Factors Associated with Uptake of Skilled Birth Attendants' Services among Women of Reproductive Age in Garissa Town, North Eastern Kenya

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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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This thesis has been submitted for examination with our approval as university supervisors.

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DEDICATION

I dedicate this work to my family members who have supported me throughout this work. May God bless them abundantly.

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LIST OF ABBREVIATIONS

ANC	Antenatal care
CPHR	Centre for Public Health Research
FGD	Focus Group Discussion
HIV	Human Immunodeficiency Virus
KDHS	Kenya Demographic Health Survey
KEMRI	Kenya Medical Research Institute
KNBS	Kenya National Bureau of Statistics
MCH	Maternal and Child Health
MDG	Millennium Development Goal
MOH	Ministry Of Health
MS	Microsoft
NGO	Non-Governmental Organization
NHSSP	National Health Sector Strategic Plan
NRHS	National Reproductive Health Strategy
SPSS	Statistical Package for Social Sciences
SSC	Scientific Steering Committee
TBA	Traditional Birth Attendants
UD	Undefined
UNFPA	United Nation Population Fund
UNICEF	United Nation Children's Fund
WHO	World Health Organization

OPERATIONAL DEFINITIONS

Maternal health

According to WHO, maternal health refers to the health of a woman during pregnancy, childbirth and postpartum periods

Maternal Death

According to the World Health Organization (WHO), maternal death is defined as the death of a woman while pregnant or within 42 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 or incidental causes.

Safe Motherhood

Means creating the circumstances within which a woman is enabled to choose whether she becomes pregnant and if she does, ensuring she receives care for prevention and treatment of complications in pregnancy, has access to trained birth assistance, access to Emergency Obstetric Care if she needs it, and care after birth so that she can avoid disability or death from pregnancy and birth.

Traditional Birth Attendant

According to the WHO *Alma Ata* definition, a traditional birth attendant (TBA) is a person – usually a woman – who assists the mother at child-birth and who initially acquired her skills delivering babies by herself or working with other TBAs

Skilled Birth Attendants

Skilled birth attendant is a trained midwife, nurse, nurse/midwife or doctors who have a set course of study and are registered or legally licensed to practice.

ABSTRACT

According to WHO, maternal health refers to the health of a woman during pregnancy, childbirth and postpartum periods. In the year 2013, an estimated 289,000 maternal deaths occurred worldwide, of which 99% occurred in developing country; sub- Saharan Africa alone accounted for 62% (179,000) followed by Southern Asia at 24% (69,000) of the global maternal deaths in 2013. Skilled assistance during childbirth is central to reducing maternal mortality yet the proportion of deliveries taking place in health facilities where such assistance can reliably be provided has remained below 50% in many countries. In the formers North Eastern Province of Kenya, the utilization of skilled attendants during child delivery remains low despite having the highest maternal mortality in the country. The purpose of this study was therefore to identify the factors that are associated with uptake of skilled delivery services during child-birth among women of reproductive age in Garissa town. This was a cross sectional study where primary data were collected at one point in time. The study population was women aged 15-49 years who had had at least one delivery in the past two years and have lived in Garissa for at least two years. Multistage cluster sampling was used to identify respondents for the study. Both qualitative and quantitative data were generated. Bivariate and multivariate analysis was performed where by Odds Ratio (OR) and 95% Confidence Interval (CI) were used to estimate the strength of association between the various factors and skilled delivery service uptake. The study found that 47.6% of the last deliveries among child bearing women were attended by skilled persons and 52.4% by TBAs. The predictors of skilled delivery uptake in this study were found to be: having knowledge on skilled delivery services (AOR=17.2; 95% CI: 1.05 – 281.12; p=0.046), 1-3 (AOR=116.95; 95% CI: 26.68 – 512.64; p=0.001) and 4-6 (AOR=16.75; 95% CI: 4.44 – 62.87; p=0.001) child births, encounters with previous delivery complications (AOR=11.71; 95% CI: 3.96 – 34.60; p=0.001), disapproval of TBA services (AOR=27.19; 95% CI: 6.67 – 110.76; p=0.001), lack of preference for gender of skilled delivery service provider (AOR=6.51; 95% CI: 1.08 – 39.37; p=0.041), and positive view on service related factors such as time to nearest facility (AOR=3.91; 95% CI: 1.24 –

12.34; p=0.020), hygiene (AOR=5.03; 95% CI: 1.49 – 17.05; p=0.009) and operation time of health facility (AOR=4.67; 95% CI: 1.59 – 13.76; p=0.005). It is therefore clear from the findings that cultural and maternal factors as well as quality of services at facility level play major role in determining uptake of skilled services among women in Garissa as compared to social demographic and economic factors.The findings lead to the recommendation that adequate maternal health education be provided to improve the attitudes and subjective value placed on skilled delivery service among women as well as improve services at health facility to enhance utilization of skilled delivery services. Additionally, a further reserch on the role male counterparts in SBAs' service uptake was also recommended. The findings of the study will help formulate appropriate policies and programs that will help develop better strategies to address the high maternal morbidity and mortality observed in North Easter Kenya.

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

According to the WHO, maternal health refers to the health of a woman during pregnancy, childbirth and postpartum periods (WHO, 2008). In the year 2013, an estimated 289,000 maternal deaths occurred worldwide of which 99% occurred in developing country; sub- Saharan Africa alone accounted for 62% (179,000) followed by Southern Asia at 24% (69,000) of the global maternal deaths in 2013 (WHO, UNFPA, UNICEF, The Work bank, United Nations Populations Division, 2014). The largest numbers and highest rates of maternal, neonatal, and child deaths are in countries of sub-Saharan Africa and South Asia (Bhutta and Black, 2013).

There is therefore a big gap in the status of mother's well being between the developed and developing countries (WHO, 2011b). In developed nations where women have access to basic health care, giving birth is a positive fulfilling experience. On the other hand, for many women in developing countries, it is associated with suffering, ill health and even death (Kumar *et al.*, 1997).

About 73% of all maternal deaths between 2003 and 2009 were due to direct obstetric causes while deaths due to indirect causes accounted for 27·5% of all deaths (WHO, 2014). This high maternal mortality can be addressed if the health system is strengthened (Campbell and Graham, 2006). A stronger health system would mean that health facilities are adequately available and accessible to the community. A key factor for reducing maternal mortality is the utilization of Skilled Birth Attendants' (SBAs') services during child-birth. The importance of skilled birth attendance during delivery has been reflected in the MDG 5, where the proportion of births attended by skilled health personnel is considered a key indicator. By the year 2015, the international community aims to have achieved 90% coverage of women having a skilled attendant at birth

(Adegoke *et al*., 2011). Proper medical attention and hygienic conditions specifically during delivery can reduce the risks of complications and infections that are responsible for the high morbidity and mortality to either the mother or the new born (Gross *et al.,* 2011*).* Such conditions can be provided by doctors, nurses and midwives who have the necessary midwifery skills and are classified as SBAs (Carla & Tessa, 2001).

In an effort to make skilled attendance during delivery more accessible, some countries in Asia have begun major initiatives to promote the option of home delivery with a midwife (Blum *et al*., 2006). However, there is little empirical evidence from the region to suggest that home-based care is as safe or effective as care in medical facilities. Findings from a research in Bangladesh examining the feasibility of home verses facility-based delivery highlighted the major constraints encountered during home deliveries. These included: poor transportation, inappropriate environment for delivery, insufficient supplies and equipment, lack of security, and inadequate training and medical supervision, which may prevent the provision of skilled care (Blum *et al.,* 2006). There is also inequity in the use of home based skilled care as it has been shown to be mainly used by those who are economically well off in communities due to higher cost (Chowdhury *et al.*, 2006).

In Kenya, according to Kenya Demographic Health Survey 2008/9, 44% of child-births were assisted by SBAs while 43% of the deliveries took place in a health facility. However, In North Eastern Kenyan, 32% of deliveries were assisted by SBAs of which 17% took place in a health facility showing lower uptake skilled delivery services as compared to the country's average.

The low uptake of skilled attendants' services during child delivery as compared to the rest of the country could be a major contributing factor to the high maternal mortality rate (1,000 deaths per 100,000 live births) and under-five mortality (80 deaths per 1,000 pregnancies) in North Eastern Kenya (KDHS, 2008/9).

Low uptake of SBAs' services at delivery in societies has been found to be influenced by factors such as: high cost, lack of knowledge, long distances needed to access care and high parity, among others (Bhutta *et al.,* 2009; Wanjira *et al.,* 2011).

1.2 PROBLEM STATEMENT

The maternal mortality in North Eastern Kenya is estimated to be 1000/100,000 live births, which is more than double Kenya's average of 488/100000 (KDHS, 2008/9). In Kenya, according to KDHS 2008/9, 44% of child deliveries were assisted by SBAs. In North Eastern Kenya however, only 32% of child deliveries were assisted by SBAs showing lower uptake of skilled delivery services as compared to the country's average. This is despite the fact that there is a common global consensus on the importance of SBAs during child delivery to address the high maternal mortality as reflected in the MDG5. The lower uptake of skilled attendants' services during child delivery could be a major contributing factor to the high maternal mortality in North Eastern Kenya. Adequate reference information on the causes of the observed uptake of skilled attendants' services during child delivery in North Eastern Kenya is also not available.

1.3 STUDY JUSTIFICATION

Garissa town is one of the biggest urban centers in the North Eastern Kenya and has a number of maternal health facilities such as Garissa Provincial referral hospital, which is a government health facility. There are several other privately owned clinics and nursing homes that provide maternal health services to the locals. Despite the availability of these health facilities, uptake of SBAs' services during child delivery is still low in Garissa town (Bosire, 2012). According to a health report by Bosire, a maternity wing opened in Garissa Provincial referral hospital in 2007 was projected to attract 500 deliveries in that year but had attracted only 60 deliveries over this period (Bosire, 2012). This necessitated further inquiry in to the factors that determined uptake of SBAs' services during child delivery in this area. The findings will aid in formulating

appropriate policies and programs that will inform better strategies for addressing the high maternal and newborn morbidity and mortality observed in the region.

1.4 RESEARCH QUESTIONS

1. What is the uptake of SBAs' services during child delivery among women aged 15-49 years in Garissa town?
2. What factors promote use of SBAs' services during child delivery among women aged 15-49 years in Garissa town?
3. What factors hinder use of SBAs' services during child delivery among women aged 15-49 years in Garissa town?

1.5 STUDY OBJECTIVES

1.5.1 Main objective

To identify the factors associated with uptake of SBAs' services during child delivery among women aged 15-49 in Garissa town, 2014.

1.5.2 Specific objectives

1. To identify the level of uptake of SBAs' services during child delivery among women aged 15-49 years in Garissa town.
2. To identify factors that promote use of SBAs' services during child delivery among women aged 15-49 years in Garissa town.
3. To identify factors that hinder use of SBAs' services during child delivery among women aged 15-49 years in Garissa town.

1.6 THEORETICAL FRAMEWORK

The determinants of skilled attendance at delivery have been widely studied. The three delays model was first used by Thaddeus and Maine (1994) to identify and

summarize the main factors influencing demand for skilled attendant services. They focused on the factors "that affect the interval between the onset of an obstetric complication and its outcomes" and defined three types of delay in care-seeking for obstetric emergencies: 1) delay in the decision to seek care; 2) delay in arrival at a health facility; and 3) delay in the provision of adequate care. They concluded that distance and cost were major obstacles in the decision to seek care, but also that individuals often considered the quality of care available as more important than the cost. The extent to which all three factors affected the decision-making process was ultimately also a function of illness-related factors, such as severity.

Based on a review of more than 80 articles Gabrysch and Campbell (2009) identified 20 determinants of care seeking behaviour grouped into four main areas: 1) socio-cultural factors, 2) perceived benefit/need of skilled attendance, 3) economic accessibility and 4) physical accessibility. Socio-cultural factors are believed to mainly influence decision-making on whether to seek care in the first instance and many of these factors focus on the conceptual distinction between a mother's own motivation to use health services and whether she is able to act on her wishes. They cite maternal age, marital status, ethnicity & religion, family composition, maternal education and paternal education and measures of female autonomy as factors thought to be associated with skilled delivery service use in the literature. Perceived need is a function of information available, health knowledge, perceived quality of care, ANC use, birth order, the existence of previous complications, whether the pregnancy was wanted and whether they have previously delivered in a health facility. Economic accessibility is determined by measures of maternal and paternal occupation, and the individual, or familial ability to pay. Finally, physical accessibility is determined by the distance - transport available and existence of roads.

The decision of whether or not to attempt to seek assistance with delivery can be considered to be a function of the costs and benefits associated with such assistance. It can be represented as follows:

In addition to individual and household factors, the neighbourhoods in which people live may also influence health as a result of differences in the availability and accessibility of health services, differences in infrastructure and differences in the prevailing attitudes towards health related behaviour (Macintyre *et al.,* 1993). A statistical association between measures of social environment and health outcomes, referred to as contextual effects, which exists even after 8 adjustments for individual level socioeconomic status, has been well documented (Pickett & Pearl, 2001).

