INFLUENCE OF TRADITIONAL BIRTH ATTENDANTS' REORIENTATION AND MOTHER PACKS INCENTIVES ON CHOICE OF PLACE OF BIRTH IN MARSABIT COUNTY, KENYA.

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DECLARATION

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

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DEDICATION

I dedicate this thesis to my family for supporting me through prayers, time and motivational words.

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First, thanks to the Almighty Father for granting me knowledge, wisdom and good health to complete this academic thesis.

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May God's blessing be bestowed up on you.

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DEFINITION OF OPERATIONAL TERMS

Choice of place of delivery: It is a preferred option on the location of giving birth by the women in labor; health facility, home or assistance from unskilled attendants.

Community-Based referral agents: Refers to traditional birth attendants who have been sensitized to link mothers from the community to facility deliveries in preference to home because of associated benefits.

Community based referral system: It is a practice of linking patients or clients from communities to hospital set up for delivery and a more specialized level of care.

Mother-pack incentives: They are childcare and mother items that are provided to mothers on conditional delivery of their babies in healthcare facilities.

Output Based Approach: It is a policy mechanism aimed at introducing competition amongst facilities, providing an incentive for them to enhance quality of service provision so as to stimulate demand for their health services among consumers to address poor health indicators.

Reorientation: Refers to the act of shifting focus of the tradition birth attendants' role in assisting women during delivery in their communities to referring them to health facilities for skilled delivery.

Women: Refers to females aged between 15 to 49 years.

ABBREVIATIONS AND ACRONYMS

ANC	-	Antenatal Care
CBRA	-	Community Based Referral Agents
CBRS	-	Community Based Referral System
CHEW	-	Community Health Extension Workers
COVID	-	Corona Virus Disease
FGDs	-	Focus Group Discussions
HHs	-	Households
HIV/AIDS	-	Human Immuno-deficiency Virus/Acquired Immuno-Deficiency Syndrome
KDHS	-	Kenya Demographic and Health Survey
KII	-	Key Informant interview
KNBS	-	Kenya National Bureau of Statistics
KUERC	-	Kenyatta University Ethics and Review Committee
MMR	-	Maternal Mortality Rate
MoH	-	Ministry of Health
MPI	-	Mother Pack Incentives
NACOSTI	-	National Council of Science Technology and Innovation
NCPD	-	National Council for Population and Development
OBA	-	Output Based Approach
PNC	-	Post-Natal Care Clinic
RoK	-	Republic of Kenya
SBA	-	Skilled Birth Attendant
SDG	-	Sustainable Development Goal
SPSS	-	Statistical Package for Social Sciences
TBA	-	Traditional Birth Attendants
UNDP	-	United Nations Development Programme
WHO	-	World Health Organization

ABSTRACT

Globally, approximately 295,000 maternal fatalities were witnessed in 2017. About 86% of these reported in Asia and Sub-Saharan Africa. The rate of Skilled Birth Attendant in Sub-African region stood at 59%. Currently, maternal mortality rate in Kenya is 362/100,000 live births. Despite deliberate government interventions to increase hospital deliveries, still a substantial proportion of mothers give birth at home. To address this, Community Based Referral Systems were established by reorienting Traditional Birth Attendants shifting their focus to referring pregnant women to health facilities for delivery. This included provision of mother pack incentives to discourage home deliveries. The study sought to assess influence of community-based referral systems and mother packs incentives on place of delivery choice of among postnatal mothers in the County of Marsabit, Kenya. Specifically, the study focused on influence of community based referral systems, mother pack incentives, and individual and health facility factors linked to place of delivery choice. Analytical study design was adopted which utilized methods of data collection that were qualitative and quantitative. To collect data quantitatively from respondents, questionnaires which were structured helped in this while key informant interview and Focused Group Discussion guides helped in collecting data qualitatively. Respondents for interview were drawn from households picked through systematic random sampling with a 4^{th} internal till attainment of 416 sample size. The recruitment of Focused Group Discussants and Key Informants was done purposively. All the necessary ethical and logistical approvals and informed consent were sought accordingly. Analysis of quantitative data was done by use of version 20 of Statistical Package for Social Sciences. Presentation of data was done by use of graphs, pie-charts and frequency tables. Qualitative data were presented as narrations. Calculation of inferential statistics was done using tests of Chi-Square tests at a confidence interval of 95% and an error of precision of 0.05 to show variable associations. Those variables significant at chi-square were subjected to further logistic regression to determine their relationship to the place of delivery. Results revealed that (233)56.7% of postnatal women in Marsabit County had delivered in health facilities. Skilled birth attendance rate was (241)58.6%. Instant labour pains was the main reason for home delivery at (75)42.1%. Community based referral agents predicted the choice of place of delivery. The person who person introduced women to community referral agents (t=3.879, df=3; p=0.000) predicted choice of place of delivery. Source of information on mother pack incentives (t=2.705, df=5; p=0.007) and receiving mother pack incentives (t=-6.151, df=1; p=0.000) predicted the provision of mother pack incentives on overall, predicted choice of place of delivery. The individual factors such as myths and misconceptions (t=-2.280, df=1; p=0.023), hospital delivery reduces complications (t=-3.987, df=2; p=0.000), hospital delivery time consuming (t=-2.625, df=1; p=0.009), risky to deliver at home (t=-2.999, df=2; p=0.000) and having medical insurance (t=-5.139, p=0.001) predicted choosing a delivery place. The health facility factors such nearness to the facility (t=-5.935, df=2; p=0.000), hindrances of hospital delivery (t=-2.277, df=5; p=0.023) and information provision (t=6.315, df=1; p=0.000) predicted choosing a delivery place. In conclusion, about 6 out 10 deliveries occur at the facility in Marsabit County. Community based referral agents (t=7.677, df=4, p=0.000), mother pack incentives (t=15.643, df=3, p=0.000); individual factors (t=12.785, df=6, p=0.000) and health facility factors (t=13.020, df=4, p=0.000) predicted the choice of place of delivery. The study recommends the Government of Marsabit County and relevant stakeholders to scale-up awareness, coverage and provision of more incentives to encourage hospital delivery.

CHAPTER ONE: INTRODUCTION

1.1 Background information

Worldwide, about 295,000 maternal fatalities were witnessed in 2017 with Asia and Sub-Saharan Africa taking a share of 86%. Two-thirds of these deaths were solely from Sub-Saharan Africa. Rate of Skilled Birth Attendant in Sub-African region stood at 59% (WHO, 2019). Most of the maternal and neonatal fatalities are as a result of delivery outside hospital set-ups. An alarming proportion of women succumb due to complications related to pregnancy or giving birth in the world (Njuguna *et al.*, 2017). The World Health Organization (WHO) presented a policy aimed at all deliveries universally attended by skilled personnel (WHO, 2019). However, still a substantial proportion of mothers give birth at home later taking their babies for immunization at health facilities signifying greater risks (Moindi *et al.*, 2016).

The Kenyan Government has made strides in lowering the rate of maternal fatalities even though there are insufficient in achieving a maternal death target stemmed at 147/100,000 live births by WHO (RoK, 2015). Currently, Marsabit has a MMR of 1127/100,000 which is more than 3 times that of Kenya standing at 362/100,000 (WHO, 2019). The Kenyan government put in place several interventions and policies aimed at ensuring deliveries occur at facilities under the care of trained health professionals (Njuki *et al.,* 2015). One of the policies include free maternal delivery at public hospitals through the Linda Mama Initiative, maternal shelter that has been underutilized, beyond zero campaigns to prevent maternal deaths through free equipped mobile clinics and Output Based Approach (OBA) for subsidies to safe motherhood (Moindi *et al.*, 2016).

Despite these deliberate government interventions, it is unexplainable why home deliveries are preferred (Mulinge, 2017). This probed into the establishment of Community Based Referral Systems (CBRS) by community-based referral agents, community health volunteers and provision of mother pack incentives to discourage home delivery by unskilled attendants. This incentive was championed by UNICEF in 2013 in collaboration with the Ministry of Health and the local county governments to increase facility deliveries under skilled birth attendants. In the year 2013, the rate of facility based deliveries in Marsabit County was 29.2% (MoH, 2018). Community based referral system is a practice of sending patients or clients to hospital set up for delivery and a more specialized level of care. It is a strategy aimed at identifying community health issues and referring them to healthcare facilities. Strengthening community health care systems is essential to accessing skilled delivery services at health facilities through effective community referral systems (Orit *et al.,* 2015). The strategy of using community based referral agents includes identification of traditional birth attendants (TBAs) from each sub-location. They are trained on their role as referral agents, identifying danger signs of pregnancy and risk factors associated with home deliveries.

On the other hand, mother pack incentives are also given by the health facilities in collaboration with the county government, national government and non-governmental organizations upon women delivery on health facilities. The incentives are given in health facilities by healthcare providers free without any cost. These Mama Kits provided included Baby cloths, Baby rapper, Pampers, Pads and shawls (Becker *et al*., 2018). The TBAs are also given Kshs 500 for each pregnant women they referred in

some parts of Kenya, including Marsabit County to lure women to delivery in health facilities.

1.2 Problem statement

Despite adoption of policies and interventions to ensure universal skilled delivery at birth, the overall uptake of skilled birth attendants (SBAs) has been questionable in low to middle income countries. There were about 295,000 maternal fatalities worldwide in 2017 with Asia and Sub-Saharan Africa accounting for 86%. Rate of Skilled Birth Attendant in Sub-African region stood at 59% (WHO, 2019). The MMR in Kenya is 362/100,000 which is below the WHO target of 147/100,000 live births (KDHS, 2014). Although improvements have been noted in delivery under the watch of trained health professionals, about 39% of Kenyan women deliver under unskilled birth attendants. The County of Marsabit is rated among counties in the top-five reporting highest rates of maternal fatalities currently standing at 1,127/100,000 live births (NCPD, 2015). Delivery at home is a common practice with only 44.4% of the deliveries occurring at health facilities in 2017 and 29.2% in 2013 (MoH, 2018). Most of the maternal and neonatal fatalities are as a result of delivery outside hospital set-ups linked with greater risks (Njuguna *et al.*, 2017).

Home deliveries may be attributed to strict cultural practices where pregnant women believe that delivery under the care of somebody they know is safe opting for Traditional Birth Attendants during deliveries (Caulffield *et al.*, 2016). However, it becomes a challenge when a complication occurs that requires the attention of a trained healthcare provider in a safe environment. Arid and semi-arid areas are characterized by sparse population where most facilities are distantly located with poor road networks

hence inaccessible especially for pregnant women with instant labor pains. The direct and indirect costs associated with hospital deliveries are enormous especially for the poor women. The recurring nature of home deliveries has prompted several interventions being put in place to curb these including community based referral agents and mother pack incentives. In spite of all these, it is unexplainable why home deliveries are preferred (Mulinge, 2017).

