)
TBA	42 (14.7%)	Three	73 (25.3%)
Relatives	97 (33.02%)	Four & above	168 (58.7%)
Self	12 (4.2%)	Initiation of ANC Visits	
Reasons for TBA		0-3months	58(20.3%)
Near to my house	32 (11.2%)	4-6months	172(60.1%)
I can able to look after my family	6 (2.1)	7-9months	54 (18.9%)
All the other deliveries were successful	4 (1.4%)	ANC tests done	
Means of transport		Good(tests done for at least 3times)	135 (47.2%)
Foot	28 (9.1%)	Poor(tests done for less than 3 times)	149 (52.1%)
Bicycle	5 (1.7%)	Malaria drugs	
Motorbike	96 (33.6%)	Yes	268 (93.7%)
Car	8 (2.8%)	No	16 (5.6%)
Previous Prolonged/difficult labour		Iron folic drugs	
Yes	70 (24.5%)	Yes	253 (88.5%)
No	186 (65%)	No	31 (10.8%)
ANC services		Tetanus jab	
Yes	283 (99%)	Yes	217 (75.9%)
No	3 (1.0%)	No	67 (23.4%)
If yes places sought		Mosquito net use	
GHK clinic	282 (98.6%)	Yes	248 (86.7%)
Private	2 (0.7%)	No	38 (13.3%)
Permission sought		Pregnancy problems	
Yes	107 (37.4%)	Yes	69 (24.1%)
No	177 (61.9%)	No	217 (75.9%)
If yes by whom		Pregnancy problems experienced	
Husband	99 (34.6%)	Vaginal bleeding	12 (4.2)
Mother	2 (0.7%)	Severe headache	4 (1.4%)
Mum-in-law	6 (2.1%)	Painful urination	1 (0.3%)
Pregnancyplanned		Severe vomiting	1 (0.3%)
Yes	105 (36.7%)	Genital ulcers	2 (0.7%)
No	181 (63.3%)	Body weakness	9 (3.1%)
If not,give reasons		Abdominal pains	19 (6.8%)
Husband forced me	4 (1.4%)	Flatulence	6 (2.1%)
Accidentally conceived	152 (53.1%)	Difficulty in breathing	5 (1.7%)
God's plan	26 (9.1%)	Less baby movements	10 (3.6%)
Mother	2 (0.7%)	Severe headache	4 (1.4%)
required ANC visits			
Three	16 (5.6%)		
Four & above	220 (76.9%)		
I do not know	50 (17.5%)		

Table 3: Univariate analysis and multivariate analysis of some selected study factors.

Variable	Frequency n=286 (%)	OR& (95% CI of OR)	Multivariate analysis-AOR
Social-demographic factors			
Maternal age			
18-29years	201 (70.3%)	1.161 (0.229-5.892)	
30-39years	79 (27.6%)	0.436 (0.082-2.319)	
40-45years	6 (2.1%)		
Parity			
1-2	76 (26.6%)	3.241 (1.776-5.916)	
3-4	93 (32.5%)	2.227 (1.272-3.899)	
Above 5	117 (40.9%)		
Location/place of residence			
Pazani	71 (24.8%)	4.087(2.031-8.223)	
Chapungu	73 (25.5%)	1.707 (0.871-3.347)	
Maryango	71 (24.8%)	1.352 (0.683-2.676)	
Mwakwala	71 (24.8%)		
Maternal education			
No education	163 (56.9%)	2.438 (1.551-3.832)	
Primary/others	123 (43.01%)		
Monthly income			
Below1000	186 (65%)	0.295 (0.089-0.976)	
1001-2000	58 (20.3%)	0.325 (0.091-1.157)	
2001-5000	28 (9.6%)	1.000 (0.242-4.138)	
Above5000	14 (4.9%)		
Other factors			
Distance			
0-2km	16 (5.6%)	21.636 (4.672-100.191)	73.195 (5.993-873.936)
3-5km	53 (18.5%)	11.802 (5.458-25.520)	64.428 (9.651-430.095)
6-10km	82 (28.7%)	3.949 (2.196-7.102)	12.964 (2.871-58.531)
More than 10km	135 (47.2%)		
Previous Prolonged/difficult labour			
Yes		30.667 (12.481-75.350)	110.671 (24.618-497.523)
No			
Pregnancy planned			
Yes	105 (36.7%)	1.772 (1.090-2.880)	
No	181 (63.3%)		
Mosquito net use			
Yes	248 (86.7%)	2.846 (1.326-6.107)	5.903 (1.203-28.962)
No	38 (13.3%)		
Pregnancy problems			
Yes	69 (24.1%)	8.465 (4.282-16.733)	6.389 (2.057-19.844)
No	217 (75.9%)		
Pregnancy problems			
Yes	69 (24.1%)	8.465 (4.282-16.733)	6.389 (2.057-19.844)
No	217 (75.9%)		