In order to take account of neighbourhood effects, multilevel modeling techniques are widely adopted in studies into the analysis of health outcomes (Duncan *et al*., 1998; Diez-Roux, 2001). These techniques allow researchers to measure the influence of community factors and unobservable community dynamics on health outcomes and provide a robust method for the analysis of hierarchically clustered data. Incorporating community influences can have a substantial impact on the empirical research. Studies of fertility behaviour have, for example, often focused solely on the individual costs and benefits of childbearing as (Stephenson &Tsui, 2002).

Although most studies of community effects have focused on fertility behaviour (Grady *et al*, 1993), some have examined the role of community effects on maternal health outcomes (Madagi *et al.,* 2000; Stephenson *et al*, 2006). Results from studies into the effect of contextual influences on likelihood of delivery within the presence of a skilled attendant have shown positive association between levels of education, whether a woman has ever delivered at a health facility, and whether a husband approved of family planning, within a cluster (Stephenson *et al*, 2006). The average parity per woman in a cluster was shown to be negatively associated with the likelihood of skilled attendance.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

According to WHO, maternal death is defined as the death of a woman while pregnant or within 42 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 or incidental causes (WHO, 2008). In the year 2013, an estimated 289,000 maternal deaths occurred worldwide of which 99% occurred in developing countries; sub- Saharan Africa alone accounted for 62% (179,000) followed by Southern Asia at 24% (69,000) of the global maternal deaths in 2013 (WHO, UNFPA, UNICEF, The Work bank, United Nations Populations Division, 2014). At country level, the two countries that accounted for one third of all global maternal deaths are India at 17% (50,000) and Nigeria at 14% (40,000) (WHO, 2011c). The estimated lifetime risk for maternal mortality in high-income countries is 1 in 3400 in comparison to low-income countries where the risk is 1 in 52 (WHO, UNFPA, UNICEF, The Work bank, United Nations Populations Division, 2014).

About 73% of all maternal deaths between 2003 and 2009 were due to direct obstetric causes while deaths due to indirect causes accounted for 27·5% of all deaths. Haemorrhage accounted for 27·1%, hypertensive disorders 14·0%, sepsis 10·7%, abortion and embolism 3·2% (WHO, 2014). Maternal health is intimately connected with the health of a child therefore when we define barriers to maternal health, we can at the same time predict barriers to child health. Among other adverse effect, high maternal mortality leads to high child and infant mortality as children and infant either dies with the mother in the process of pregnancy and delivery or die of lack of care and malnutrition in the absence of the biological mother (Kirigia *et al.,* 2006).

A systematic review of the causes of maternal death found that the distribution of causes varied by region (Betrán *et al*., 2005). Haemorrhage, for example, is the leading cause of maternal mortality in North Africa, accounting for 36.9% of maternal deaths. In Latin America and the Caribbean, hypertensive disorders top the list causing 22.1% of maternal deaths. The proportion of deaths due to indirect causes was highest in southern Asia (29·3%), followed by sub-Saharan Africa (28·6%) (WHO, 2014)

2.2 ASSISTANCE DURING DELIVERY

Reproductive Health Surveys subdivide birth attendants into doctors, nurses, midwives, and trained traditional birth attendants (Carla &Tessa, 2001). The latter initially acquire their ability either by delivering babies themselves or through apprenticeship to other traditional birth attendants, undergo subsequent extensive training, and are then integrated in the formal health care system. The remaining category comprises relatives and untrained traditional birth attendants. For this study, only doctors, nurses, midwives, and nurse-midwives who have the necessary midwifery skills are classified as SBAs (Carla &Tessa, 2001)

There are differences in the skills, equipment, and supplies needed for the appropriate care and management of normal compared with complicated deliveries. Graham (2000) and others have shown that maternal mortality are best reduced when the attendants are doctors rather than nurses or midwives, a finding that could be a reflection of better access to essential obstetric care services.

Availability of SBAs during child delivery is a key factor for reducing maternal mortality as has been reflected in the MDG 5, where the proportion of births attended by skilled health personnel is considered a key indicator. By the year 2015, the international community aims to have achieved 90% coverage of women having a skilled attendant at birth (Adegoke *et al*., 2011). Proper medical attention and hygienic conditions during child birth and the immediate postnatal period can reduce the risks of complications and

infections that are responsible for the high morbidity and mortality to either the mother or the baby (Gross *et al.,* 2011*).*

Results from developing countries show that attendance of deliveries by skilled health care workers is still low (Tawiah, 2007). Although many countries have reported notable increase in the proportion of births attended by SBAs, the slowest change has been noted in sub-Saharan Africa, where the proportion of deliveries attended by SBAs went up from 40% in 1990 to 43% in 2000 showing a progress rate of only 0.1% which is far below the 5.1% required to achieve MDG 5. In South East Asian and Northern African countries, there has been increased coverage in births attended by skilled health care workers from 55% in 1995 to 81% in the period 2000-2007 (World Bank, 2007).

In Kenya, utilization of SBAs' services has been on the decline. According to Kenya Demographic Health Survey, the proportion of medically assisted deliveries has fallen consistently from 50% in 1993 to 44% in 2008 even though the proportion has increased marginally from 42% in 2003 to 44% in the 2008-09 (KDHS 2003; KDHS, 2008/9).

2.3 PLACE OF DELIVERY

Child delivery can take place in a health facility or at home. Health facilities range from referral hospitals to dispensaries (Ackermann-Liebrich *et al*., 1996). In health facilities, skilled attendants provide specialized delivery services hence there is a better chance of responding to complications in case they occur and therefore saving lives (Ondimu, 2000). Skilled delivery services can also be provided at home where SBAs are called to homes only when services are required. This kind of home delivery services has been found to be utilized by the economically well-off in the community since the services are far more expensive than facility delivery (Chowdhury, 2006). There is also little evidence to suggest that home-based skilled delivery is as effective as health facility-based ones. Findings of a research carried out in Bangladesh, to examine the

feasibility of home verses facility-based delivery illuminate major constraints encountered during home deliveries, including poor transportation, inappropriate environment for delivery, insufficient supplies and equipment, lack of security, and inadequate training and medical supervision, which may prevent the provision of skilled care (Blum, 2006).

Most of home deliveries are provided by unskilled service providers such as TBAs, relatives, friends and self (UNFPA, 2010). Despite all the risks involved, home delivery is common across communities in the world (WHO, 2009).

In Europe, more than 90% of women deliver in a health facility with skilled attendants while only 46% of women in sub-Saharan Africa and 58% of women in East, South-East Asia and North Africa have skilled attendants at delivery (UNFPA, 2010). For example in Uganda, less than 40% of deliveries take place in a health facility; TBAs handle 15%, relatives 35% and 12% are unassisted (MoH and Population Council, 2004). Low uptake of SBAs' services at delivery in the undeveloped world has been found to be influenced by factors such as: high cost, lack of knowledge, long distance needed to access care and high parity, among others (Bhutta *et al.*, 2009; Wanjira *et al.*, 2011).

In Kenya, 56 % of women give birth at home rather than hospital with variations between urban and rural women; 75% of urban women utilized skilled assistance at birth as compared to 37% of rural women (KDHS, 2009).

2.4 TRADITIONAL BIRTH ATTENDANTS (TBAs)

According to the WHO *Alma Ata* definition, a traditional birth attendant (TBA) is a person – usually a woman – who assists the mother at child birth and who initially acquired her skills delivering babies by herself or working with other TBAs (WHO, 1978). Globally, one third of births take place at home without the assistance of a SBA (WHO, 2008). In sub-Saharan Africa, SBAs conduct less than half of deliveries, with an

estimated 22.2% of deliveries attended by traditional birth attendants, 26.8% by family members, and 5.9% of women delivering alone (Benjamin *et al*., 2007). In Kenya 28% of the deliveries are assisted by TBAs (KDHS, 2008/2009).

It has been argued that TBAs have the potential to reduce gaps in human resources, with suggestions that trained TBAs can contribute to MDG Goals 4 and 5 through TBA training programs (Lynn *et al.*, 2006). However, studies on the impact of training have shown conflicting results in maternal outcomes with many showing little to no positive impact on the high maternal mortality outcomes (Gloyd *et al*., 2001). Even with proper training, some TBAs have been accused of frequently reverting back to their old ways of managing birth, often with disastrous consequences for the women who use their services (Kamal, 1998).

Globally, while trained TBAs are not considered as SBAs, their potential contribution has been recognized in diagnosing labour, ensuring clean delivery, detecting and referring maternal complications, providing hygienic cord-care and ensuring warmth of the newborn, supporting early exclusive breastfeeding, and providing advice to mothers (Campbell & Graham, 2006). As a result, there has been a shift towards SBAs who capable of averting and managing complications (Byrne & Morgan, 2011).

Kenya has adopted the reproductive health policy 2007 that states TBAs should not be recognized as skilled providers. Their designated role is to assist in birth preparedness, early referral of women, postnatal care and birth registration. Nevertheless, TBAs have been found to form the backbone of maternity services in rural areas in many developing countries and are also relied upon by large populations that have poor and/or no access to health facilities (Bisika, 2008).

In the bulk of the available studies, the social organization of homebirths, the socio-physical closeness of TBAs to their clientele, their acceptability and availability, as well as the sensitivity of their services to the cultural, economic and personal needs of the

families and communities are used to explain women's continued quest for TBA services (UNFPA, 1997). A consistent theme across the narratives surrounding the continued demand for TBA services is that they (TBAs) do more than provide delivery services; they reportedly provided services beyond the period of birthing such as advice on nutrition of mother and baby as well as postnatal care (Leedam, 1985).

Traditional Birth Assistants are popular among communities that highly guard their cultural beliefs associated with child-birth. In a recent study carried out in the slums of Nairobi, Kenya, TBAs reported that hospital-based providers tend not to take into consideration peoples cultural values as they, in the first place, do little to find out peoples cultural values (Izugbara *et al*., 2009).

2.5 OVERVIEW OF MATERNAL HEALTH IN KENYA

Maternal mortality ratio (MMR) in Kenya is 488 maternal deaths per 100,000 live births (with some regions reporting MMRs of 1,000/100,000 live births) in 2008/09 (KDHS, 2008/9). This ratio is far much higher than the targeted ratio of 147 by the year 2015. According to KDHS 2008/9, the proportion of women making the recommended 4 antenatal care visits is 47%, while the proportion receiving skilled care during delivery is 44% in Kenya up from 42% in 2003 which is also far below the target of 90% by the year 2015. The contraceptive prevalence rate for modern methods among married women is 39% and the unmet need for family planning is at 24% (KDHS, 2008/9).

In its effort to improve maternal and child health, the government had on June 1, 2013, initiated a policy of free maternity services in all public health facilities, in a presidential press release. Earlier on, the Government had launched a Maternal and Newborn Health (MNH) Road Map in August 2010 whose goal was to accelerate the reduction of maternal and newborn morbidity and mortality towards the achievement of the Millennium Development Goals (UNFPA, 2009). The program consists of family

planning, antenatal care, clean and safe delivery and essential obstetric care (Marc *et al*., 2010).

The National Reproductive Health Strategy covering the period 2009 to 2015 was also developed which is mandated to enhance the reproductive health status of all Kenyans by increasing equitable access to reproductive health services; improving quality, efficiency and effectiveness of service delivery at all levels. It is to also aid the Division of Reproductive Health in advocating for increased resources and partnership involvement in its implementation (NRHS, 2009-2015).

Apart from the above strategies, the government in conjunction with NGOs has put in place several guidelines, regulations and policies to ensure maternal and child health promotion such as; antenatal care, intra – partum care and emergency obstetric care guidelines, enhancement of community participation, health service management, record keeping and infection prevention, among others (MOH, 1999).

CHAPTER THREE

3.0 MATERIALS AND METHODS

3.1 STUDY AREA

The study was carried out in Garissa town, which is in Garissa County in the North Eastern Kenya. It is located about 215 miles (350 km) east of Nairobi and is linked by road to Nairobi and Mombasa (Grid reference 0°27′25″S 39°39′30″E) (Appendix 4).

Garissa has been the provincial headquarters of the former North Eastern Province and therefore the center of administration for the province and Garissa District before restructuring the Kenyan Government. Somali Muslim community mainly inhabits it although other Kenyan tribes such as the Kamba, Kikuyu and Arabs reside in small numbers. Being one of the biggest urban centers in the province, it has one of the best maternal health facilities in the province – the only functional referral hospital in the region (Garissa Provincial Referral Hospital), which is a government health facility.

3.2 STUDY DESIGN

This was a cross sectional study conducted between 4th and 30th April 2013. This design allowed relatively large sample size to be reached with minimum cost and time. In addition, the design did not involve engaging respondent over a long period of time and thus reduced the chance of the respondents dropping out during the course of the study.