1.3 Study Justification

The Maternal Mortality Rate in Marsabit County is unacceptably high. It is among the counties in Kenya with most MMRs of 1127/100,000 live births (WHO, 2019). In spite of county government and other stakeholders' efforts to advocate for hospital deliveries through media, reorientation of community-based referral agents (CBRAs) and mother pack incentives, still there is evidence of home based deliveries. Initially, the Traditional Birth Attendants (TBAs) were used to conduct deliveries resulting to unskilled deliveries putting women and their new-born babies at risk. The reorientation shifts focus to identifying pregnant women in communities and referring them to hospitals for skilled deliveries, discouraging home deliveries.

The compensation received by reorienting TBAs would discourage them from conducting the deliveries by themselves but rather lured to being referral agents. Since implementation of mother packs incentives and reorientation of community-based referral agents, there is little information on their influence towards skilled birth attendant deliveries. Most of the studies done have been hospital based neglecting deliveries at the community level where the problem of home based deliveries persists. Therefore this study sought to establish influence of community-based referral systems

and mother packs incentives on choosing delivery place among postnatal mothers in the County of Marsabit, Kenya.

1.4 Research questions

i. What are the individual factors associated with choice of place of delivery among postnatal women in Marsabit County?

ii. What are the health system factors associated with choice of place of delivery among postnatal women in Marsabit County?

iii. What is the association between community-based referral agents and choice of place of delivery among postnatal women in Marsabit County?

iv. What is the association between mother pack incentives and choice of place of delivery among postnatal women in Marsabit County?

1.5 Null hypothesis

Ho1: The individual factors are not associated with choice of place of delivery among postnatal women in Marsabit County.

Ho2: The health system factors are not associated with the choice of place of delivery among postnatal women in Marsabit County.

Ho3: The community-based referral agents are not associated with choice of place of delivery among postnatal women in Marsabit County.

Ho4: The mother pack incentives are not associated with choice of place of delivery among postnatal women in Marsabit County.

1.6 Research objectives

1.6.1 Broad objective

To assess influence of community-based referral agents' reorientation and mother pack incentives on the choice of place of delivery among postnatal women in Marsabit County.

1.6.2 Specific objectives

i. To establish individual factors associated with choice of place of delivery among postnatal women in Marsabit County.
ii. To identify the health system factors associated with choice of place of delivery among postnatal women in Marsabit County.
iii. To determine the association between community-based referral agents and choice of place of delivery among postnatal women in Marsabit County.
iv. To determine the association between mother-pack incentives and choice of place of delivery among postnatal women in Marsabit County.

1.7 Significance of the study

The findings would benefit mainly the Health Ministry, public hospitals, other stakeholders, reproductive age women, the community and traditional birth attendants (referral agents) as the key stakeholders. This would help in creating awareness and improving the health seeking behavior towards hospital deliveries. This would further result to reduction of maternal and child mortalities as pregnant women would prefer delivery at health facilities. This would go a long way in helping achieving the Universal Health Coverage. This would further contribute to achievement the Sustainable Development Goal (SDG) number 3, target number 1 and 2 which aims at

reducing worldwide MMRs and curbing preventable fatalities of under 5 children and newborns (UNDP, 2015). The study would also contribute to the knowledge base as it would form part of literature for future reference to other scholars. The study ensures provision workable ways of reducing disparities in health and reduction of poor maternal/neonatal outcomes by emphasizing on the importance of seeking SBA services during pregnancy and eventual delivery (Mulinge, 2017). The study would enable policy makers to structure policies aimed at reducing/prohibiting use of traditional birth attendants (TBAs) hence encouraging facility based deliveries as a result of mother pack incentives and TBA's reorientation.

1.8 Assumptions

The study held a number of assumptions which included; the postnatal women would be open for engagement and may want to learn more regarding the subject, improvement in knowledge may result to practices that are healthy hence reduction of maternal and child mortality cases, information provided by respondents would be accurate, women could reciprocate the reorientation of TBAs as community health agents of SBAs and women would want to have skilled birth attendance.

1.9 Limitations and Delimitations

1.9.1 Limitations

The researcher anticipated and encountered a number of challenges which included inaccessibility due to poor road networks and hence accessing most interior parts was difficult. This affected data collection exercises. The researcher also anticipated insecurity challenges due to tribal animosities in the region.

1.9.2 Delimitations

In order to overcome the above limitations, the researcher sought services of motor bikes (boda bodas) as a means of transport in areas with poor road networks to navigate most interior parts of the county. The tribal animosities was addressed by hiring police to provide security during the data collection exercise.

1.10 The conceptual framework

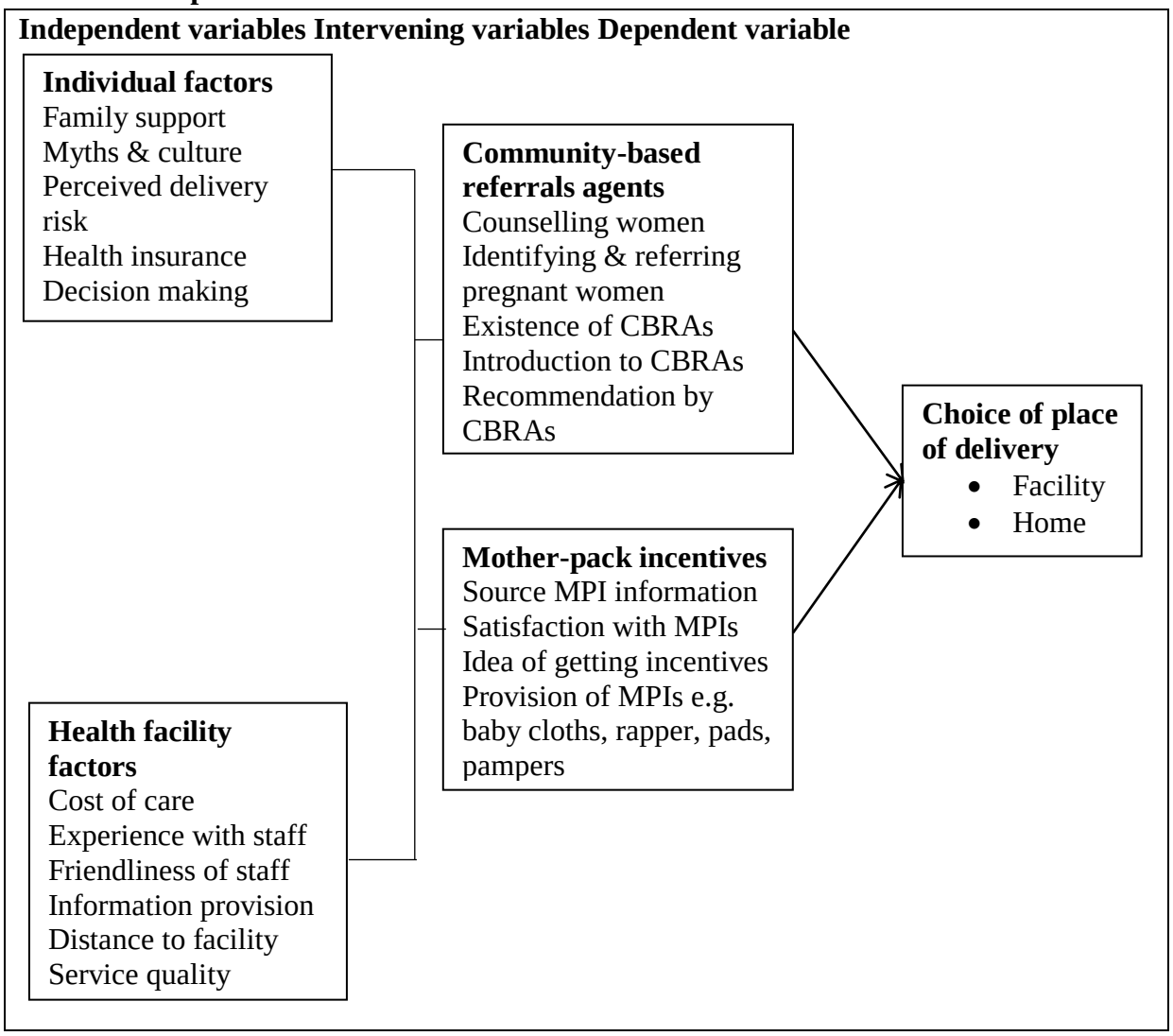

Fig 1.1: The conceptual framework
Source: Adopted and modified from literature review, (2018).

CHAPTER TWO: LITERATURE REVIEW

2.1Introduction

Globally, maternal fatalities is unacceptably high. Daily, about 830 women succumb as a result of causes that can be prevented in the course of child delivery and pregnancy. Such cases are more common in countries that are developing taking a share of 99% (WHO, 2018). In the year 2015, fairly 303 000 women reportedly lost their lives while in the process of child delivery and pregnancy (Alkema*et al.,* 2015). Most of these cases are drawn from Asian continent and parts of Sub-Saharan Africa at 88% of the global statistics.

Sub-Saharan Africans takes the junk of the fatalities estimated to be 546/100,000 live births, or 201,000 deaths yearly. In terms of percentage, this death toll accounts for 66% globally (two-thirds). Southern Asia comes second at 22% (66,000) of these deaths. Additionally, disparities exist between and within nations (WHO, 2019). Revelations have shown that to save lives of newborns and women, it is crucial to have access to care prior to, in the course of and post-delivery. To achieve Sustainable Development Goals, UN aims at reduction of MMR globally to below 70/100 000 live births from 2016 to 2030 (UNDP, 2015).

In the Ethiopian Capital of Addis Ababa with more private hospitals than public, a mere 20% deliveries occur in private sectors while 17% of deliveries are captured at home (Federal Ministry of Health, 2011). Findings from Nigerian studies reported that 60.8% of last deliveries were at home (Ashimi and Amole, 2015). Zambian rural areas also reported 67% home deliveries (Chama-Chiliba and Koch, 2016). This shows that home

deliveries is still an issue creating an alarm particularly in many parts of the Sub-Saharan region of Africa.

2.2 Choice of place of delivery

Improvements towards facility deliveries have been reported as a result of several interventions and measures to curb home deliveries across different communities in the world. In a study done in Guinea Bissau, it was reported that only 39.8% of deliveries occurred in hospital settings (Yaya *et al*., 2019). Comparative studies in remote parts of Ghana, it was reported that 52.7% of women from the savanna zone delivered at home while 65.6% of women from the forest zone delivered at health facilities (Dickson *et al*., 2016). In India, a study among rural Indian women showed that about a half (50.0%) of pregnant women interviewed ended up delivering in health facilities (Gorain *et al*., 2017). The Kenyan Health Ministry reports indicates that the rate of hospital delivery in Marsabit county stood at 44.4% in 2017 and 29.2% in 2013 (MoH, 2018).