DISCUSSION

This study established that the proportion of women delivering in the health facility and those having skilled care at birth was 47.2% while 52.8% delivered under unskilled care. Majority of the home births were delivered by relatives 97 (33.92%). The low SBA results are also similar to other studies done in other countries

such as Ethiopia and Tanzania and also comparable to studies done in other parts of the country such as Western Kenya and Nyandarua South District.^(6,20) More women should be encouraged to seek care in the health facilities since unskilled birth attendants are more preferred in the locality. These estimates are low when compared to the WHO estimates and KDHS survey. Globally, the proportion of births attended by a skilled health personnel

from 2007-2014 was estimated to be 74%. In the European and American region SBA was estimated at 98% and 96% respectively, 68% in South East Asia, 67% in Eastern Mediterranean.

While in the who african region 51% of women delivered under skilled personnel, which is lower compared to other regions.²¹ In Kenya according to the most recent KDHS survey 2014 SBA and health facility deliveries nationally were 62% and 61%, in Coast region were 58.2% and 57.7% while in Kilifi county were 52.3% and 52.6% respectively.²²

This study did not find education of both the woman and the spouse to affect whether a woman delivered at the health facility because of high illiteracy levels that exists in the study area. This is contrary to most studies that found that women with no education were found to be more likely to use unskilled care at birth compared to those who had primary or more education.^{11,20,27,28,31,32}

Younger women below thirty years were positively associated with the utilization of SBA than those above thirty years. The possible reason was that the older women were more experienced in giving birth and perceived skilled care as unnecessary, this was also revealed in other studies.^{10,11,18,20,23,24,26,27,28}

Lower parity women were more likely to deliver in the health facilities under skilled care compared to those who had three and more children. The possible reasons; women who were giving birth for the first time might be younger and have better understanding about the benefits of delivering in the health facility, less experienced in the birthing process thus fears about the possibility of a difficult labour may motivate them to seek skilled delivery care.^{11,18,20,26,29}

Low income was negatively associated with skilled care though charges for giving birth in the health facilities were abolished by the government. The possible reason was that transport charges were high and they also could not meet some additional charges that were required by the hospital.^{11,20,27,28}

This study did not find an association between marital status and seeking delivery care in the health facilities. This was contrary to other study findings that established that married women were more likely to seek care during delivery than single women who may feel ashamed to deliver in the hospital.^{16,30}

The utilization of ANC services among the study participants was also found not to influence the seeking of skilled care at the health facility. This was contrary to other studies that established that women who had utilized and had the highest number of ANC visits were more likely to deliver in the health facility.^{28,29} Access to the health facility was a strong factor that associated with SBA, women who lived within 0-2 kilometres from the

health facility were more likely to deliver in the health facility while those living more than 10 kms mostly had home deliveries. Similar results were observed in other studies, for instance, lack of transport and living more than one hour walking distance led to 80% of women delivering outside the health facility.^{10,11,17,18,25,26,31}

Women who had a history of prolonged or difficult labour were likely to deliver in the health facility. This was also established in other studies.^{25,27} Another finding was that women who planned to have the pregnancy were more likely to have safe births under skilled care than those who had unplanned pregnancies.^{32,33}

This study also established that women who had experienced some health related issues during the pregnancy period sought skilled delivery care in the health facilities. This result was comparable to other studies.^{10,20,31}

In addition, mosquito net use among women was found to be a positive factor to the use of skilled attendance at birth. The possible reason for the finding is that women who had and were using a mosquito net were more knowledgeable on the importance of preventing themselves from contracting malaria and were also aware of the benefits of seeking skilled care during delivery.

Certain study limitations were inevitable, the cross sectional nature of data collection could only provide evidence of statistical associations between independent variables and the use of skilled delivery care at birth and cannot establish cause effect relationship.

Data collection was based on self-report by the respondents and the validity of such responses would be uncertain. Therefore recall bias would affect the validity of the findings and to minimize this mother and baby booklet was used to verify the verbal responses from the respondents.

Data collection was done partly by research assistants and this may have brought about a certain degree of interview variation. To minimize this effect, the research assistants were trained before data collection. During the sampling process, long distances between homes made data collection very tiresome.

Several recommendations can be made; at the policy level the concerned parties should ensure that the health facilities are operational with all the required facilities and equipment and also more facilities to be established to curb the long distances the women have to make to seek skilled care. In addition more sensitization on the benefits of SBA should be done in the locality, adult education programs should be encouraged to ensure that the residents are literate so that they can be able to make informed decisions concerning their health. In general this study has established that women are not considerably utilizing skilled care at birth as expected

since the exemption of maternity fees by the government due to long distance to the health facility.

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