3.3 TARGET POPULATION

The target population comprised of women of reproductive age of 15–49 years. Total population in Garissa was approximately 119,696 people as per district population 2009 census. Women of reproductive age comprised 21.3% of the total population hence the target population (21.3% of 119696) was 25495 (Kenya census, 2009)

3.4 STUDY POPULATION

The study population comprised of women aged 15-49 years who had had at least one delivery in the past two years and had lived in Garissa town for at least past two years. These groups of women were expected to have required the services of delivery attendant at least once in their lifetime. This group of women could therefore explain better their experiences during child delivery and the kind of services they utilized

3.4.1 INCLUSION CRITERIA

- Resident of Garissa town for at least past two years
- Woman aged 15-49 years who had had at least one child delivery in the past two years.
- Had consented to participate in the study

3.4.2 EXCLUSION CRITERIA

- Non resident of Garissa or have stayed less than 2 years
- Women outside the aged bracket of 15-49 years
- Had not experienced child delivery in the past two years.
- Failed to consent to participate in the study

3.5 CONCEPTUAL FRAMEWORK ON FACTORS ASSOCIATED SBA's USE

The conceptual framework (**Figure 1.1**) considers person related factors as well as health facility factors. The person related factors include the mother's socio-demographic and socio-cultural factors as well as the perceived benefit and need of facility use. It also considers how community attitudes influence family decision making with the location of residence influencing most other factors. Knowledge on skilled birth attendance may influence the decision to seek care as economic and geographical

accessibility mainly influence physical access to facility. The health facility factors are related to availability of skilled delivery services as well as the quality of care rendered in terms of waiting time and staff attitude (Gabrysch *et al.*, 2011).

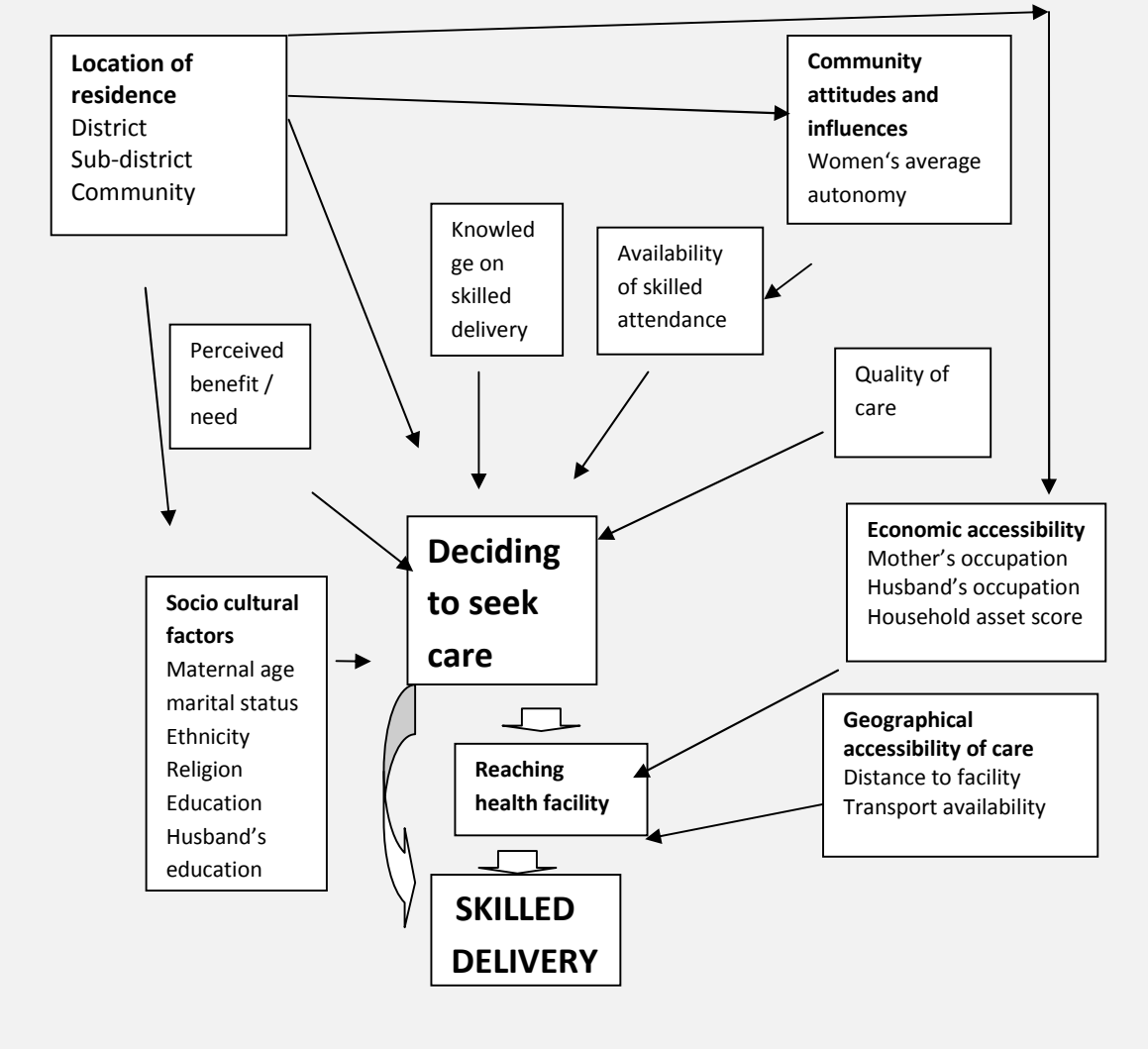

Figure 3.1 Conceptual framework

3.6 STUDY VARIABLES

3.6.1 Independent variables

Factors associated with uptake of SBA's services during child delivery. Key factors considered included: Age in years, ethnicity, religious affiliation, marital status, highest level of education, occupation, knowledge of skilled delivery service providers, ANC attendance, parity, place of last delivery, birth assistant used, previous complication, perception on TBA services, decision making during delivery, gender preference of delivery provider, cost of delivery services, time to the nearest health facility and quality of health services

3.6.2 Dependent variable

Uptake of SBA's services during child delivery

3.7 SAMPLE SIZE DETERMINATION

The sample size for the survey was determined using the statistical formula of Fisher *et al.* (1991) as 334.

$n = z^2_{\alpha/2}\, p\,(1-p)/d^2$

p= Proportion of women who had skilled deliveries in North Eastern Kenya -32% *(KDHS, 2008/9)*

d= level of precision was set at 0.05 at 95% df

Z= confidence interval at 95% (1.96)

$n = 1.96^2 * 0.32(1-0.32)/0.05^2$

n=334

3.8 SAMPLING METHOD

Multistage cluster sampling method was used to identify respondents for the study. This method was preferred because, unlike hospital-based survey, it took into consideration those women who do not have a health seeking behavior and thus may never be found in the hospital but whose views were crucial. The clusters used were the Enumeration Areas (EAs) developed by Kenya National Bureau of Statistics (KNBS) in the year 2009. There are 285 EAs (Cluster) in Garissa and within each EA the numbers of households ranged from 50-90 on average. In this study, 17 clusters/EAs were randomly selected as shown in **Table 3.1.** Within each selected cluster, 20 households were selected using a simple random sampling technique and computer generated random numbers, non-proportional to cluster size. The number of households (20) considered within each cluster was arrived at using purposive sampling method as 20 was found to be an appropriate number considering the fact that the cluster sizes ranged from 50-90 household and 20 households out of these seemed reasonable. In the end 340 questionnaires were generated where the extra 6 questionnaires were used to replace inadequately completed questionnaires.

Within each household, the female spouse of the household was preferred for interview. In case this person was not available or was not meeting the required criteria, any other woman within the household who met the selection criteria was considered. If the selected individual was not found at home at the time of visit, an appointment to do the interview later was made. In case a selected household did not have a woman who met the selection criteria, the nearest household was considered. This procedure was repeated uniformly in each cluster until the calculated sample size was attained. This procedure was preferred because other means of obtaining sample frames such as birth registers, immunization and pre-school records in the area were either non-existent or incomplete. Hospital records are usually incomplete or missing thus antenatal records were not fully reliable.

Respondents for the Focus Group Discussions (FGDs) were selected purposively. Three FGDs were conducted, one among each of the following groups; private health facility nurses, public nurses and TBAs.

Table 3.1 Clusters selected for the study

	Enumeration Area	Number of Households	Number of Households selected
1	Iftin	61	20
2	Iftin	68	20
3	Iftin	59	20
4	Bula Sheikh	70	20
5	Bula Mzuri	56	20
6	Wagberi	48	20
7	Wagberi	59	20
8	Bula Punda	78	20
9	Madina	77	20
10	Madina	87	20
11	Sagaray	70	20
12	Bula Rig	89	20
13	Bula Rig	65	20
14	Bula Adan	63	20
15	Masalani	76	20
16	Masalani	85	20
17	Galbet	66	20
Total		1177	340

3.9 DATA COLLECTION

Quantitative data were collected through the administration of semi-structured questionnaire (Appendix 2) in a face-to-face interview from 4th and 17th April 2013. Six research assistants who were fluent in English, Swahili and Somali languages were recruited and trained to helped in the data collection process. The tools were pretested

before the data collection process with 20 respondents from a cluster other than the 17 selected for the study. No translators were required as the principal investigator and the research assistants were fluent in both English and the local languages. The researchers entered responses by clarifying questions and making sure respondents answered the questions correctly. Each participant in the household survey was interviewed in seclusion to exclude contextual bias.

Qualitative data were collected partly through the semi structured questionnaires as well as FGDs (Appendix 3) with nurses and TBAs. In the FGD two research assistants took detailed notes of the discussions separately which was later compared to make sure maximum information was captured. There was no videotaping or voice recordings as the respondents were not comfortable with this.

3.10 DATA MANAGEMENT AND ANALYSIS

Data were coded and entered into Statistical Package for Social Sciences (SPSS20) where they were cleaned, validated and analysed. The soft data was protected through a password and a back-up stored in a flash disk frequently while the hard copies were filled and store in lockable cabinets. Mean, standard deviation and median was calculated for continuous data as frequency distribution such as cross-tabulation and proportions were generated for categorical data.

At bivariate analysis, Pearson's Chi-square and Fisher exact tests were used to test for the strength of association between categorical variables. All Independent variables were tested for association with the dependent variable (*skilled/unskilled delivery)* to determine which ones had significant association. Odds Ratio (OR) and 95% Confidence Interval (CI) were used to estimate the strength of association between independent variables and the dependent variable (*skilled/unskilled delivery)*. The threshold for statistical significance was set at $P \leq 0.05$.

All independent variables identified to be significantly associated with dependent variable (*skilled/unskilled delivery)* at bivariate analysis were considered together in a multivariate analysis. This was performed by fitting the factors using binary logistic regression and specifying *'backward conditional'* method with removal at P≤0.05

Qualitative data was manually analyzed thematically where patterns across the dataset was used to generate information. Two of the research assistant assisted in the analysis of the notes generated in the FGDs. The data generate during the FGDs were mainly ordered in relation to the research question asked which were used as codes since the qualitative data generated was minimal in relation to the quantitative data. The qualitative data was coded, categorized, compared, dimentionalized, integrated and interpreted to make a clear sense as shown in **Figure 3.1.** The qualitative data mainly served as a clarification to the quantitative data and mainly explained the reasoning behind the numbers.

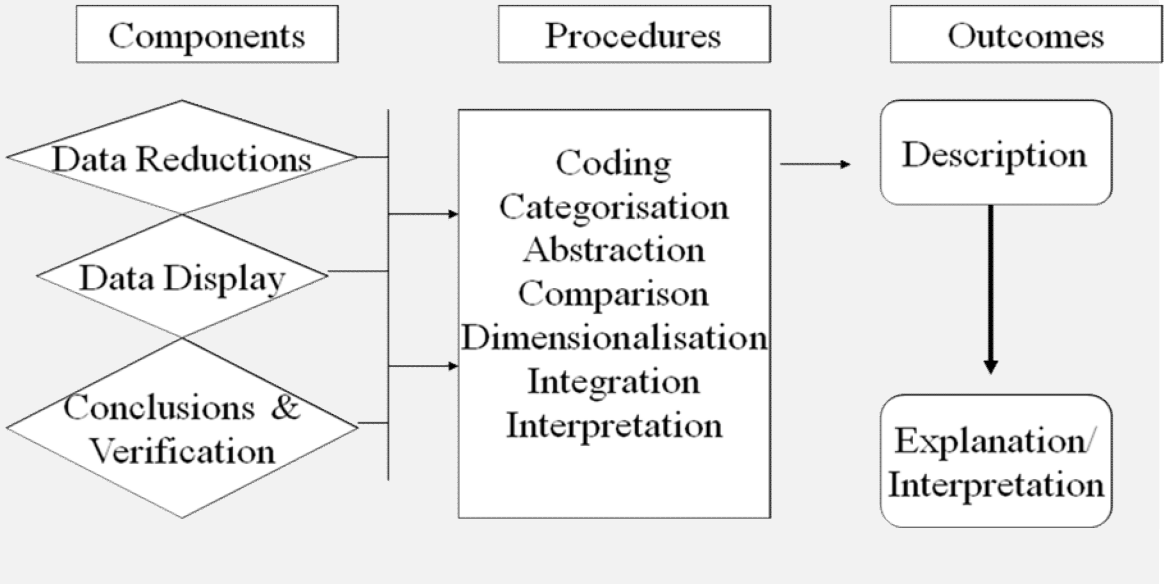

Figure 3.2 processing and analysis of qualitative data

3.11 ETHICAL CONSIDERATIONS

Authorization to carry out this study was sought from KEMRI Scientific Steering Committee (Appendix 5), KEMRI Ethical review Committee (Appendix 6). Advice from KNBS officials was also sought to give information on the location of the clusters within Garissa town. Consent to participate in the study was sought where the participants were requested to sign a written consent form clearly indicating the voluntarily and the risk involved (Appendix 1). Respondent under the age of 18 years were consented in the presence of their parents or guardian where available and consented as mature and responsible individuals where parents were not available as they were legally not of age.