Several reasons have been fronted as key hindrances barring pregnant women from delivering in health facilities. A study done in rural Zambia, occurrence of shorter than expected labor pains prompted women to deliver at home (Scott *et al*., 2018). A Nigerian study noted that unavailability of husband consent to wives hindered them from delivering at facilities (Shehu *et al*., 2016). Findings from coastal Kenya among HIV/AIDS positive women concluded that inadequate information access was the main hindrance to deliver in facilities (Chea *et al*., 2018).

Health facility delivery ensures safe environment for mothers to deliver their newborn babies. However in any given area, factors within the health facility may be key drivers to lure women to deliver in hospital settings. In a study done in Dodoma municipality in

central Tanzania, nearness to the health facility was the main reason for hospital deliveries (Muhunzi, 2020). In Zambia, the fear for complications among pregnant women was the main driver for health facility deliveries (Sialubanje *et al*., 2015). In Northwest Ethiopia, free availability of delivery services was the main reason for hospital deliveries (Nigatu & Gelaye, 2019).

It is recommended that pregnant women should give birth in presence of SBAs. In most cases this can only be realized in hospital set ups. In Kenya, the rate of SKAs was noted to be standing at 62% (WHO, 2019). In a study a study done in Dodoma region of Tanzania, three quarters of child deliveries were conducted under the care of SBAs (Ngowi *et al*., 2017). In a study in Guinea Bissau, it was reported that slightly more than a third of deliveries were conducted by skilled birth attendants (Yaya *et al*., 2019).

2.3 Community-based referral agent and choice of delivery place

Community based referral system was championed by UNICEF in collaboration with the Ministry of Health, county governments and other non-governmental organization in the north-eastern region to address the issue of home deliveries (MoH, 2018). This is a practice of sending patients or clients to hospital set up for delivery and a more specialized level of care. It is a strategy aimed at identifying community health issues and referring them to healthcare facilities (Mulinge, 2017). The system reorients TBAs by shifting their focus from being delivery agents to referring pregnant mothers to health facilities for skilled delivery. Strengthening community health care systems is essential to accessing skilled delivery services at health facilities through effective community referral systems (Orit *et al.,* 2015). The strategy uses community based referral agents by identifying traditional birth attendants (TBAs) from each sub-

location. They are trained on their role as referral agents to health facilities, identifying danger signs of pregnancy and risk factors associated with home deliveries. The intervention was introduced in Kenya in 2013 by UNICEF as a measure to reduce the maternal and neonatal mortalities attributed to home deliveries. The intervention was later adopted by the county government of Marsabit and northern Kenya counties. By the time of its conception in 2013, the rates of facility-based deliveries in Marsabit County stood at 29.2% (MoH, 2018).

Study findings documented show effective community referral systems are significantly associated with beneficial effect and could lead to a reduction in home deliveries, the main cause of disability, mortality and fatality in neonates and mothers (WHO, 2019). Pregnant mothers are identified, counseled and referred by community health workers hence plan and deliver in hospitals (Mohan *et al.,* 2017). Research findings from a study on role of community referral system in increasing hospital deliveries in Kisii found out that 80% of the referrals made to the health facilities could be categorized as being useful in encouraging delivery at hospitals (Malachi & Onkware, 2020).

Community-based referral system success is determined by the effectiveness of existing Community health workers who form the essential link facilities and households. The community health workers are instrumental in encouraging pregnant women to attend antenatal clinics as well as postnatal clinics by accompanying them and referring them to facilities (Give *et al.,* 2019). The community workers are more trusted and respected by the women since they mostly come from the same community as these women. Visiting homes via community extension health workers (CHEWs) also encompass birth preparedness and caring for newborns. This makes it a reality through community

health workers who are female adopting ANC and PNC at respective homes (Olaniran, 2019). The community health workers as referral agents need to be well trained with functional supervision structures to help come up with community health workers' facilitated referral system which is normally preferred because of its success rate (Kitui *et al*., 2017).

The referral agents convince women at the community level as the only trusted and skilled individuals to assist them in delivery. Results from County of Laikipia in Kenya indicates success stories shared on effectiveness of community based referral agents in convincing pregnant mothers in delivering in healthcare institutions (Kibera *et al*., 2020). In another qualitative findings from Mozambique's Maputo region depicted that health professionals introduced pregnant women during ANCs to community based referral agents which led to improved health facility deliveries (Give *et al*., 2019). Whenever pregnant mothers have been identified, counseled and referred to hospitals by community health workers they plan and deliver in hospitals (Mohan *et al.,* 2017). In Ghana, it was noted that community based counselling and referral programs lead to increased uptake of modern contraceptive obtained from healthcare facilities (Henry *et al*., 2020).

2.4 Mother packs incentives and choice of delivery place

Mother pack incentives are Mama Kits provided to mothers who deliver their babies in health facilities as a way of discoursing home deliveries. This intervention was introduced in the country together with TBA's reorientation in 2013. The items contained in the kits include Baby cloths, Baby rapper, Pampers, Pads and shawls given by the health facilities in collaboration with the county government, national

government and non-governmental organizations. The incentives are given in health facilities by healthcare providers free without any cost. (Becker *et al*., 2018). The TBAs are also given Kshs 500 for each pregnant women they refer in some parts of Kenya, luring women to facility delivery.

Global efforts have been accelerated in the recent past to upgrade access to SBA in the course of pregnancy and delivery to reduce maternal mortality (Mwanza, 2015). Motivating women through giving incentives makes them seek SBA services in hospitals thus breaking the cultures attached to home deliveries (Henrietta, 2015). Studies from Kenya's County of Narok, it was reported that traditional birth attendants were converted to be community based referral agents and have played a key role in this (Kitui *et al.,* 2017). The TBAs were given Kshs 500 for each pregnant women they referred while mothers with facility deliveries given a range of baby care items.

Cultural and religious barriers to accessing the services of skilled birth attendants, mother-pack incentives have been implemented in some parts of Kenya, including Marsabit County to lure women to delivery in health facilities. Availability of a SBA at the delivery point is the most crucial factor to prevent maternal deaths. In a study that was done in a faith-based health facility in South-eastern region of Nigeria increased hospital deliveries were attributed to monetary gains in form of fare to facilities (Egharevba *et al.,* 2017). Creation of formal links with the community through community-based referral agents and the idea of the mother-pack incentives has strengthened home-to-hospital continuum of care (Uny, 2017).

In Zambia, Mama Kit incentives were introduced to increase facility-based deliveries comprising of giving mothers childcare package of items on condition that they delivered their babies in a facility. These interventions led to improvement in deliveries at facilities in Zambia (Wang, 2016). However, existence and provision of mother pack incentives alone may not realize the intended purpose of completely eliminating home deliveries. The nature of their provision and other factors need to be relooked at. According to Becker *et al* (2018), on their study, they reported that women were satisfied with the financial incentives they were given to encourage breastfeeding.

2.5 Individual factors

Variation of knowledge has crucial consequences in maternal care seeking. In a study conducted among African-Canadians found that knowledge level of the respondents influenced healthy practices such as place of delivery of mothers. More knowledgeable people have higher chances of seeking ANC services and subsequently delivering at hospitals (Otieno, 2015). Individual willingness to seek for skilled birth attendant at the hospital during delivery also affects delivery place choice (Kitui *et al.*, 2017).

Myths and misconceptions about hospital delivery exist in communities. Certain cultural and religious beliefs especially among the Muslims play a key role in deciding the choice of place of delivery. In remote areas of Ethiopia, myths and misconceptions surrounding institutional delivery affected facility-based deliveries (Kelel *et al*., 2020). In southeastern Nigeria, people belief that there are some foods which when taken may lead to prolonged and difficult labor thus preferring delivering at home (Ekwochi *et al*., 2016).

In the United States of America, study findings showed that women chose home deliveries in preference to hospital deliveries simply because of the fear of contracting Covid-19 (Gildner & Thayer., 2020). Home delivery is a risky exercise that has been discouraged due to poor management under unskilled birth attendants in the communities. Fearing labor pains and lower complication rates attracts women to hospital deliveries in Bushehr City (Najafi-Sharjabad *et al*., 2018). A study done in India shows that it was not time consuming to deliver at the facilities (Bhattacharyya *et al*., 2016). In remote settings of Maasai in Kenya, time consuming was one of the hindrances to hospital delivery as people thought travelling to distant hospitals wastes their time as they would still get the services from traditional birth attendants (Karanja *et al*., 2018).

Income of an individual can increase the willingness of a person to seek antenatal care services and consequently increase chances of one delivering at the hospital. The individual's income is a determinant for service utilization in terms of accessibility and affordability (Kelel *et al.,* 2020). The income determines the living standards which further affects living healthy through health service usage. The amount of money one has affects the kind of service one can afford. Increasing an individual's household income leads to service utilization and visits to the private practitioners are more likely to happen and thus increasing chances of hospital delivery (Lahana *et al.,* 2016).

Possession of a health insurance plays a significant role in accessing as matters health facility delivery. A peri-urban study conducted in Nairobi, Kenya, showed about seventy-nine percent of the interviewed women did not have a health insurance (Oluoch-Aridi *et al*., 2020). Being covered by a medical insurance was linked to where

one chose to deliver their babies. In Ghana pregnant women were given free medical insurance to help them deliver in healthcare facilities (Nesbitt *et al*., 2016). Possession of a valid national health insurance significantly influences health facility delivery (Gudu & Addo., 2017).

Family support is a very crucial component in enhancing utilization of ANC and delivery in hospitals. The common place where support is obtained is from the family members especially spouses. Marital status as the most important source of support can influence where one delivers and also ANC and PNC service usage. Findings from a research in Indian revealed the possibility of marital status determining utilizations of services by mothers in pregnancy (Gorain *et al.,* 2017). Married females were reported to be at higher chances than singles to use healthcare services. These trends were reported all over the world irrespective of the development status of nations (Afulani and Montagu, 2018).

In a true African community, matters to do with pregnancy and child care are seen as women affairs while men are tasked with role of providing for the family. In a study done in Ethiopia, it was reported that decisions on where to deliver were done on a partner agreement basis (Nigatu and Gelaye, 2019). According to Dickson *et al.* (2016), men take sole control on family decisions including place of delivery. In another study done in Southeastern Ethiopia it was further noted that making joint family decisions affected choosing delivery place (Belda & Gebremariam, 2016).

Cultural and religious beliefs especially among the Muslims are crucial in determine where one delivers. According to a study done in rural Ethiopia, myths and misconceptions surrounding institutional delivery affected facility-based deliveries

(Kelel *et al*., 2020). In southeastern Nigeria, people belief that there are some foods which when taken may lead to prolonged and difficult labor thus preferring delivering at home (Ekwochi *et al*., 2016). Study findings from an Ethiopian study shows decisions on where to deliver were done on a partner agreement basis (Nigatu and Gelaye, 2019). According to Dickson *et al.* (2016), in his study, he concluded that men take sole control on family decisions including place of delivery.

Matters of reproduction and sex is an issue that is sensitive thus people always shy off from exposing their nakedness to people they know. This determines who assists pregnant women during child bearing. In India, pregnant women did not mind on who assisted them during delivery so long as they have a successful delivery (Sahoo *et al*., 2015).According to a qualitative study done among the pastoralist women in Kenya, delivery at home was common because they felt comfortable with delivering in the hands of the people they knew (Caulffield *et al*., 2016).

2.6 Health system factors influencing the choice of delivery

Health system factors also have an influence on where a woman delivers. Perception towards service quality provision plays a crucial role in determining outcomes of health. Quality services looks at meeting the expectations, needs and wishes of mothers towards services sought (Ngugi *et al.,* 2017). A study in India showed dissatisfaction with care hence women did not continue with their antenatal care services as required (Gorain *et al.,* 2017). There is need to seek the views of service users to ensure the needs are captured and met with ease.

Unfriendly health care providers instill a negative attitude of pregnant women towards services. Experience that devalues, dehumanizes and disempower results to challenging

perceptions on personal identity thus undermining self-sense affecting service delivery. Choosing to deliver at home is associated with concerns about the quality of services prompting women to shy from hospitals (Sudhinaraset *et al*., 2016). Good handling of patients means they can seek subsequent services in the health facilities thus more hospital deliveries. Mistreatment of women during delivery has been noted as factor that affected hospital delivery among pregnant women in Nigeria (Bohren *et al*., 2017). Altman *et al* (2019) revealed that healthcare providers criticized and provided fragmented care during pregnancy and child birth.

Professionals in healthcare setups must advise, lend an ear to concerns of clients and avail information that is accurate. Decisions on delivery place are dependent on information given and available (Kamali *et al*., 2018). Healthcare providers should explain the importance of antenatal care to pregnant mothers and hospital delivery in preventing maternal and neonatal mortalities (Ogolla, 2015). The perception women have on provider support particularly in the delivery process enhances satisfaction and outcomes improvement (Chityaka and Ngoma, 2018). Perceived potential behavior and reception from the healthcare staff was an issue in Serra Leone that significantly influenced hospital delivery (Treacy *et al*., 2018). A Tanzanian have shown that most people preferred to deliver at private hospitals and/or at home because they reported bad reception at government facilities (Kohi *et al.,* 2018).

In remote regions, long distances to facilities is a norm, reports provision of services that are of poor quality. In some areas roads are not in good condition and there is limited number of vehicles operating through such routes. This further harder for the women to reach the hospital to delivery making some to deliver on the way even when

they had an intention of delivering at the hospital (Otieno, 2015). Nearness to facilities is a common reason for home delivery. Study findings from Ethiopia revealed that distance was associated with home deliveries (Kidanu *et al*., 2017). Averagely, distance between homes and nearest facility was 4.7 kilometers in Ghana (Doste-Gborgbortsi *et al*., 2020). Long distances and poor road networks has been associated with low hospital deliveries among pastoralist women in Kenya (Caulffied *et al*., 2016).

The cost of service deliver and the physical ambiance of the health facilities may act as a major hindrance to hospital deliveries. According to a study done in ethnic minority villages of Lao, it was extremely expensive to access hospital delivery services (Sato *et al*., 2019). Caulfield *et al* (2016) reported that mothers deliver at home to avoid the costs incurred in hospital delivery. The indirect costs associated with hospital deliveries in remote areas of Sierra Leone were high hence opting for home deliveries (Treacy *et al*., 2018). Friendly structures coupled organized channels of service delivery means pregnant women can easily access services without struggles. In Northwest Ethiopia, ease of access to hospital infrastructure affected choice of place of delivery (Gashaye *et al*., 2019).

2.7 Summarized literature and gaps

Literature has been reviewed on individual factors, health system factors, mother pack incentives and TBA reorientation. However, most of the studies reviewed have focused on factors generally influencing delivery place choice isolating mother pack incentives and TBA reorientation. Even though there are numerous interventions in action to increase facility based deliveries, cases of home deliveries have been witnessed around the world. There is limited information on TBA reorientation and mother pack

incentives' influence on choice of place of delivery. Since its implementation in 2013, little data is available on how the strategies have influenced choosing delivery place prompting the conduct of the current study. This makes this study significant in determining influence of mother pack incentives and reorientation of community based referral agents in Marsabit County, Kenya.

CHAPTER THREE: MATERIALS AND METHODS

3.1 Introduction

The chapter presents the methods of research adopted by the researcher in conducting this study. The choice of the research design and data collection methods were informed by the nature of the research problem. The chapter focused on research variables, study location, study and population targeted, techniques of sampling, instruments and methods of data collection, analysis of data and ethical concerns.

3.2 Study design

The study adopted an analytical-observational design of study was utilized to analyse obtained data from participants in Marsabit County (Kothari, 2008). This entailed collection of both quantitative and qualitative data. This was done at the community level at a particular point in time. This ensured a complete analysis of the situation of the influence of community-based referral agents and mother packs incentives with little bias. This design attempts to quantify associations between the variables i.e. the dependent and dependent variables.

3.3 Study location

Location of the study was the County of Marsabit. It is among counties with highest maternal deaths in the country and community based referral systems and mother pack incentives have been implemented. The most part of the county is an extensive plain bordered by hills, mountain ranges and a desert. The main economic activity in the county is nomadic pastoralism facilitated by the semi-arid climatic condition. Out of the 5000km road networks only 580km is covered by murram and 312km covered by Bitumen (tarmac). The county has a population of 459,785 with 243548 (52%) male and 216219 (48%) female covering 70,961.2 Sq. KM (KNBS, 2019). The County has

56,941 households (KNBS, 2019). It has 4 sub-counties with the total population of Laisamis (101089), North Horr (71447), Moyale (153771) and Saku (133478). The sites of study were from Moyale and North Horr sub-counties. Moyale sub-county has 7 wards while North Horr sub-county has 5 wards. The functional health facilities in the county are represented by one (1) county referral hospital, one (1) district hospital, six (6) health centres and thirty four (34) dispensaries. The county's current MMR is 1127/100,000 live births. Doctor-population and nurse-population rations are 15:100,000 and 91:100,000 respectively. Health facility deliveries in the county stood at 44.4% against 61.2% of the national average (MoH, 2015).

3.4 Study variables

3.4.1 Independent variables

They included;

i) Individual factors such as decision maker on where to deliver, myths and misconception about hospital delivery, better to deliver in the hands of some you know, delivering at the hospital helps avoiding complications, cannot afford costs associated with hospital delivery, delivery at the hospital is time consuming, possession of a medical insurance cover and risky delivering at home. They were also measured using a checklist of questions asked to respondents.

ii) Health-system factors influencing choice of place of delivery among mothers in Marsabit County. They included factors such as distance to the facility, cost of services, experience with care providers, their friendliness, perceived quality of

services, and provision of information to clients. This was also measured by use of a check list containing these items.

3.4.2 Intervening variables

i) Community based referral agents and their role which included luring women in choosing delivery place among postnatal women in Marsabit County. The variables under this included counselling women, identifying and referring women to facilities for delivery, existence of community based referral agents and who introduced them to Community Based Referral Agents. All these variables were measured using a checklist with questions on the same.

ii) Provision of mother pack incentives (Mama Kits) which contained baby clothes, pampers, pads and rappers in a way to lure women deliver in health facilities in the county of Marsabit. This also included the source of information on mother pack incentives, satisfaction with the incentives and their idea on taking the mother pack incentives. They were also measured using a checklist of questions.

3.4.3Dependent variable

The dependent variable was choice of place of delivery among postnatal women in Marsabit County. This was measured by determining the number of those whose latest delivery occurred at home verses those at a health facility. To achieve this mothers were asked where they delivered in their latest delivery. This was further ascertained with confirmation from the mother and child health hand book by the research team.

3.5 Study population

This constituted postnatal mothers who resided in the County of Marsabit for at least 6 months before the study's conduct. These individuals were from different backgrounds in terms of culture and socio-economic status. The study also included the key

informant interviewees who comprised of community based referral agents and healthcare providers.

3.5.1 Criteria for inclusion

Those included for quantitative data were postnatal mothers who resided in the County of Marsabit for at least 6 months before the study's conduct. They should also have delivered their last child within a period of one month post-delivery. Only those who consented were recruited. Key informants included were those who formed the community based referral agents who had been reoriented on the new roles and the healthcare providers.

3.5.2 Criteria for Exclusion

Those excluded were sick mothers, community based referral agents and healthcare providers who were on leave thus unable to participate in the study. Mentally ill respondents were also excluded.

3.6Techniques for Sampling and Determining Sample Size

3.6.1 Techniques and Procures for Sampling

The study utilized multi-stage sampling of study respondents. The selection of the County of Marsabit was purposive due to it being amongst counties highest maternal deaths in the country (the fourth high burden county in the country) and in which the community based referral systems and mother pack incentives have been implemented. Moyale and North Horr sub-counties were randomly selected from folded pieces of paper. Moyale sub-county has 7 wards while North Horr has 5 wards. From each sub-county, 2 wards were purposively chosen for study. One rural ward and one township ward was selected for the study. From Moyale sub-county, Moyale Township Ward (3

sub-locations) which is most urban and populous and Golbo Ward (7 sub-locations) which is most rural was selected. In North Horr sub-county, North Horr Ward (5 sub-locations) which is most populous and most urban, and Dukana Ward (4 sub-locations) which is most rural was selected.

Two sub-locations from each ward selected were sampled for study. The sub-locations for study were randomly selected using folded pieces of paper. Township and Ngurumesa sub-locations of Moyale Township Ward while Golla and Funyatta sub-locations from Golbo Ward were selected for the study. In North Horr Ward, Gallas and Malabot sub-locations while Balesa and Sabare sub-locations from Dukana Ward were selected for study. Systematic random sampling was used to pick participants from their households at an interval of four which was predetermined. Rifles (yes/no) were used in picking the first participant randomly. Every 4^{th} household with a postnatal woman meeting the criteria for inclusion was interviewed. This was achieved by dividing the study population by the sampled population. Any selected household without a respondent meeting the inclusion criteria, prompted the researcher to move to the next household with a postnatal mother meeting the inclusion criteria. This was repeated up to the moment the desired sample size was attained. This was proportionate to the number in each sub-location.