3.12 DISSEMINATION AND UTILIZATION OF FINDINGS

The findings of the study has been published in East Africa medical Journal (Appendix 7) and will also be disseminated to relevant stakeholders such as KEMRI and Jomo Kenyatta university of Agriculture and Technology and the community living in Garissa town where the research was conducted. The findings of the study will be a step towards strengthening health systems and ultimately improve maternal health in the area as it can be used to formulate local solutions to the problem of maternal health at facility, community and policy levels to identify the best strategy of providing a lasting solution.

3.13 STUDY LIMITATIONS

Limitations in the sturdy might have included different biases such as information, inclusion/exclusion bias and confounders. A number of measures were put in place to reduce such biases such as correct sampling and clear selection criteria as well as clarity in the administration of questionnaires and discussions. Multivariate analysis was also carried out to account for possible confounders. In addition, there was no videotaping or voices recording during the data collection, as the women were not

comfortable with this form of data collection. Video and audio data would have assisted in gathering additional qualitative data, which in this case was not possible.

CHAPTER FOUR

4.0 RSEARCH RESULTS AND DISCUSSIONS

4.1 RESULTS

4.1.1 Selected socio-demographic and economic characteristics of Child bearing women

A total of 334 women of reproductive age living in Garissa town were interviewed on SBAs' services and the factors they associate it with (**Table 4.1).** The age of the participants ranged between 15 to 45 years with a mean age of 27 years. A high proportion (64.1%) was aged between 21 and 31 years. Majority (94.3%) of the women were of Somali ethnic community while the rest (5.7%) were non-Somalis. The vast majority (96.1%) of the respondents were also Muslims. Most (83.2%) of the respondents were married with the rest being divorced (11.1%), widowed (5.1%) and single (0.6%). Level of education varied between no formal education to college/university level, with 82% of the women having attained at most primary level of education. 69.2% of the respondents were housewives with only 8.1% being salaried and the rest (22.8%) involved in business.

Table 4.1 Distribution of selected socio-demographic and economic characteristics of child bearing women

Variables	Variable description	Frequencies	%
Age in years	15-20	29	8.7
	21-31	214	64.1
	32-42	86	25.7
	43-49	5	1.5
Ethnicity	Somali	315	94.3
	Non-Somali	19	5.7
Religion	Muslim	321	96.1
	Non-Muslim	13	3.9
Marital status	Married	278	83.2
	Divorced	37	11.1
	Widowed	17	5.1
	Single	2	0.6
Highest level of education	No formal education	161	48.2
	Primary	113	33.8
	Secondary	53	15.9
	College	6	1.8
	University	1	0.3
Occupation	House wife	231	69.2
	Salaried	27	8.1
	Business woman	76	22.8

4.1.2 Uptake of skilled Birth attendants' services among women

The study found that 47.6% of the women had utilized SBAs' services, assisted either by a nurse or a doctor while the rest of the 52.4 % had unskilled birth attendants' service assisted by TBAs (Figure **4.1).**

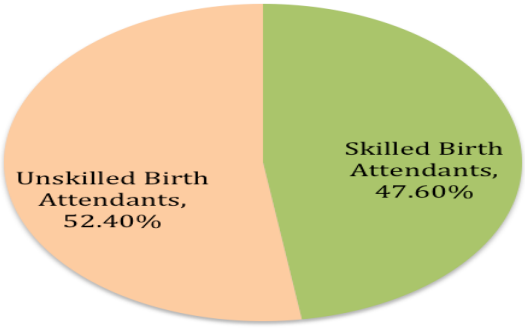

Figure 4.1 Delivery attendance among child bearing women

4.1.3 Factors Associated with Uptake Of SBAs' Services at Birht Among Women

4.1.3.1 Possession of knowledge on SBAs and Obstetric History among child bearing women

Assessment of knowledge on SBAs among child bearing women and obstetric history of the women is presented in **Table 4.2**. A high proportion (92.8%) of the respondents knew who SBAs were and where to find them.

Similarly, majority (85.6%) of the respondents reported to have sought antenatal care services at least once, during their last pregnancy. When the women were probed further on where they had received ANC services, 97.9% reported that they received it in a health facility while the rest had it at home. The number of child deliveries per respondent ranged between 0 to 12 with 35.3% of the respondents having had 1-3 deliveries and the rest having 4-6 (25.4%), 7-9 (32.3%) and over 7 (6.9%) deliveries.

Nearly half (47.6%) of the women reported that their most recent child delivery took place in a health facility (either public or private) while the rest delivered at home. The respondents were further probed on who assisted them in their last delivery and 47.6% reported that they were assisted by either a doctor or a nurse while the rest were

assisted by TBAs. Less than half (37.4%) of the respondents reported having experienced delivery complications. The most common complication experienced by the women was hemorrhage (48.8%). Other complications reported include: prolonged labor of over 12 hours (30.4%), abnormal baby position (18.4%) and convulsions (2.4%).

Table 4.2 Distribution of possession of knowledge of skilled delivery service providers and Obstetric History of child bearing women

Variables	Variable Description	Frequency	%
Possession of knowledge on SBAs	Knows	310	92.8
	Does not know	24	7.2
ANC Attendance	Yes	286	85.6
	No	48	14.4
Place of ANC Attendance	Health facility	280	97.9
	Home	6	2.1
Number of Child births	1-3	118	35.3
	4-6	85	25.4
	7-9	108	32.3
	10 and over	23	6.9
Place of last delivery	Public health facility	95	28.4
	Private health facility	64	19.2
	Home	175	52.4
Assistance during birth	Doctor	40	12.0
	Nurse	119	35.6
	TBA	171	51.2
Presence of delivery complications	Yes	125	37.4
	No	209	62.6
Type of Delivery complications	Prolonged labor	38	30.4
	Excessive bleeding	61	48.8
	Abnormal baby position	23	18.4
	Convulsions	3	2.4

Key:
ANC- Antenatal Care
TBA- Traditional Birth Attendants

Distribution of some of the reasons for having SBAs' services a s given by those women who had skilled delivery services are given in **Figures 4.2** The reasons given for utilizing SBAs' services as perceived by the respondents included; better care by skilled service providers (63.0%), complications during previous deliveries (25.3%) and advice from husbands (10.5%). *"Complication could better be handled by SBAs as compared to TBA,"* reported some of the respondent.

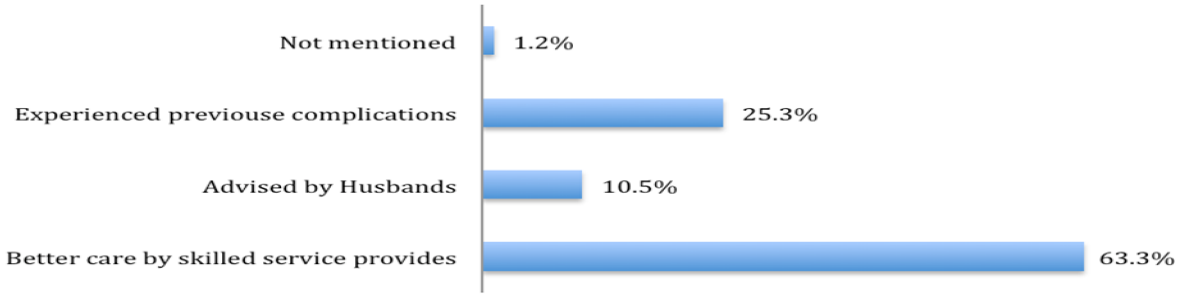

Figure 4.2 Reasons for using skilled delivery attendance among the mothers

Several reasons were also given by those who had unskilled birth attendants' services for using such services (TBAs) during the last delivery such as (Figure **4.3**): More personalized care by TBAs (28.6%), were available where delivered (21.2%), less cost of TBAs (6.3%), poor attitude of health providers (9.5%), did not want to be attended to by male (22.2%), husband prefers home (7.9%) and was the only place known (2.1%). *"One can easily call TBA anytime - even at night and normally spend with the woman overnight providing care while nurses rarely come to check on the women even at the hospital,"* said some of the women and TBAs to defend the use of TBAs as opposed to SBAs

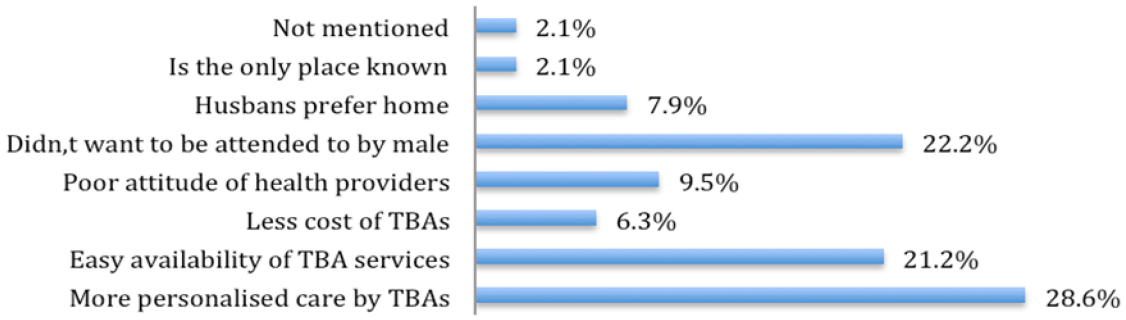

Figure 4.3 Reasons for using unskilled delivery attendance among childbearing women

4.1.3.2 Selected cultural related factors among child bearing women

Table 4.3 shows distribution of selected cultural related factors that might have influenced uptake of SBAs' services. While some (32.3%) of respondents TBAs service provision, others (40.4%) disapproved as the rest (27.2%) of the respondents being unable to decide. Similarly, majority (69.2%) of the respondents reported that they deciding by themselves on where to delivery as husbands decided for 27.5% and in-laws decided for 3.3%. Additionally, 81.1% of the respondents preferred to be attended to by female service providers while 5.1% prefer male with 13.8% showing no preference.

Table 4.3 Distribution of selected cultural related factors

Variables	Variable Definition	Frequency	%
TBAs service acceptance	Yes	108	32.3
	No	135	40.4
	Don't know	91	27.2
Decision makes on place of delivery	Self	231	69.2
	Husband	92	27.5
	In-laws	11	3.3
Preferred Gender of Service provider	Female	271	81.1
	Male	17	5.1
	Any	46	13.8

Key:
TBA- Traditional Birth Attendants

4.1.4 Selected service related factors

Service related factors are shown in **Table 4.4.** The service related factors considered in the study included: cost of services at facility, time taken to the nearest facility, hygiene and operation time of the heath facilities. Majority (91.3%) of the respondents were of the opinion that the cost of services at health facility was affordable. Delivery charges ranged from US$29.5 to 117.6 with higher (65.9%) proportion reporting in the category of US$29.5-58.8. The average amount charged was US$ 52.5. Higher proportion (68%) of the respondents reported that they took less than one hour to get to the nearest health facility by walking and only 2.1% took more than two hours.

Slightly more than half (55.1%) of the respondents perceived that the health facility they attended had good hygiene as 47.3% considered it to be convenient in terms of operation times. When the respondents were asked about the means to reach to the community in order to enhance use of skilled attendance during delivery, majority (66.5%) opted for radio. Other options included; television (17.7%), personal interaction with health providers (15%), posters (0.3%). A few (0.6%) of them did not know what to

recommend. The participant response on the kind of person to provide safe delivery information to the community was varied with 59% of them opting for nurse as others mentioned religious leaders (20.4%), educated women (10.8%) and medical doctors (9.9%).