Four (4) Focused Group Discussions (FGDs) were conducted to supplement collected data. Each FGD had 9 members purposively recruited based on capability to provide information required. Further, 20 Key Informant Interviewees (KII) picked on purposive, gave their opinions. Community Based Referral Agents and healthcare providers from Marsabit County were part of key informants.

3.6.2 Determining Sample Size

Fishers *et al* (1998) formula was employed to determine the size of the sample populace exceeding 10, 000.

$$n = \frac{z^2 pq}{d^2}$$

Where: n = desired sample size

z = standard normal deviate (1.96) at 95% confidence interval

p = 0.44proportion of women with hospital deliveries in Marsabit County (MoH, 2018).

q = 1 – p=1-0.44= 0.54 Assumed proportion not delivering in health facilities.

d = degree of accuracy (0.05)

Thus, sample size (n) $= \frac{1.96^2 \times 0.44 \times 0.54}{0.05^2} = 378.63$

10% (38) of subjects were included catering for non-responses thus administering 416 questionnaires.

Table 3.1: Proportion of respondents for selection

Sub-county	Wards	Sub-locations	Total HH	Sampled HH
Moyale	Moyale Township	Township	365	82
		Ngurumesa	281	63
	Golbo	Golla	224	50
		Funyatta	273	61
North Horr	Dukana	Balesa	241	54
		Sabare	198	44
	North Horr	Gallas	119	27
		Malabot	156	35
Total			**1857**	**416**

Source: Marsabit County Development Plan, (2016).

3.7 Research tools and instruments

Questionnaires which were structured were used in collecting data quantitatively from postnatal mothers in the County of Marsabit. All socio-demographic, individual, health system factors, mother pack incentives, community-based referral agents and delivery choice place were covered. To collect data qualitatively from postnatal mothers, FGD guides were utilized with each session having 9 individuals. Key Informant Interview schedules provided data additionally from 20 community-based referral agents and healthcare providers in Marsabit County.

3.8 Research Instrument Pre-Testing

This was done at the sub-county of Saku in Marsabit County. A total of 42 (10%) postnatal women were picked for questionnaire pretesting. One (1) FGD session conducted with postnatal mothers and four (4) community-based referral agents and healthcare providers were selected for KII schedule pretesting.

3.8.1 Validity

To ensure attainment of this, views from experts (supervisors) were sought. Tools were structured in such a manner that all objectives were captured. The methods of sampling used were random in nature and representativeness was guaranteed. This enhance validity internally through randomization and homogeneity of population interviewed. Selection of a large sample was crucial in attaining validity externally.

3.8.2 Reliability

Selecting research assistants appropriately guaranteed reliability. Prior to collection of data, they were trained adequately and made familiar with topic as well as area of study.

Field pretesting of tools/instruments before actual study enhanced understanding and corrections required incorporated.

3.9 Techniques of Data Collection

Questionnaires that were structured were used to gather information quantitatively. Necessary translations to Kiswahili and other local languages as deemed necessary was done by research assistants. Participants were guided by research assistants to respond to questions and data collection was done during the day. The exercise was conducted in private rooms or locations to ensure privacy. The research monitored all the activities during the data gathering exercise. For confidentiality purposes, questionnaires collected were stored in cabinets that were locked. This also helped in protecting loss of data.

To collect data qualitatively, four (4) FGDs meetings with postnatal mothers were conducted. The exercise was done after completion of quantitative data collection. This was carried out in a room within the locational Headquarter offices. This exercise lasted for between 30 minutes to 1 hour. The exercise was moderated by the researcher with recordings and note-taking undertaken by research assistants. This facilitated discussions freely prompting participants to provide information which could have not been possible in interviews done face to face.

Also additional qualitative data was collected through interviews with key informants involving 20 community referral agents and healthcare providers in private offices within the locational headquarters of the selected locations. The KIIs sessions were conducted between 30 minutes to 1 hour. There were no recording but notes were taken by the research assistants. Their submissions, views and ideas were considered.

3.10 Management of Data and Analysis

The collected data on questionnaires, FGD and KII guides were first stored in locked cabinets. Later, data were extracted from the research instruments. Cleaning of data and editing was done to check inconsistent and missing values noted and adjusted before coding. Microsoft Excel sheets were used for entry and storage of quantitative data. The softcopy data was stored in pass-word protected computers and only accessed by the principle research. Version 20.0 of Statistical Package for Social Sciences (SPSS) software assisted in analysing data descriptively. Frequency tables, graphs, charts and percentages helped in presentation of data. The Test of Chi-square was employed to generate inferential statistics with cross tabulations used in presentations. This was pegged at a confidence interval of 95% and $p \leq 0.05$. Variables significant at Chi-square were further subjected to logistic regression to determine their influence on the dependent variable. The presentation of data qualitatively from KIIs and FGDs was achieved through incorporating direct quotes of the notes that were taken during the sessions.

3.11 Ethical considerations

The Graduate School of Kenyatta University gave the study a go ahead through a research approval (Appendix vi) and research authorization (Appendix v). Ethical clearance from Kenyatta University Ethics and Review Committee (KUERC) was sought (Appendix vii). A permit for research was sought from the National Council for Science, Technology and Innovation (NACOSTI) [Appendix viii). Authorization for research was given out by the Commissioner, Education and Health Services directors of the County of Marsabit (Appendix ix). Local units of administration provided further

authorisations. Before respondent engagement, informed consent was requested. There was a clear explanation on the need for the study and involvement was voluntarily. All gathered information was confidently and privately kept. The results would be disseminated appropriately during workshops, conferences and publications.

CHAPTER FOUR: RESULTS

4.1 Introduction

Questionnaires were administered to 416 respondents sampled from the County of Marsabit. Of this, 411 questionnaires which were fit for analysis were considered. This represented a 98.8% rate of response.

4.2 Respondents' Socio-demographics

On this, 154 (37.5%) of the respondents had their ages in years ranging 30-39 followed closely by 136 (33.1%) with those of years ranging 20-29. Results on attained highest educational level depicted that about 183 (44.5%) had attained primary level followed by 137 (33.3%) without formal education.

On status of marriage, 342 (83.2%) were married followed by single at 47 (11.4%). On matters religion, most 273 (66.4%) of them were Muslims followed by 138 (33.6%) who were Christians. More than half 214 (52.1%) of interviewees were unemployed not employed, the self-employed were 132 (32.1%).

Respondents with a monthly family earning of less Kshs 10,000 was above average 238 (57.9%) followed by 100(24.3%) who earned between Kshs 10,001-20,000. Additionally, 154 (37.5%) of the participants had six or more children followed by 94 (22.9%) who had four or five children. This was presented in table 4.1.

Table 4.1: Socio-demographic distribution (n=411)

Variable	Respondent response	Frequency (N)	Percentage (%)
Age in years	≤ 19	64	15.6
	20-29	136	33.1
	30-39	154	37.5
	40-49	57	13.9
Highest level of education attained	No formal education	137	33.3
	Primary	183	44.5
	Secondary	72	17.5
	Post-secondary	19	4.6
Marital status	Married	342	83.2
	Single	47	11.4
	Divorced/widowed	22	5.4
Religion	Christians	138	33.6
	Muslims	273	66.4
Occupation	Employed	65	15.8
	Self-employed	132	32.1
	Not employed	214	52.1
Monthly family income in KShs	≤ 10,000	238	57.9
	10,001-20,000	100	24.3
	20,001-30,000	49	11.9
	≥ 30,001	24	5.8
Number of children	1	88	21.4
	2-3	75	18.2
	4-5	94	22.9
	≥ 6	154	37.5

4.3 Choice of place of delivery

4.3.1 Proportion of respondents with respect to place of delivery

The study sought to establish those respondents with home and facility deliveries. Results showed that 233 (56.7%) of them delivered at hospital while the remaining 178 (43.3%) of delivered at home. These findings were as in figure 4.1.

Results of qualitative nature agreed that mothers preferred home delivery via TBAs due to their familiarity with them. One focused group discussant said,

"*…you know these women helping us in delivery are the people from our community who have been with us for long and they have the experience and respect from all of us. So that's why I prefer them to the hospital where I don't know the doctors or nurses and thus, I will not be free with them. I have heard from my neighbor that at the hospital you are shouted at and sometimes insulted by those medics…*"

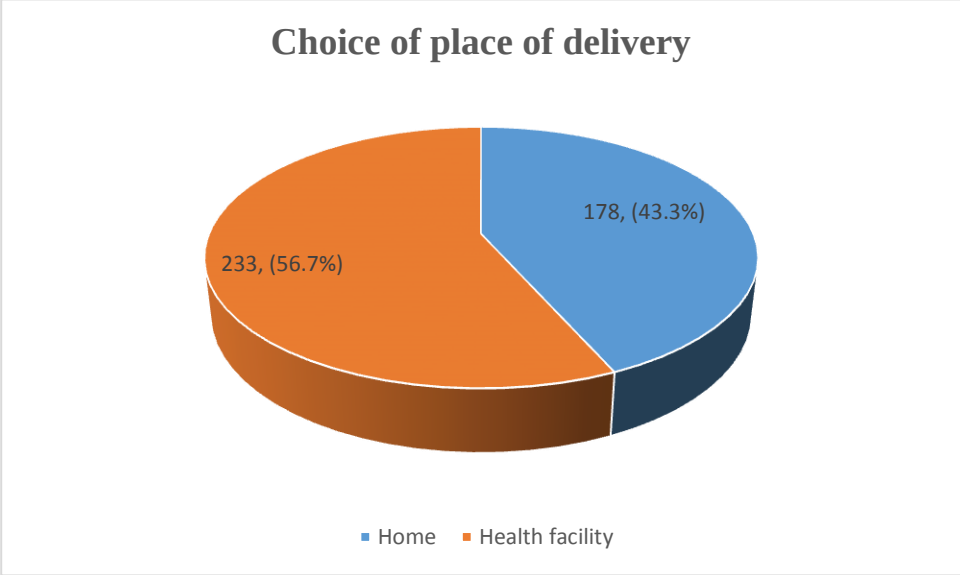

Fig 4.1: Choice of place of delivery among respondents

4.3.2 Reasons for home delivery

Results revealed that 75 (42.1%) of the respondents reported instant labor pains as the main reason for home delivery followed by 51 (28.6%) who delivered at home just because their previous deliveries were at home. Results were as shown in figure 4.2 below:

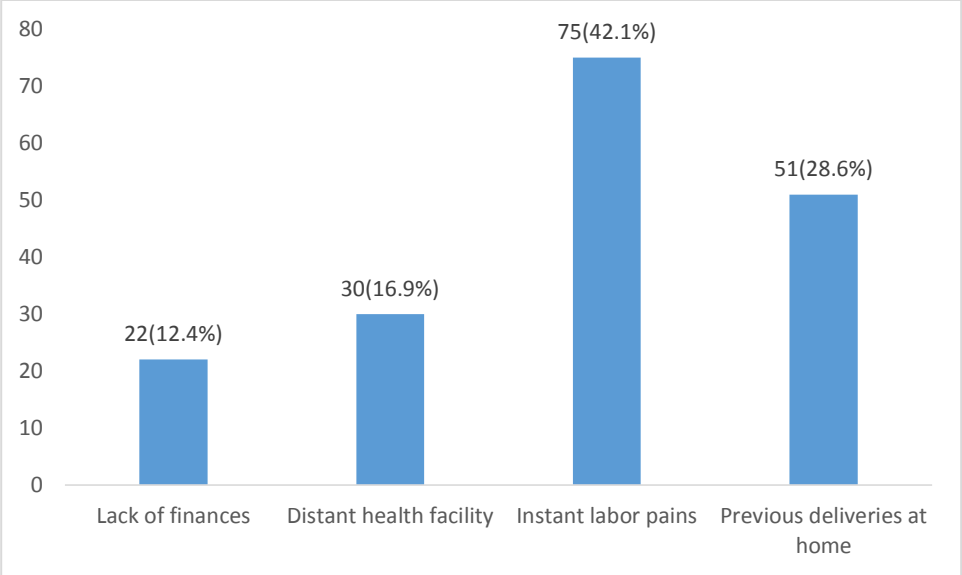

Fig 4.2: Reasons for home delivery among respondents

4.3.3 Reasons for hospital delivery

Concerning the motivation for hospital delivery, the results revealed that 100 (42.9%) of respondents delivered at the hospital because of the perceived quality of services followed by 93 (39.9%) who feared difficulties. This was shown in table 4.2. One of the discussants during focused group discussion session said;

"*…delivering at home can be risky. Imagine you get complication while delivering at home at night yet the hospital is very far from here? So that is my main worry which makes me deliver in the hands of trained health care worker. My cousin lost her child because of complications when she was delivering at home. So, it's better to always take precautions…*" (FGD Discussant).

Table 4.2: Reasons for delivery in health facilities among respondents (n=233)

Reasons for health facility delivery	Frequency (N)	Percentage (%)
Fear of complications	93	39.9
Quality health services	100	42.9
Referred by CBRAs	17	7.3
Health facility is near	15	6.4
Spouse recommended	8	3.4

4.3.4 Assistance during delivery

Majority 241 (58.6%) of the respondents reported that they delivered under the assistance of the health care provider followed by 136 (33.1%) who delivered with the help of the TBAs. This finding was presented in the figure 4.3.

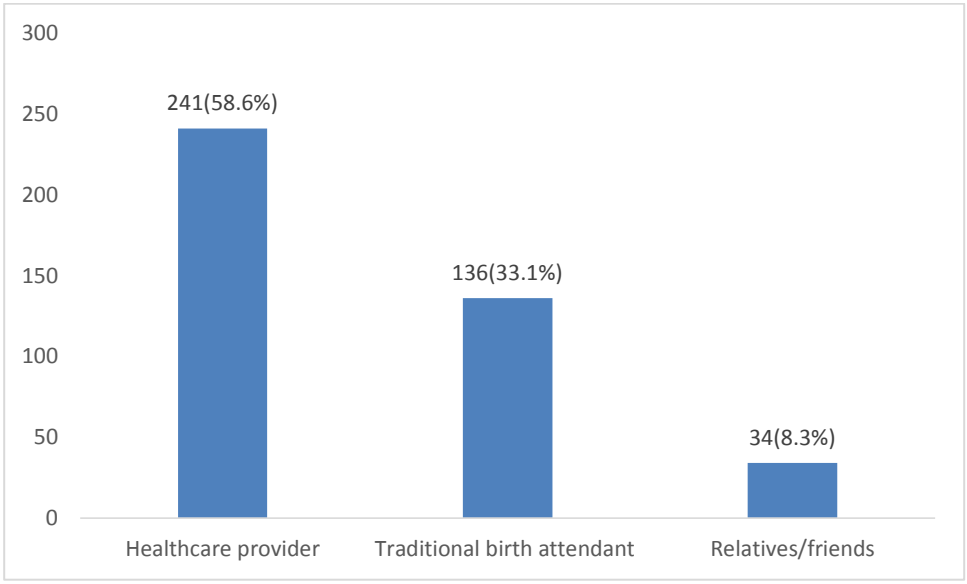

Fig 4.3: Person who assisted during delivery

4.4 Community based referral systems and choice of place of delivery

4.4.1 Community based referral systems

Majority 386 (93.9%) of the respondents revealed that indeed community-based referral agents existed in the community while the rest 25 (6.1%) reported that they did not exist. Results on who introduced them to the community-based referral agents revealed that 137 (35.5%) were introduced to them by the healthcare workers followed by 125 (30.4%) who were introduced to them by friends. On whether the respondents were recommended to the health facility by the community baaed referral agent, results showed that majority 379 (92.2%) of them were recommended by them while the rest 32 (7.8%) were not.

Most 347 (84.4%) of the respondents were counseled on reproductive health issues by the community-based referral agents while the rest 64 (15.6%) were not. More than half 246 (59.9%) of the respondents revealed that community-based referral agents determined their place of delivery while the rest 160 (40.1%) felt that the community-based referral agents never had influence of delivery place choice. This was shown in Table 4.3.

Table 4.3: Community based referral systems (n=411)

Variable	Response	Frequency (N)	Percentage (%)
Existence of community based referral agents in the community	Yes	386	93.9
	No	25	6.1
Who introduced you to the community based referral agents	Friends	125	32.4
	Family members	67	17.4
	Healthcare workers	137	35.5
	Myself	57	14.8
Recommended to the health facility by community based referral agent	Yes	379	92.2
	No	32	7.8
Counseled on reproductive health by community based referral agents	Yes	347	84.4
	No	64	15.6
Community based referral agents determined my place of delivery	Yes	246	59.9
	No	165	40.1

4.4.2 Influence of community-based referral agents on delivery place choice

In seeking to establish the linkage between community-based referral agents and choice of deliver, results indicated that most 218 (93.6%) of those interviewed knew the existence of community-based referral agent in the community delivered at the hospital. Knowledge on existence of community-based referral agents in the community statistically influenced mother's choice on the delivery place (χ^2= 7.119, df=1; p=0.036). About half 88 (41.1%) of the interviewees who were introduced to the

community-based referral agents by the healthcare workers delivered at the hospital. Statistically, an important linkage occurred on who introduced the respondent to the community-based referral agents and choosing the delivery place (χ^2= 16.449, df=3;p=0.001).

Greatest number 215(92.3%) of respondents who delivered at the hospital were recommended to deliver to the facility by the community-based referral agent. There was a statistically significant association between being recommended to deliver at facilities by community-based referral agent and choosing the delivery place (χ^2=13.259, df=1; p=0.011). Approximately 204 (87.5%) of those who delivered at the hospital were counseled on reproductive health issues by community-based referral agents. Being counsel on reproductive health issues by community-based referral agents did not have a significant association with choosing a delivery place (χ^2=0.557, df=1; p=0.456).

In addition, 149 (63.9%) of participants who delivered at the hospital reported that community-based referral agents determined their delivery place. In terms of association, community-based referral agents determined the delivery place chosen by mothers (χ^2=9.139, df=1; p=0.001). The outcomes of the study were posted in table 4.4.

One of the community-based referral agents, who was one of the key informants said,

"*…before we started going to communities to educate these people on the importance of hospital delivery, there were more deaths and more home deliveries. We have tried to increase the number of those delivering at the hospitals although we can still do better. Nowadays women are informed about dangers of delivering at homes and also, they sometimes call us to organize forums with them so that they can be enlightened. To a high extent we can attribute the reduction in number of home deliveries to the existence of community-based referral agents. I am indeed proud of our efforts…*" (**Healthcare provider**).

Table 4.4: Community based referral agents and association with delivery place (n=411)

Variable	Respondent response	Choice of place of delivery		Statistical significance
		Home (N=178)	Hospital (N=233)	
Existence of community based referral agents in the community	Yes	168((94.4%)	218(93.6%)	χ^2=7.119 df=1 p=0.036
	No	10(5.6%)	15(6.4%)	
Introduction to community based referral agents	Friends	65(37.8%)	60(28.0)	χ^2=16.449 df=3 p=0.001
	Family members	40(23.3%)	27(12.6%)	
	Healthcare workers	49(28.5%)	88(41.1%)	
	Myself	18(10.5%)	39(18.2%)	
Recommended to deliver at the facility by community based referral agent	Yes	164(92.1%)	215(92.3%)	χ^2=13.259 df=1 p=0.011
	No	14(7.9%)	18(7.7%)	
Counseled on reproductive health by community based referral agents	Yes	143(80.3%)	204(87.5%)	χ^2=0.557 df=1 p=0.456
	No	35(19.7%)	29(12.4%)	
Community based referral agents determined my place of delivery	Yes	97(54.5%)	149(63.9%)	χ^2=9.139 df=0.926 p=0.001
	No	81(45.5%)	84(36.1%)	

4.4.3 Logistic regression

The variables that showed association at Chi-square, were subjected to further regression analysis. The results revealed that who introduced mothers to community based referral agents had the strongest influence on choice of place of delivery (t=3.879, p=0.000), followed by recommended to deliver by CBRAs (t=1.845, p=0.066), Community based referral agents determined my place of delivery (t=0.597, p=0.551) and existence of community based referral agents in the community (t=-0.393, p=0.695). Only who introduced mothers to community based referral agents predicted choice of place of delivery. Overall, the factors combined predicted the choice of place of delivery (t=7.677, df=4, p=0.000) thus null hypothesis is rejected as shown in table 4.5.

Table 4.5: Regressing CBRAs on choice of place of delivery

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% CI for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1.166	.152		7.677	.000	.867	1.464
Presence of CBRAs	-.041	.104	-.020	-.393	.695	-.246	.164
Introduced to CBRAs	.091	.023	.194	3.879	.000	.045	.137
Recommended to facility by CBRAs	.173	.094	.094	1.845	.066	-.011	.357
CBRAs determine place of delivery	.031	.052	.031	.597	.551	-.071	.133

a. Dependent Variable: Place of delivery

4.5 Mother Pack Incentives and delivery place choice

4.5.1 Source of information on mother pack incentives

With regards to information sources on mother pack incentives, results revealed that 156 (38.0%) got to know about them through healthcare providers followed by 127 (30.9%) who got to know about them through community referral agents. The findings were posted in table 4.6.

Table 4.6: Source of information on mother pack incentives (n=411)

Source of information	**Frequency (N)**	**Percentage (%)**
Media	50	12.2
Church/mosque	16	3.9
Community referral agents	127	30.9
Healthcare provider	156	38.0
Friends/relatives	48	11.7
Never heard	14	3.4

4.5.2 Received mother pack incentives in your last delivery

On whether the respondents received mother pack incentives, results revealed that 294 (71.5%) did not receive while the rest 117 (28.5%) received the incentives. Results were as shown in figure 4.4 below:

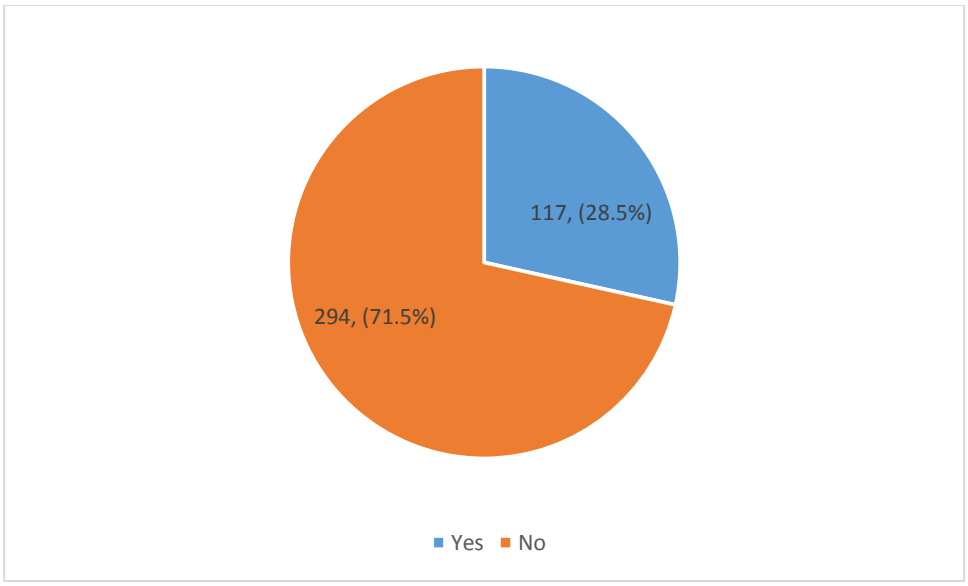

Fig 4.4: Received mother pack incentives

4.5.3 Satisfaction with mother pack incentives

On whether respondents were satisfied with the incentives, results revealed that 246 (59.9%) could not tell followed by 116 (28.2%) who were satisfied. Results were as shown in figure 4.5 below:

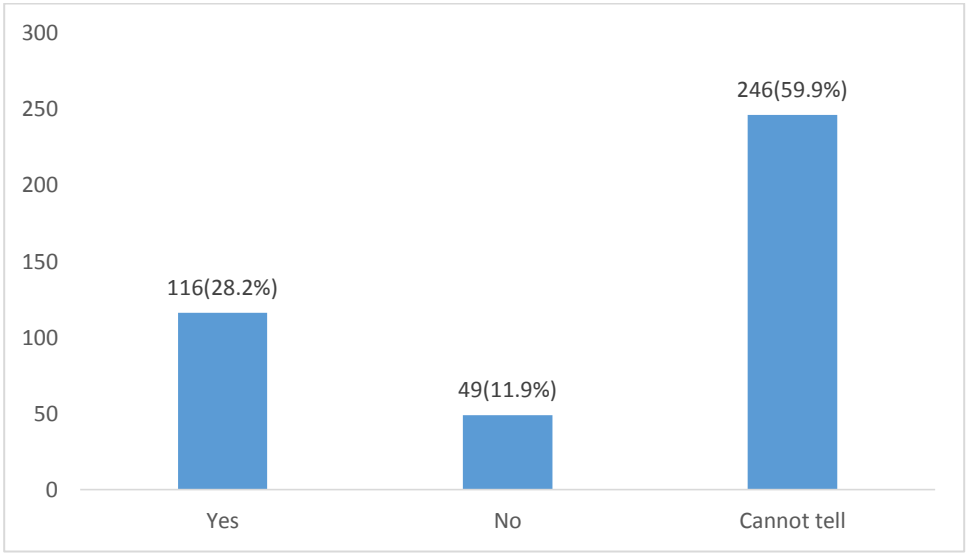

Fig 4.5: Satisfied with mother pack incentives among respondents

4.5.4 Idea of getting incentives

Regarding having an idea of getting mother pack incentives for hospital delivery, the findings revealed that 228 (55.5%) of participants had an idea of getting incentives for hospital delivery while the rest 183 (44.5%) did not. The results are shown in Figure 4.6 below:

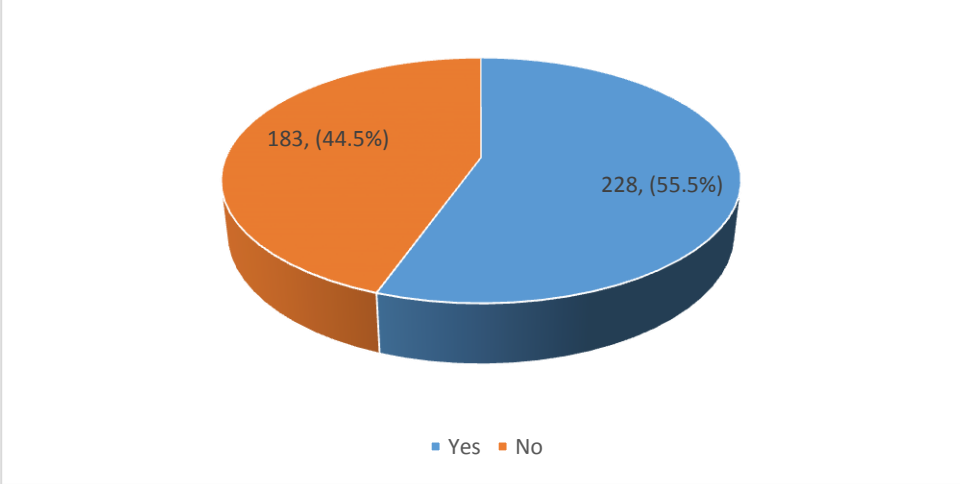

Fig 4.6: Having an idea of getting incentives for hospital delivery

4.5.5 Influence of mother pack incentives on choosing delivery place

Findings revealed that 96 (41.2%) of the respondents who got information about mother pack incentives from healthcare provider delivered at the hospital. There was a significant statistical association between source of information on mother pack incentives and choosing delivery place among the respondents (χ^2=29.207, df=5; p=0.023). Most respondents 161 (90.4%) who delivered at home did not receive mother pack incentives in their last delivery. Receiving mother pack incentives was associated significantly with choosing the delivery place (χ^2=55.175, df=1; p=0.001). Qualitative results confirmed most women who delivered at the hospital had received mother pack incentives. During a focused group discussion session, one discussant, revealed,

"*…I received some baby cloths, baby rapper, pampers and pads at the hospital which really helped me a lot. I come from a poor background and when I heard about the incentives I didn't hesitate to go and deliver at the hospital so that I can receive them. I even told my neighbors to stop delivering at home and go to the hospitals so that they can also benefit from these incentives. All my future deliveries will be at the hospital…*" (FGD Discussant).

On whether respondents were satisfied with mother pack incentives, results showed that 142 (79.8%) who could not tell had delivered at home. There was no linkage that was significant between being satisfied with mother pack incentives and choice of place of delivery (χ^2=43.580, df=2; p=0.081). From the results, 144 (61.8%) of the participants who delivered at the hospital had an idea of getting mother pack incentives. There was an association that was significant statistically between having an idea of getting mother pack incentives and choice of place of delivery (χ^2=8.722, df=1; p=0.003). These findings were posted in table 4.7.

Table 4.7: Influence of mother pack incentives on choosing delivery place (n=411)

Independent variable	**Response**	**Choice of place of delivery**		**Statistical significance**
		Home (N=178)	**Hospital (N=233)**	
Source of information on mother pack incentives	Media	33(18.5%)	17(7.3%)	χ^2=29.207 df=5 p=0.023
	Church/mosque	5(2.8%)	11(4.7%)	
	Community based referral agents	57(32.0%)	70(30.0%)	
	Healthcare provider	60(33.7%)	96(41.2%)	
	Friends/relatives	17(9.6%)	31(13.3%)	
	Never heard of MPIs	6(3.4%)	8(3.4%)	
Received mother pack incentives in your last delivery	Yes	17(9.6%)	100(42.9%)	χ^2=55.175 df=1 p=0.001
	No	161(90.4%)	133(57.1%)	
Satisfied with mother pack incentives	Yes	19(10.7%)	97(41.6%)	χ^2=43.580 df=2 p=0.081
	No	17(9.6%)	32(13.7%)	
	Cannot tell	142(79.8%)	104(44.6%)	
Had an idea of getting mother pack incentives for hospital delivery	Yes	84(47.2%)	144(61.8%)	χ^2=8.722 df=1 p=0.003
	No	94(52.8%)	89(38.2%)	

4.5.6 Logistic regression

The variables that showed association at Chi-square, were subjected to further regression analysis. The results revealed that source of information had a strong positive influence on choice of place of delivery (t=2.705, p=0.007) followed by idea of getting incentives (t=-1.365, p=0.173) and receiving incentives (t=-6.151, p=0.000). The predictors for choice of place of delivery were source of information on MPIs and receiving incentives. Overall, the factors combined predicted the choice of place of delivery (t=15.643, df=3, p=0.000) thus the null hypothesis is rejected as shown in table 4.8.

Table 4.8: Regressing mother pack incentives on choice of place of delivery

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% CI for B	
	B	Std. error	Beta			Lower Bound	Upper Bound
(Constant)	2.062	.132		15.643	.000	1.803	2.322
Source of information on MPI	.053	.020	.131	2.705	.007	.014	.092
Receive MPIs	-.340	.055	-.309	-6.151	.000	-.448	-.231
Perception of MPI on place of delivery	-.066	.048	-.066	-1.365	.173	-.160	.029

a. Dependent Variable: Place of delivery

4.6 Individual characteristics influencing the choice of delivery place

4.6.1 Individual factors

In this study, majority 277 (67.4%) revealed that they made their own decisions on where to deliver followed 109 (26.5%) whose decisions were made by the spouse. Majority 280 (68.1%) of the respondents did not believe in myths and misconceptions about hospital delivery while the rest 131 (31.9%) believed in them. More than 236

(57.4%) of the respondents believed that it was not better to deliver in the hands of someone they knew while the rest 175 (42.6%) believed it was better.