Table 4.4 Distribution of selected service related factors

Variable	Variable Description	Frequency	%
Cost of services at health facility	Affordable	305	91.3
	Not affordable	29	8.7
Charges per delivery (USD)	<29.4 US$	67	20.1
	29.4 - 58.8 US$	220	66.1
	>58.8 US$.	46	13.8
Time to the nearest health facility	Less than one hour	227	68.0
	One - two hours	100	29.9
	More than two hours	7	2.1
Perceived hygiene of health facility	Good	184	55.1
	Poor	150	44.9
Operation time of the health facility	Convenient	158	47.3
	Not convenient	176	52.7
Means to enhance skilled delivery	TV	50	15.0
	Radio	222	66.5
	Poster	1	0.3
	Interaction with health provider	59	17.7
	Don't know	2	0.6
Preferred source of information	Nurse	197	59.0
	Religious leader	68	20.4
	An educated woman	36	10.8
	Doctor	33	9.9

Key:
TV- Television
USD- United States Dollar

4.1.5 Bivariate analysis

4.1.5.1 Delivery Service type in relation to selected socio-demographic and economic characteristics

Relationship between delivery service type and selected demographic and economic characteristics was analyzed as presented in **Tables 4.5.** Four out of the seven assessed demographic factors were significantly associated with uptake of SBAs' services.

A significantly high proportion (62.1%) of women aged between 15 – 20 years had skilled delivery service as compared to those who were aged 30 years and above (24.2%), (OR=5.13; 95% CI: 2.11-12.50; p=0.001). Similarly, significantly high proportion (55.6%) of women aged between 21-30 years had skilled delivery service compared to those who were aged 30 years and above (24.2%), (OR=3.93; 95% CI: 2.27-6.81; p=0.001).

All the non-Muslim women had skilled delivery service (100.0%) compared to Muslim women (45.5%) (OR=UD; 95% CI: UD; p=0.001). A significantly high proportion (70.0%) of women with secondary and higher level of education had skilled delivery service compared to those who had no formal education (41.6%), (OR=3.27; 95% CI: 1.74-6.18; p=0.001). There was also a significant association between obtaining skilled delivery services and economic status with those women who were salaried utilizing skilled delivery services as compared to those who were house wives (OR=17.3; 95% CI: 4.0-74.6; p=0.001).

Table 4.5 Uptake of skilled delivery services in relation to selected socio-demographic and economic characteristics

Variables	Total Freq.	Skilled delivery		Unskilled delivery		OR	95% CI		P value
		Freq.	%	Freq.	%		Lower	Upper	
Age in years									
15-20	29	18	62.1	11	37.9	5.13	2.11	12.5	**<0.001**
21-31	214	119	55.6	95	44.4	3.93	2.27	6.81	**<0.001**
32 or more	91	22	24.2	69	75.8	1			
Ethnicity									
Somali	315	146	46.3	169	53.7	1			
Non-Somali	19	13	68.4	6	31.6	2.51	0.93	6.77	0.061
Religion									
Muslim	321	146	45.5	175	54.5	1			
Non-Muslim	13	13	100	0	0	UD	UD	UD	**<0.001**
Marital status	0								
Currently married	278	135	48.6	143	51.4	1.26	0.71	2.25	0.436
Currently not married	56	24	42.9	32	57.1	1			
Highest level of education									
No formal education	161	67	41.6	94	58.4	1			
Primary	113	50	44.2	63	55.8	1.11	0.69	1.81	0.665
Secondary and above	60	42	70	18	30	3.27	1.74	6.18	**<0.001**
Occupation									
Salaried	27	25	92.6	2	7.4	17.3	4	74.6	**<0.001**
Business woman	76	37	48.7	39	51.3	1.3	0.8	2.2	0.308
Housewife	231	97	42	134	58	1			

Key:

AOR- Adjusted Odds Ratio

CI- Confidence Interval

P- Probability Value

UD- Undefined (Zero)

4.1.5.2 Uptake of skilled delivery services in relation to knowledge of skilled delivery service providers and obstetric history

Relationship between uptake of skilled delivery services and knowledge of skilled delivery service providers and obstetric history among the childbearing women was analyzed (**table 4.6).** Four of the five factors were found to be significantly associated with skilled delivery service use.

A significantly high proportion (51.0%) of those who knew the different kinds of skilled delivery service providers and where to find them, utilized skilled delivery service as compared to those who did not (4.2%), (OR=23.91; 95% CI: 3.19-179.23; p=0.001). There was also a significant association between use of skilled delivery services and attendance of at least one ANC service during the last pregnancy of the women, (OR=18.00; 95% CI: 5.47-59.27; P=0.001). A higher proportion (54.5%) of those who attended at least one ANC service during their last pregnancy used skilled delivery service as compared to those who did not attend ANC during their last pregnancy (6.3%). There was also a significant association between use of skilled delivery service and those who had 1-3 child deliveries (OR=64.81; 95% CI: 29.03 – 144.72; P=0.001). A higher proportion (85.6%) of those women who had 1-3 deliveries utilized skilled delivery service as compared to those women who had 7 or more deliveries (8.4%). Similarly, there was a significant association between uptake of skilled delivery service and those who had 4-6 deliveries (OR=13.49; 95% CI: 6.37 – 28.59; P=0.001). A higher proportion (55.3%) of those women who had 1-3 deliveries utilized skilled delivery service as compared to those women who had 7 or more deliveries. A significantly high proportion (78.4%) of those women who had experienced previous delivery complications were likely to utilize skilled delivery service than those who had not experienced such complications (29.2%), (OR=8.81; 95% CI: 5.24-14.81; P=0.001).

Table 4.6 Uptake of skilled delivery services in relation to Knowledge of skilled delivery service providers and Obstetric History

Variables	Total Freq.	Skilled delivery		Unskilled delivery		OR	95% CI		P value
		Freq.	%	Freq.	%		Lower	Upper	
Possession of knowledge on SBAs									
Known	310	158	51	152	49	23.91	3.19	179.2	**<0.001**
Not know	24	1	4.2	23	95.8	1			
Attended ANC									
Yes	286	156	54.5	130	45.5	18	5.47	59.27	**<0.001**
No	48	3	6.3	45	93.8	1			
Where did you go for ANC									
Health facility	280	155	55.4	125	44.6	15.5	0.73	11.42	<0.114
Home	10	3	30	7	70	1			
How many times have you given birth									
01-Mar	118	101	85.6	17	14.4	64.81	29.03	144.7	**<0.001**
04-Jun	85	47	55.3	38	44.7	13.49	6.37	28.59	**<0.001**
7 and above	131	11	8.4	120	91.6	1			
Experience of previous delivery complication									
Yes	125	98	78.4	27	21.6	8.81	5.24	14.81	**<0.001**
No	209	61	29.2	148	70.8	1			

Key:
ANC- Antenatal Care
AOR- Adjusted Odds Ratio
CI- Confidence Interval
P- Probability Value

4.1.5.3 Uptake of skilled delivery services in relation to selected cultural related factors among child bearing women

Relationship between uptake of skilled delivery services and selected cultural related factors was analyzed as presented in **Table 4.7**. Two out of the three cultural related factors were found to be significantly associated with skilled delivery service use as described.

A significantly higher proportion (77.0%) of women who viewed that TBAs should not provide delivery services used skilled delivery services as compared to those who viewed TBAs should provide delivery services (25.9%), (OR=9.59; 95% CI: 5.32-17.26; P=0.001). Similarly, there was a significant association between uptake of skilled delivery services and those who had no preference for any gender of delivery service provider, (OR=5.58; 95% CI: 2.59-12.01; P=0.001). A high proportion (80.4%) of those who did not have a preference for any gender of delivery service provider used skilled delivery service as compared to those who preferred female service providers (42.4%).

Table 4.7 Uptake of skilled delivery services in relation to selected cultural related factors

Variables	Total Freq.	Skilled delivery		Unskilled delivery		OR	95% CI		P value
		Freq.	%	Freq.	%		Lower	Upper	
TBAs delivery services acceptance									
Yes	108	28	25.9	80	74.1	1			
No	135	104	77	31	23	9.59	5.32	17.26	**<0.001**
Don't know	91	27	29.7	64	70.3	1.21	0.65	2.25	0.556
Decision makers on place of delivery									
Self	231	105	45.5	126	54.5	0.76	0.47	1.2	0.239
Husband/in-laws	103	54	52.4	49	47.6	1			
Preferred Gender of delivery service provider									
Female	271	115	42.4	156	57.6	1			
Male	17	7	41.2	10	58.8	0.95	0.35	2.57	0.919
Any	46	37	80.4	9	19.6	5.58	2.59	12.01	**<0.001**

Key:
AOR- Adjusted Odds Ratio
CI- Confidence Interval
P- Probability Value
TBA- Traditional Birth Attendants

4.1.5.4 Delivery service type in relation to selected service related factors

Table 4.8 presents relationship between uptake of skilled delivery services and selected service related factors. Five out of the seven selected service related factors were found to be significantly associated with utilization of skilled delivery.

There was a significant association between uptake of skilled delivery services and those who viewed that the cost of delivery was affordable (OR=3.12; 95% CI: 1.30-7.52; p=0.008). A high proportion (49.8%) of those who were of the view that the delivery cost was affordable were 3.12 times more likely to use skilled delivery service as compared to those who were of the view the cost was not affordable (24.1%). A significantly high proportion (52%) of those who reported to have taken less than one hour to get to the hospital were more likely to uptake skilled delivery service as compared to those who reported to have taken one or more hours (38.3%), (OR=1.74; 95% CI: 1.09-2.78; P=0.020).

A high proportion (71.7%) of those who perceived the heath facilities they attended to be as having good hygiene, were more likely to uptake skilled delivery service as compared to those who perceived it to be poor hygiene (18.0%), (OR=11.56; 95% CI: 6.84-19.56; P=0.001). Likewise, there was a significant association between skilled delivery and operation time of health facility (OR=18.44; 95% CI: 10.65-31.91; P=0.001). A high proportion (80.4%) of those who felt the operation time of the health facilities was convenient, were more likely to utilize skilled delivery service as compared to those who were of the contrary opinion. A significantly high proportion (61.4%) of women who were of the view that nurses should educate community on skilled delivery utilized skilled delivery service as compared to those who opted for educated women to provide such education (22.2%), (OR=5.57; 95% CI: 2.41-12.86; p=0.001).

Table 4.8 Uptake of skilled delivery services in relation to selected service related factors

Variables	Total Freq.	Skilled delivery		Unskilled delivery		OR	95% CI		P value
		Freq.	%	Freq.	%		Lower	Upper	
Cost of services at health facility									
Affordable	305	152	49.8	153	50.2	3.12	1.3	7.52	**0.008**
Not affordable	29	7	24.1	22	75.9	1			
Charges per delivery (USD)									
<29.4 US$	67	28	41.8	39	58.2	0.66	0.31	1.4	0.278
29.4 - 58.8 US$	220	107	48.6	113	51.4	0.87	0.46	1.64	0.663
>58.8 US$.	46	24	52.2	22	47.8	1			
Distance to the nearest health facility									
Less than one hour	227	118	52	109	48	1.74	1.09	2.78	**0.02**
One or more hours	107	41	38.3	66	61.7	1			
Perceived hygiene of health facility									
Good	184	132	71.7	52	28.3	11.56	6.84	19.56	**<0.001**
Poor	150	27	18	123	82	1			
Operation time of the health facility									
Convenient	158	127	80.4	31	19.6	18.44	10.65	31.91	**<0.001**
Not convenient	176	32	18.2	144	81.8	1			
Deliver service provider									
Nurse	197	121	61.4	76	38.6	5.57	2.41	12.86	**<0.001**
Religious leader	68	22	32.4	46	67.6	1.67	0.66	4.27	0.281
Doctor	33	8	24.2	25	75.8	1.12	0.37	3.43	0.843
An educated woman	36	8	22.2	28	77.8	1			
Means to enhance skilled delivery									
Radio	222	101	45.5	121	54.5	0.9	0.49	1.67	0.748
Poster	1	1	100	0	0	UD	UD	UD	1
Interaction with health provider	59	33	55.9	26	44.1	1.38	0.65	2.93	0.409
Don't know	2	0	0	2	100	UD	UD	UD	0.999
TV	50	24	48	26	52	1			

Key:
AOR- Adjusted Odds Ratio
CI- Confidence interval
P- Probability Value
TV- Television
USD- United States Dollar
UD- Undefined (value contains zero)

4.1.6 Multivariate analysis

Multivariate analysis was performed to identify independent predictor(s) of skilled delivery services uptake among the participants. Fifteen factors associated with skilled delivery service at $p \leq 0.05$ during bivariate analysis were considered for multivariate analysis. They included; age in years, religion, highest level of formal education, occupation, knowledge of skilled delivery service providers, Attendance of ANC, number of births, previous delivery complication, whether TBAs should provide delivery services, preferred gender of delivery provider, cost, travel time, hygiene, health facility operation time and who should provide information on skilled delivery. Upon fitting the factors using Binary logistic regression and specifying *'backward conditional'* method with removal at $P<0.05$, eight factors were retained in the final model as shown in **Table 4.9.**

Adjusting for other factors, possession of knowledge on SBAs was associated with utilization of skilled delivery service (AOR=17.2; 95% CI: 1.05 – 281.12; p=0.046). Those women who knew where to get SBAs were 17.2 times more likely to utilize skilled delivery as compared to those who did not know.

There was also a significant association between skilled delivery and 1-3 child-births (AOR=116.95; 95% CI: 26.68 – 512.64; p=0.001). Those women who had 1-3 deliveries were 116.95 times more likely to utilize skilled delivery service as compared to those women who had 7 and more deliveries. Equally, there was a significant association between skilled delivery and child deliveries numbering 4-6 (AOR=16.75; 95% CI: 4.44

– 62.87; p=0.001). Those who had 4-6 deliveries were 16.75 times more likely to utilize skilled delivery service as compared to those women who had 7 and more deliveries. According to FGDs, older and higher parity women who have experienced many deliveries reportedly utilized unskilled delivery services. *"Older women believe that they are more experienced and can handle complications better and can thus deliver form the comfort of their houses where they are attended by TBAs whom they know and are comfortable with"* said one of the TBA in the discussion. Similarly, younger women who were less experienced in childbirth and were concerned of the possible complications reportedly utilized SBAs' services.

Home-based skilled delivery services were not common mainly because it was more expensive than hospital based deliveries. In addition the local SBAs discouraged it due to limited equipment at the local facilities that they cannot carry around to provide deliveries at homes as reported in the FGDs.

Having previous delivery complication was significantly associated with skilled delivery (AOR=11.71; 95% CI: 3.96 – 34.60; p=0.001). Those women who had experienced previous delivery complications were 3.96 times more likely to utilize skilled delivery service as compared to those who had not experienced such complications.

The view that TBAs should not provide delivery services was associated with skilled delivery (AOR=27.19; 95% CI: 6.67 – 110.76; p=0.001). Those who were of the view that TBA should not provide delivery services were 27.19 times more likely to utilize skilled delivery service than those who were of the contrary opinion. According to the FGDs unskilled deliveries were mainly provide by TBAs who are more trusted by women, especially the mother in-laws who were more concerned of the number children of theirs sons *"the mother in-laws are the ones who advocate for use of TBA services as they believe that whenever their daughter in-laws go to hospital they are advised on use*

of family planning which reduced the number of children they can get" reported some of the TBAs in the FGDs.

Lack of preference for any gender of delivery service provider was associated with skilled delivery service (AOR=6.51; 95% CI: 1.08 – 39.37; P=0.041). Those who had no preference for any gender of service provides were 6.51 times more likely to utilize skilled delivery service as compared to those who preferred female. This finding is may also be linked to the finding in the FGDs where majority of men were thought to be uninvolved, even though concerned, with child delivery issues and normally leave this work to the women mainly the mother in-laws. *"Their only responsibility is to pay the cost of the delivery if any the rest can be handled by women"* viewed one of the TBA in the discussion.

Travel time to health facility of less than I hour from the residence of the women was significantly associated with utilization of skilled delivery service (AOR=3.91; 95% CI: 1.24 – 12.34; P=0.020). Those women who reported the travel time between their residences to nearest health facility to be less than an hour were 3.91 times more likely to use skilled delivery services than those who reported such time to be one or more hours.

There was a significant association between use of skilled delivery service and the perception that the health facilities were having good hygiene (AOR=5.03; 95% CI: 1.49 – 17.05; p=0.009). Those who perceived the health facility to be having good hygiene were 5.03 times more likely to use skilled delivery service than those with contrary perception Similarly, those who viewed the operation times to be convenient were 4.67 times more likely to use skilled delivery service than those who were of the contrary opinion (AOR=4.67; 95% CI: 1.59 – 13.76; P=0.005).

Table 4.9 Factors associated with uptake of skilled delivery services among women

Variables	AOR	95% CI		P value
		Lower	Upper	
Possession of knowledge on SBAs				
Known	17.2	1.05	281.12	**0.046**
Not know	1			
Parity				
3-Jan	116.95	26.68	512.64	**<0.001**
6-Apr	16.7	4.44	62.87	**<0.001**
7 and above	1			
Previous delivery complication				
Yes	11.71	3.96	34.6	**<0.001**
No	1			
TBAs services acceptance				
Yes	1			
No	27.19	6.67	110.76	**<0.001**
Don't know	3.06	0.9	10.47	0.074
Preferred gender of delivery provider				
Female	1			
Male	0.43	0.1	1.96	0.278
Any	6.51	1.08	39.37	**0.041**
Travel time to health facility				
Less than one hour	3.91	1.24	12.34	**0.02**
one or more hours	1			
Perceived hygiene of the health facility				
Good	5.03	1.49	17.05	**0.009**
Poor	1			
Operation time of the health facility				
Convenient	4.67	1.59	13.76	**0.005**
Not convenient	1			

Key:

AOR- Adjusted Odds Ratio

CI- Confidence Interval

P- Probability Value

4.2 DISCUSSION

4.2.1 Uptake of SBAs' services among child bearing women

Considering the most recent delivery a mother had, the findings of this study showed that uptake of SBA's service among the women interviewed was 47.6%. This is comparable, to and slightly above the national estimate of births attended by skilled attendants (44%) just as in most urban areas in the country where uptake of skilled delivery services are relatively higher as compared to the national average (KDHS, 2008/9). In Kenya, utilization of health facilities for labour and delivery services has been on the decline. According to Kenya Demographic Health Survey 2008-09, the percentage of medically assisted deliveries has fallen consistently from 50% in a 1993 survey to 44% in 2008 even though the proportion has increased marginally from 42% in 2003 to 44% in the 2008-09 (KDHS, 2008/9).

The observed uptake of skilled birth attendants' services is also similar to those of other developing countries, where attendance of deliveries by skilled health care workers is still low (Tawiah, 2007). Although many countries have reported notable increase in the proportion of births attended by skilled birth attendants, the slowest change has been noted in sub Saharan Africa, where the proportion of deliveries attended by SBAs went up from 40% in 1990 to 43% in 2000 showing a progress rate of 0.1% which is far below the 5.1% required to achieve MDG5.

Availability of skilled birth attendance during child delivery is one very important factor for reducing maternal mortality as has been reflected in the MDG 5 where, the proportion of births attended by skilled health personnel is considered a key indicator. By the year 2015, the international community aims to have achieved 90% coverage of women having a skilled attendant at birth (Adegoke *et al*., 2011).

From the findings of this study, it was surprising to find that none of the skilled deliveries services took place at home as compared to the 2008/9 KDHS result for North Eastern Kenya where 15% of the skilled delivery had taken place at home. This could be due to the advocacy by the skilled delivery providers in the area who prefer to provide delivery services at the facility rather than at home. In a FGD with nurses, it was clearly explained that due to limited equipment to handle possible complications at home, they always advocate for a facility based delivery.

4.2.2 Factors that promote Uptake of SBAs' services among women

A number of factors were found to promote use of SBA's services among the women, the strongest promoter being lower parity of less than 3 child deliveries Other studies have also shown significance of parity in utilization of modern maternity services where younger, lower parity women tended to use health facility more than older, higher parity women (Mwaniki *et al*., 2002; Van *et al*., 2006). In the FGD with the women, low parity women were opting for skilled service because most of them were younger women who were not well experienced in terms of child birth and thus did not know how to handle any possible complications.

Possession of knowledge on the different kind of SBAs was also found to be promoter SBAs' services where those women who knew the different kinds of SBAs and where to find them, were more likely to utilize SBAs' services as compared to those who did not. Knowledge on issues enhances decision making (Stephen *et al.,* 1990) and thus it is possible that these group of women, by the fact that they had knowledge on the service provides, were also well informed of the various complications that are associated with unskilled delivery service which prompted them to seek skilled services (Dhakal *et al.,* 2011).

Experience of previous delivery complications was found to promote use of SBAs' services where by those women who had experienced previous delivery

complications were more likely to utilize skilled delivery service as compared to those who had not. Obstetric complications experienced by these women included: Prolonged labor of over 12 hours (30.4%), excessive bleeding (48.8%), abnormal baby position (18.4%) and Convulsions (2.4%). Majority of these women confirmed that they delivered in hospital because they did not want to risk delivering at home in case complications recurred. Other studies have reported similar findings (2002; UNICEF, 2008; WHO, 2011a).

Disapproval of TBA services was a promoter of use of SBAs' services use as those women who disapproved of TBAs services were more likely to utilize SBAs' services as compared to those who approved of TBA service. The main reason for disapproving TBA services was that TBAs were likely to attend to deliveries in unhygienic conditions putting both the mother and the newborn's lives at risk of delivery related complications.

Whereas some previous studies have reported a significant relationship between gender of service providers and maternal services utilization (Chandler *et al*., 2000; Zuckerman *et al*., 2002), others have shown no such association (Howell *et al*., 2002). In this study, lack of preference for any gender of service provider was a promoter of SBAs' service use. Those women who had no preference for any gender of service provider were more likely to utilize skilled delivery services than those who preferred females.

Travel time of less than one hour from the residence of women to the nearest health facility was promoted use of SBAs' services. Nationally, only 32% of women in Kenya lived within the 5 km of health facility that offers delivery care (UNICEF, 2008; KDHS, 2003). Distance and time to the nearest health facilities were found to influence health services utilization (King & Jones, 2008).

A number of service related factors were also found to influence uptake of skilled delivery services. The parameters considered under service related factors in this study

were; cost of health services, operation times and perceived hygiene of health facilities. Good hygiene and convenient operation times of a health facility were found to promote used of SBAs'. The result of the study therefore enhanced the thinking that improvement of service at health facility is a factor that should be used to encourage women to go for safer delivery services. Service delivery in various maternity services is an important factor that can predict the utilization of those services as found in different studies (Furuta & Salway, 2006; Hazemba & Siziya, 2008; Sabine & Campell, 2009).

In this study, age, marital status and religious affiliation were not found to be predictors of uptake of skilled delivery service, but other studies have revealed the age group below 35 years has higher utilization of health facilities for both ANC and delivery than older women and that age and marital status are significant predictors of place of childbirth (Stephenson *et al.* 2006; KDHS, 2008/9; WHO, 2011b).

4.2.3 Factors that hinder Uptake of SBAs' services among women

The strongest burrier to use of SBAs' services was found to be higher parity of more than six deliveries. Other studies have also shown significance of parity in utilization of modern maternity services where younger, lower parity women tended to use health facility more than older, higher parity women (Mwaniki *et al*., 2002; Van *et al*., 2006). Higher parity women were said to be experienced and knew how to handle complications better, thus could take the chance of delivering "at the comfort" of their home despite the fact that risk of complication was found to increase with age (KDHS, 2008/9).

Lack of knowledge on SBA was found to hinder used of SBA's services where women who did not know the different kinds of SBAs and where to find them, were less likely to utilize skilled delivery as compared to those knew. This finding was in agreement with that of a study carried out in South Africa where lack of knowledge on

maternity waiting homes was a reason for the non-utilization of obstetric services (Uyirwoth *et al.*, 1996).

Lack of previous delivery complications was found to hinder use of SBAs' services as those women who did not experienced previous delivery complications were less likely to utilize skilled delivery service as compared to those who did. Other studies have reported similar findings (UNICEF, 2008; WHO, 2011a).

Approval of TBA services was a hinder to use of SBAs' services as those women who approved of TBAs services were less likely to utilize SBAs' services as compared to those who disapproved. The main reasons for approving TBA service was that TBAs provide more personalized care at home and were sensitive to the cultural norms. In laws especially the mother in-law normally advocated for TBA services as was clearly brought out in the FGDs and key informant interviews, the main reason being if their daughter in-law were to go to hospital frequently for delivery, they will be advised to use family planning which they are against. Somalis are patriarchal society and it is the sons that carry the name of the family and this is why parents have to make sure that their sons get many children (David, 2004). Other studies have shown a similar outcome (Kamal, 1998).

All (52.4%) of the unskilled delivery providers in this study were found to be TBAs. This estimate was quite high as compared to the nationally observed rate of 28% (KDHS, 2008/9) attendance by TBAs, which tends to enhance the thinking that many prefer TBA services and systematically sort for, by the mother in-laws. In other parts of the country however, higher estimates were found especially in Mwingi and Kwale districts, where TBAs attend to over 70% of the deliveries (MOH/UNFPA, 2004).

Similarly, preference for female service providers was a hinder to used of SBAs' services. The Somali community has cultural practices related to pregnancy and childbirth which influence maternal health seeking behavior and selection of place of

child delivery where cultural beliefs have actually been found to prohibit male assisted deliveries in order to preserve women's chastity (USAID, 2009). In this study, a similar outcome was found where 81.1% preferred female, 5.1% male and 13.8% had no preference for any of the genders.

Travel time of more than one hour from the residence of women to the nearest health facility was a hinder to use of SBAs' services. In other studies, distance and time to the nearest health facilities were found to influence health services utilization (King & Webb, 2008). A qualitative study from West Java Province in Haiti found that in rural areas, a long travel time worsened by poor road conditions prevented communities from using skilled delivery (Kumar *et al*., 1997).

A number of service related factors were also found to hinder uptake of SBAs' services. The parameters considered under service related factors in this study were; cost of health services, operation times and perceived hygiene of health facilities. Poor hygiene and inconvenient operation times of a health facility were found to hinder used of SBAs'. Service delivery in various maternity services is an important factor that can predict the utilization of those services as found in different studies (Furuta & Salway, 2006; Hazemba & Siziya, 2008; Sabine & Campell, 2009). Long waiting hours, inadequate qualified staff, dirty hospital environment and lack of basic commodities like drugs and food contribute to poor quality health services (WHO, 2011b).

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS & RECOMMENDATIONS

5.1 BRIEF ON THE CHAPTER

This chapter provides a brief summary of the study conducted as well as the conclusions reached from the finding. In addition it also gives a recommendation for the conclusions made.

5.2 SUMMARY

According to WHO, maternal health refers to the health of a woman during pregnancy, childbirth and postpartum periods. In the year 2013, an estimated 289,000 maternal deaths occurred worldwide, of which 99% occurred in developing country; sub- Saharan Africa alone accounted for 62% (179,000) followed by Southern Asia at 24% (69,000) of the global maternal deaths in 2013. Skilled assistance during childbirth is central to reducing maternal mortality yet the proportion of deliveries taking place in health facilities where such assistance can reliably be provided has remained below 50% in many countries. In the formers North Eastern Province of Kenya, the utilization of skilled attendants during child delivery remains low despite having the highest maternal mortality in the country. The purpose of this study was therefore to identify the factors that are associated with uptake of skilled delivery services during child birth among women of reproductive age in Garissa town. This was a cross sectional study where primary data were collected at one point in time. The study population was women aged 15-49 years who had had at least one delivery in the past two years and have lived in Garissa for at least two years. Multistage cluster sampling was used to identify respondents for the study. Both qualitative and quantitative data were generated. Bivariate and multivariate analysis was performed where by Odds Ratio (OR) and 95% Confidence Interval (CI) were used to estimate the strength of association between the various factors and skilled delivery service uptake. The study found that 47.6% of the last

deliveries among child bearing women were attended by skilled persons and 52.4% by TBAs. The predictors of skilled delivery uptake in this study were found to be: having knowledge on skilled delivery services (AOR=17.2; 95% CI: 1.05 – 281.12; p=0.046), 1-3 (AOR=116.95; 95% CI: 26.68 – 512.64; p=0.001) and 4-6 (AOR=16.75; 95% CI: 4.44 – 62.87; p=0.001) child births, encounters with previous delivery complications (AOR=11.71; 95% CI: 3.96 – 34.60; p=0.001), disapproval of TBA services (AOR=27.19; 95% CI: 6.67 – 110.76; p=0.001), lack of preference for gender of skilled delivery service provider (AOR=6.51; 95% CI: 1.08 – 39.37; p=0.041), and positive view on service related factors such as time to nearest facility (AOR=3.91; 95% CI: 1.24 – 12.34; p=0.020), hygiene (AOR=5.03; 95% CI: 1.49 – 17.05; p=0.009) and operation time of health facility (AOR=4.67; 95% CI: 1.59 – 13.76; p=0.005). It is therefore clear from the findings that cultural and maternal factors as well as quality of services at facility level play major role in determining uptake of skilled services among women in Garissa as compared to social demographic and economic factors.The findings lead to the recommendation that adequate maternal health education be provided to improve the attitudes and subjective value placed on skilled delivery service among women as well as improve services at health facility to enhance utilization of skilled delivery services. Additionally, the study recommended a further research in the field involving the male counterpart as this it did not involve male participants as husbands and partners whose views could be important. The findings of the study will help formulate appropriate policies and programs that will help develop better strategies to address the high maternal morbidity and mortality observed in North Easter Kenya.

5.3 CONCLUSIONS

- Utilization of skilled delivery service among the women in Garissa was low (47.6%) as compared to the MDG 5 target of 90% but was slightly above the

national average (44%) of births attended by skilled attendants as reported by the Kenya Demographic Health Survey 2008/2009.

- Lower parity of less than 6 child deliveries, possession of knowledge on SBAs, experience of previous delivery complications, disapproval of TBA services, lack of preference for any gender of service provider, travel time of less than one hour to the nearest health facility and good hygiene and convenient operation times of a health facility promoted used of SBAs'

- Higher parity of more than six deliveries, lack of knowledge on SBAs, lack of previous complication, approval of TBAs services, preference for female service providers, travel time of more than one hour to the nearest health facility and poor hygiene and inconvenient operation times of health facilities hindered used of SBAs' services

- Cultural and maternal factors as well as quality of services at health facilities play major role in determining uptake of skilled services during delivery among women in Garissa as compared to social demographic and economic factors.

5.4 RECOMMENDATIONS

- Educate women on the importance of SBAs' and the possible complication during delivery especially among higher parity women who were found to utilizing less of skilled delivery services.
- Create awareness on the concept of necessity where need precedes cultural believes especially on the gender preference in delivery service providers
- Improved services at the health facilities level in order to attract women
- Conduct further research in the field involving the male counterpart as this study did not involve male participants as husbands and partners whose views could be important.

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APPENDICES

APPENDIX 1: Informed consent

Title of Research: Factors associated with uptake of skilled attendants' services during child delivery in Garissa town, 2012

Researcher: Rahma Abdullahi Abikar, Masters Student, Jomo Kenyatta University of Agriculture and Technology.

Purpose of the Study

You are kindly requested to participate in the research titled above which will be carried out in Garissa town. For you to be able to participate in the study it is important that you understand what the study entails so that you can make an informed choice on whether to participate or not. The following therefore describes the purpose, procedures, possible benefits, and risks. It also explains how your personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to sign it.

Study description

Maternal mortality ratio is high in Kenya at 448 per 10000 live births and north eastern province is estimated to be double the countries average. Several strategies have been put in place to address this high mortality especially use of skilled attendants services during child deliver. In North Eastern the uptake of such services is also low and this study tries to find out the factors that are associated with uptake of such services. The study will also assess women's knowledge on the risks associated with home delivery, the availability, accessibility and quality of maternity care they receive. The

findings will help us to formulate programs that will increase hospital births in the district.

You will be requested to give written consent after the purpose and the implication of the study has been explained to you. I will ask you questions concerning your socio-economic status, number of pregnancies and place of birth of your last child and birth. The interview may take about 30 minutes.

Voluntarily

Your participation in this study is absolutely voluntary and you can decide whether to participate in it or not when you have clearly understood the objective of the study. You can stop your participation whenever you feel you can't carry on with the study. You are also free to avoid any question you are uncomfortable with and there is no penalty for this. You will not be paid for participating in this study and we will not identify you with the interview, as we are not recording any names. However the information you will give us will help us to improve services and we need your participation in this work.

Risks/Discomforts

There are minimal risks associated with participation in this study. You can however stop you participation whenever you feel you can't carry on with the study. You are also free to avoid any question you are uncomfortable with.

Confidentiality

The information we get from you is purposely for research and will not be relayed to anybody. The soft data will be protected using password as the filled questionnaires and notes will be kept in a lockable cabinet. We will keep the confidentiality of every

participant by use of serial numbers on the questionnaire. Names will not be used at any point and is of no purpose for this study.

Contact Information

If you have any questions regarding this study, please contact Rahma Abdullahi, on phone number 0720 582052 or the Secretary KEMRI/National Ethics Committee, P.O BOX 54840-00200, Nairobi; Telephone number : 020-272 2541; 0722 205901, 0733 400003

Declaration

Having read and understood the purpose of the study, I willingly accept to take part in it.

Signature …….. Date ……

Fingerprint.....

OR

Witness person if needed

Signature …….. Date ……

Note: By putting your signature, you are agreeing that:

- You have read this consent form and have been given the opportunity to ask questions
- You have known the risks and they have been explained to your satisfaction
- You understand Jomo Kenyatta University and KEMRI has no policy or plan to pay for any injuries you might receive as a result of participating in this research protocol.
- Your participation in this research is given voluntarily

Informed consent (Somali translation)

Title of Research/Magaa arintan

Arimaha horsetho melaha ay kudalan hawengo jogo magalatha Garissa

***Qofka hagajinayo**: Rahma Abdullahi Abikar oo digato Dugsiga, Jomo Kenyatta University of Agriculture and Technology.*

Purpose of the Study/ ulagedathetha

Wahan kubarya hoshanan magalatho garissa an kaqabaneyna ad ilafulisit. Si ad ikusaideysit, waha muhim aha inad si addah as u fahantid hosha maanahetho. Sidas daraded, hadalaha sohiga wahay fafahin kabihinihaya shaqatho sithloqabanilah, wanag iyo dibb wahay laimani iyo fulintethi. Wahakaloy kudareysa inan warkathan an qolakalo an logwynidonin. Markat akhrisit adnafahantit maanehetha, sual wad weydinkarta wahana lagaodsana inad sahihdid.

Study description/Arinta wahay tahay

Wariyaha nasogaaray waxaytusayan inay 10000 oo hoyoyinba, 448 inay kudhintan dhalmadha. Qaararka kasoo bahana wuxu anfaaya dumarka somaaliyet oo badhana ku ummalan guriyahotha. Guriya lagu umalaya dibatoyin aya kaimadan sitha camal in ay dumarku isugoan markay umalayan, diikbax, canugo oo dinta. Waxan baariya in ay dumarka ogsoon yahinn dibka kaimada gurigo oo lagu umalo, sababta ay isbitalka ugu dalaynin. Qofka ka qebqata baritankan wax diib oo kasoo garaya maleh, wax lacag oo lasinayana malex, waqtikastana wuu kabixi kara intafiowga. Waajib maaha in add sualaha kajawabta. Magacadha mel lagu digaya malex sifa an lagugu aqoonsanin.

Voluntary participation and withdrawal/ Akhtiyar

Sual laga hishoonaya ama ceb eh makutalo halkaan. Wax add donto waa weidin kaata. Wixi add rabin dhaaf. Magacada meel lagu qorayo malahan si ay cidna kuu garanin. Fadhlan ka qeeb qada sualaha. Marka aad donto kabax intafiowga. Wax dib oo kaa so garaya malahan. Wax lacag oo lagu siinaya malahan.

Confidentiality/ Amana

Waxa ad noshegtan waha loistacmalaa inan hoshan kufulino cid kalana lomageynaya. Qofna magacisa lamaqoraya. nambara kalih an qoreyna sida dadki jawabta lahay an lo oganin.

Contact Information/ sad iguheleysan

hadad sual kuxisaban arintan qabtit, waxad igahelikartan nambaradan: 0720 582052

Iskulatha KEMRI/National Ethics Committee, P.O BOX 54840-00200, Nairobi; Telephone number : 020-272 2541; 0722 205901, 0733 400003

Declaration/balan

arintan waha ay kusabsantaha wan gartay, anigo akhtiyarkeyley ba hagajina

Signature …….. *Date ……*

Sulka sar.....

Shaahid

Signature ……..……..…….. *Date* ……..……..……..…

APPENDIX 2: Questionnaire

Semi- structured Interview			
Date			
Cluster No.			
Start Time		End Time	

Question Number	**Question**	**Responses**
Social Demographic Factors		
1.	Age	
2.	Ethnicity;	1. Somali 2. None Somali
3.	Religion;	1. Muslim 2. None Muslim
4.	Marital status;	1. Married 2. Divorced 3. Widowed,

		4. Single
5.	How many wives the husband is married to;	1, 2, 3, 4
6.	Highest level of formal education attained	1. No education 2. Primary 3. Secondary 4. Collage 5. University
7	What is Your occupation	1. House wife 2. Salaried 3. Business 4. 0thers
Knowledge of skilled delivery service providers		
8	What do you understand by skilled delivery	
9	Where can you get such service	1. Public hospital 2. Private hospital/clinic 3. Home 4. Others
10	who are the delivery service providers that you know of in	1. Doctors

	your area	2. Nurses 3. TBAs 4. Relatives 5. Others
Obstetric History		
11	The last time you were pregnant, did you go for ANC services	1. Yes 2. No
	If yes, Where?	
13	How many times have you ever given birth	
14	The last time you gave birth, where did it happen	1. Public health facility 2. Private Heath Facility 3. Home
15	Give reasons for delivering in this kind of place (can choose more than one answer) (don't read out the choices)	1. More personalized care at home 2. Better care at private facility 3. Poor services at the public health facilities 4. High cost at the private facility 5. Husband preferred home 6. Did not want to be attended to by male 7. Health facility is far

		8. Others; specify……
16	Who assisted you when you delivered your last child?	1. Doctor 2. Nurse 3. Traditional Birth Attendant 4. Neighbor / friend /husband /relative 5. Delivered alone
17	Give reason for the choice above	1. More personalized care by TBAs 2. More skilled 3. Were available where I delivered 4. Less cost of TBAs 5. Poor attitude of health provides 6. Don't want to be attended to by male 7. Husband prefers home 8. Is the only place i know 9. Others; specify…… ……
18	The last time you delivered how do you rate the assistance you got	1. Good 2. normal 3. poor
19	Have you ever had any	1. Yes

	delivery complication	2. No
20	If yes specify; (don't read out the choices)	1. Prolonged labor of over 12 hrs 2. Excessive bleeding 3. Abnormal baby position 4. Convulsions 5. Others; specify
21	How has it influenced your choice of delivery service	
Cultural Factors		
22	In your opinion, do you think TBAs should provide delivery services?	1. NO 2. YES 3. Don't know
23	Give reason for this	1. They are unskilled and cannot deliver quality service 2. They can provide more personalized services 3. They can assist those who cannot afford facility fees 4. They are more accessible 5. Don't know 6. Others, specify
24	Who decides where you deliver	1. Self 2. Husband 3. Others, specify
25	Will you allow to be delivered	1. Yes

	by a male attendant	2. No
Health facility related factors		
How do you find the health facility you attend in terms of;		
26	Cost;	1. Can't afford 3. Affordable Give the amount per delivery……..
27	How long does it take you to get to hospital by walking	1.less than an hour 2. 1-2 hours 3. More than 2 hours
28	Hygiene;	1. Hygienic 2. Not hygienic Explain
30	Operation time;	1. Convenient 2. Not convenient Explain (e.g opening and closing hour),
31	According to you what should be done to encourage people to use skilled delivery services	
33	How will you like to receive information on skilled delivery from (don't read out the choices)	1. TV 2. Radio 3. Posters 4. Written information

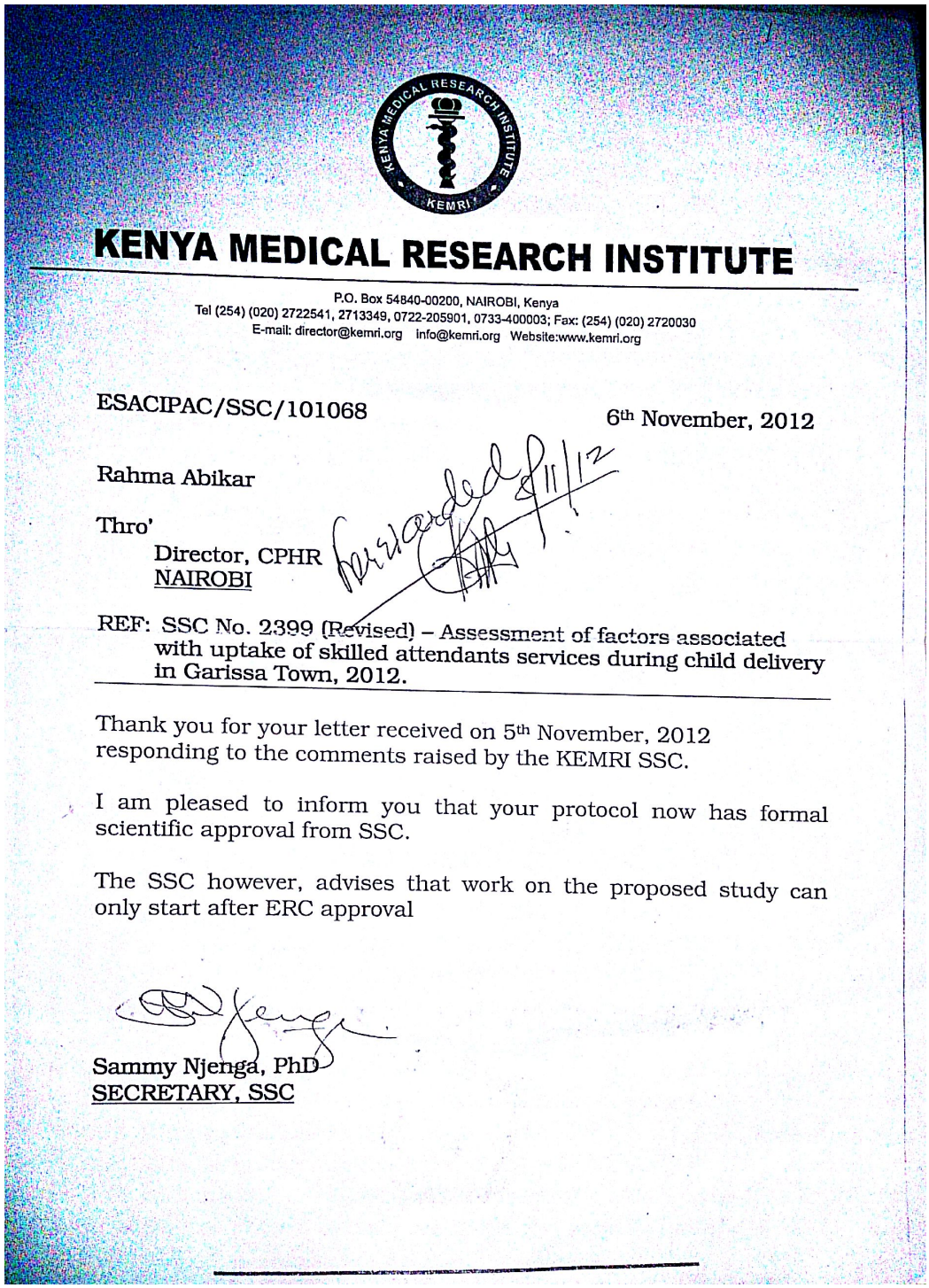
		5. Personal interaction with a health professional 6. Don't what to know any 7. Don't know 8. Others
34	What sort of person would you most prefer to receive information from (don't read out the choices)	1. Nurse 2. A religious leader 3. An educated woman 4. Doctors 5. Others.....

APPENDIX 3: Study guide for Focus Group Discussions

1. In your opinion do you support skilled delivery? Why?
2. Are there women who use unskilled delivery? Who are they? Why?
3. Who are the providers of unskilled delivery in this area?
4. How are men involved in skilled delivery utilization?
5. Is there a preference of home-based skilled delivery over facility based skilled delivery? Why?

APPENDIX 4: Map Showing study site (www.toursa.com)

APPENDIX 5: KEMRI SSC Approval



KENYA MEDICAL RESEARCH INSTITUTE

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E-mail: director@kemri.org info@kemri.org Website:www.kemri.org

ESACIPAC/SSC/101068

6th November, 2012

Rahma Abikar

Thro'
Director, CPHR
NAIROBI

REF: SSC No. 2399 (Revised) – Assessment of factors associated with uptake of skilled attendants services during child delivery in Garissa Town, 2012.

Thank you for your letter received on 5th November, 2012 responding to the comments raised by the KEMRI SSC.

I am pleased to inform you that your protocol now has formal scientific approval from SSC.

The SSC however, advises that work on the proposed study can only start after ERC approval

Sammy Njenga, PhD
SECRETARY, SSC

APPENDIX 6: KEMRI ERC Approval

KENYA MEDICAL RESEARCH INSTITUTE

P.O. Box 54840-00200, NAIROBI, Kenya
Tel (254) (020) 2722541, 2713349, 0722-205901, 0733-400003; Fax: (254) (020) 2720030
E-mail: director@kemri.org info@kemri.org Website:www.kemri.org

KEMRI/RES/7/3/1

April 18, 2013

TO: RAHMA ABDULLAHI ABIKAR (PRINCIPAL INVESTIGATOR)

THROUGH : DR. YERI KOMBE; DIRECTOR, CPHR Forwarded 30/4/2013

RE: SSC PROTOCOL NO. 2399 – REVISED (*RE-SUBMISSION*): FACTORS ASSOCIATED WITH UPTAKE OF SKILLED ATTENDANTS' SERVICES DURING CHILD DELIVERY IN GARISSA TOWN

Make reference to your letter dated February 25, 2013, Received on February 25, 2013.

We acknowledge receipt of;

a. The Revised Study Protocol.
b. The Revised Informed Consent Document

This is to inform you that the Ethics Review Committee (ERC) reviewed the document listed above and is satisfied that the issues raised at the 211th meeting held on 6th February, 2013 have been adequately addressed.

The study is granted approval for implementation effective this **18th day of April 2013**. Please note that authorization to conduct this study will automatically expire on **April 17, 2014**. If you plan to continue with data collection or analysis beyond this date, please submit an application for continuing approval to the ERC Secretariat by **March 7, 2014**.

Any unanticipated problems resulting from the implementation of this protocol should be brought to the attention of the ERC. You are also required to submit any proposed changes to this protocol to the ERC to initiation and advise the ERC when the study is completed or discontinued.

You may embark on the study.

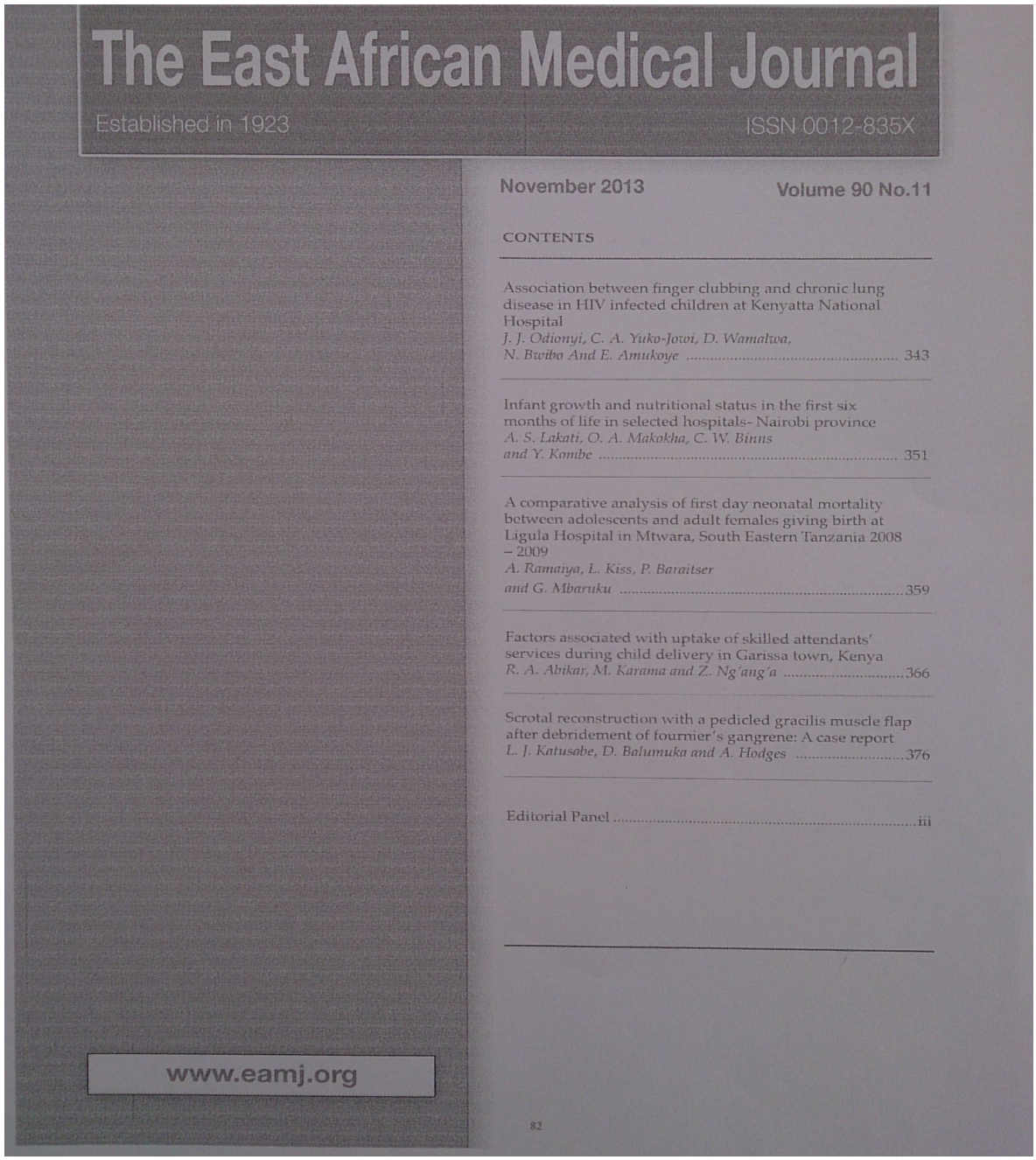
Sincerely,

EAB

Dr. Elizabeth Bukusi,
ACTING SECRETARY,
KEMRI/ETHICS REVIEW COMMITTEE

In Search of Better Health

APPENDIX 7: Proof of Publication



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