Majority 337 (82.0%) of the respondents revealed that delivering at the hospital helps in avoiding complications followed by 41 (10%) who delivering at the hospital doesn't help in avoiding complications. Majority 268 (65.2%) of the respondents revealed that delivery at the hospital was not time consuming while the rest 143 (34.8%) felt that hospital delivery was time consuming.

Concerning medical insurance, most 271(65.9%) of them lacked an insurance with others 140 (34.1%) possessed one. Most 297 (72.3%) of the respondents were indeed aware of home delivery being risk while 80 (19.5%) felt it was not risky. The findings were posted in Table 4.9.

Table 4.9: Individual factors distribution (n=411)

Variable	Respondent response	Frequency (N)	Percentage (%)
Decision maker on where to deliver	Myself	277	67.4
	Spouse	109	26.5
	Parent/guardian	25	6.1
Myths and misconception about hospital delivery	Yes	131	31.9
	No	280	68.1
Better to deliver in the hands of some you know	Yes	175	42.6
	No	236	57.4
Delivering at hospitals reduces complications	Yes	337	82.0
	No	41	10.0
	Cannot tell	33	8.0
Delivery at the hospital is time consuming	Yes	143	34.8
	No	268	65.2
Possession of a medical insurance cover	Yes	140	34.1
	No	271	65.9
Risky delivering at home	Yes	297	72.3
	No	80	19.5
	Cannot tell	34	8.3

4.6.2 Individual factors associated with choice of delivery place

Results depicted that 164 (70.4%) of those who made decisions with regards to place of delivery delivered at the hospital. There was a statistically significant linkage between making decisions and choosing the delivery place (χ^2=6.945, df=1, p=0.031). Majority 159 (68.2%) of the respondents who delivered at the hospital reported that there were no myths and misconceptions about hospital delivery. There was important association statistically between myths and misconception about hospital delivery and choice of delivery place (χ^2=0.03, df=1, p=0.025).

On whether the respondents felt it was better to deliver in the hands of someone they knew results revealed that 151 (64.8%) who delivered at the hospital disagreed. There was no linkage of delivery on hands of someone they knew and choosing the delivery place (χ^2=1.563, df=1, p=0.211). An estimated 215 (92.3%) of interviewees who delivered at the hospital felt that delivery at the facilities helped reduce complications. There was an important association statistically between delivery at facilities helping reduce complications and choosing the delivery place (χ^2=39.423, df=1, p=0.001). Qualitative results showed women who delivered at the hospital faced less complications. During a key informant interview session, a community-based referral agent revealed,

"…*it is true the cases of complications associated with delivery has reduced compared to last year because you can see woman are seeing the sense of delivering at the facilities. In the past we had a lot of cases of maternal and new born deaths arising from excessive bleeding and obstructed labor. That is why as the community referral agents we have been given this responsibility of educating and encouraging women not only to attend antenatal care but also deliver at the hospitals* …" (Key Informant).

Regarding hospital delivery being time consuming results showed that 176 (75.5%) of those with hospital deliveries did not feel it was time consuming. There was a statistical

association between delivery at the hospital time consuming and choosing the delivery place among the respondents interviewed (χ^2=25.302, df=1; p=0.023).

An estimated 148 (83.1%) of participants who did not possess a medical insurance cover delivered at home. There was a statistical association between possessing a medical insurance cover and choosing the delivery place (χ^2=41.402, df=1; p=0.001). Most 200 (85.8%) of the respondents who reported that it was risky to deliver at home delivered at the hospital. Further results revealed that being risky to deliver at home was associated significantly with choosing delivery place (χ^2=58.203, df=2; p=0.001). This is presented in Table 4.10.

Table 4.10: Influence of individual factors on choosing delivery place (n=411)

Independent variable	**Response**	**Choice of place of delivery**		**Statistical significance**
		Home (N=178)	**Hospital (N=233)**	
Decision maker on where to deliver	Myself	113(63.5%)	164(70.4%)	χ^2=6.945 df=2 p=0.031
	Spouse	48(27.0%)	61(26.2%)	
	Parent/guardian	17(9.6%)	8(3.4%)	
Myths and misconception about hospital delivery	Yes	57(32.0%)	74(31.8%)	χ^2=0.003 df=1 p=0.025
	No	121(68.0%)	159(68.2%)	
Better to deliver in the hands of some you know	Yes	93(52.2%)	82(35.2%)	χ^2=1.563 df=1 p=0.211
	No	85(47.8%)	151(64.8%)	
Delivery at facilities help reduce complications	Yes	122(68.5%)	215(92.3%)	χ^2=39.423 df=2 p=0.001
	No	29(16.3%)	12(5.1%)	
	Cannot tell	27(15.2%)	6(2.6%)	
Delivery at the hospital is time consuming	Yes	86(48.3%)	57(24.5%)	χ^2=25.302 df=1 p=0.023
	No	92(51.7%)	176(75.5%)	
Possession of a medical insurance cover	Yes	30(16.9%)	110(47.2%)	χ^2=41.402 df=1 p=0.001
	No	148(83.1%)	123(52.8%)	
Risk to deliver at home	Yes	97(54.5%)	200(85.8%)	χ^2=58.203 df=2 p=0.001
	No	64(36.0%)	16(6.9%)	
	Cannot tell	17(9.6%)	17(7.3%)	

4.6.3 Logistic regression

The variables that showed association at Chi-square, were subjected to further regression analysis. The results revealed that time consuming had a strong positive influence on choice of place of delivery (t=2.625, p=0.009) while medical insurance had a strong negative influence on choice of place of delivery (t=-5.139, p=0.000), hospital delivery reduces complications (t=-3.987, p=0.000), risky to deliver at home (t=-2.999, p=0.003), myths (t=-2.280, p=0.023) and decision maker (t=-0.048, p=0.683). The predictors of choice of place of delivery were time consuming, medical insurance, hospital delivery and myths. Overall, the factors combined predicted the choice of place of delivery (t=12.785, df=6, p=0.000) thus the null hypothesis is rejected as shown in table 4.11.

Table 4.11: Regressing individual factors on choice of place of delivery

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% CI for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	2.328	.182		12.785	.000	1.970	2.686
Decision on place of delivery	-.016	.039	-.019	-.408	.683	-.092	.061
Myths on place of delivery	-.111	.049	-.104	-2.280	.023	-.207	-.015
Delivery at hospital reduce complications	-.164	.041	-.196	-3.987	.000	-.244	-.083
Time consuming	.138	.053	.133	2.625	.009	.035	.242
Risk to home delivery	-.113	.038	-.144	-2.999	.003	-.187	-.039
Medical insurance	-.253	.049	-.242	-5.139	.000	-.350	-.157

a. Dependent Variable: Place of delivery

4.7 Health facility factors and choice of delivery place

4.7.1 Health facility factors

The study revealed that less than a half 164 (39.9%) of those interviewed were at approximate distance of 4 kilometers to nearest health facility. Approximately a third 164 (39.9%) of them perceived the cost of accessing hospital delivery to be free followed by 107 (26.0%) who would use Kshs 300 or more. Regarding hindrances to hospital delivery, the results showed that 170 (41.4%) of the respondents would not deliver at the facility because of distance. More than half 238 (57.9%) of the respondents had a good experience with care providers during service delivery followed by 115 (28.0%) who had fair experience.

Regarding the ease of access to buildings and physical structures, results showed that most 305 (74.2%) of the respondents accessed the structures with ease while the rest 106(25.8%) did not. On whether the respondents liked the quality of services they received, results showed that most 329 (80.0%) liked the perceived quality of services while the rest 82 (20.0%) did not like. Further results showed that 343 (83.5%) of the respondents were given information before and after services while the rest 68 (16.5%) were not given. This result was posted in table 4.12.

Table 4.12: Health facility factors distribution (n=411)

Variable	Response	Frequency (N)	Percentage (%)
Nearness to health facility in distance	Less than 1 KM	104	25.3
	2-3 KM	143	34.8
	Over 4 KM	164	39.9
Perceived cost associated with hospital delivery	None/free	164	39.9
	1-99	25	6.1
	100-199	41	10.0
	200-299	74	18.0
	≥ 300	107	26.0
Hindrances from delivery in health facility	Lack equipment	59	14.4
	Lack enough finances	33	8.0
	Poor provider attitude	42	10.2
	Poor quality of services	33	8.0
	Distant health facility	170	41.4
	No hindrance	74	18.0
Experience with care providers during service delivery	Good	238	57.9
	Fair	115	28.0
	Poor	58	14.1
Easier to access buildings and physical structures	Yes	305	74.2
	No	106	25.8
Liked the quality of services received	Yes	329	80.0
	No	82	20.0
Given information before and after services	Yes	343	83.5
	No	68	16.5

4.7.2 Health facility factors associated with choice of place of delivery

The results revealed that 77(43.3%) of those who approximated the nearness to health facility to be 4 kilometers away delivered at home. There was a statistical association which was significant between nearness to health facility and choosing delivery place (χ^2=50.489, df=2; p=0.001). About 115 (49.3%) of those who felt it would be free to access delivery services delivered at the hospital. There was no association between cost of accessing delivery services and choosing delivery place (χ^2=7.623, df=4; p=0.053). Most 110 (61.8%) of the respondents delivered at home due to distant health facilities. There was a significant statistical association between hindrances to delivery at the facility and choice of place of delivery (χ^2=80.087, df=5; p=0.008).

Most 137 (58.8%) of the respondents who had a prior good experience with health care providers delivered at the hospital. Experience with health services providers significantly influenced delivery place choice (χ^2=10.825, df=2; p=0.012). Approximately 161 (90.4%) of those with home deliveries liked the quality of services. There was no significant association statistically between liking the quality of services one received and choosing delivery place (χ^2=21.267, df=1; p=0.091). However, results from qualitative data disagreed with quantitative data as women felt that the perceived quality of services was not good. During a focused group discussion session, one of the women revealed,

"*… I went to the hospital when my son had diarrhea disease, I did not like the way I was handled, the way nurses were shouting at me and my son was so discouraging. They were blaming me for my son's illness, although they treated my son, I really felt bad and humiliated. I cannot advise any woman to go to that hospital again…*" (**FGD Discussant**).

Majority 174 (74.7%) of the respondents who had easy access to buildings and physical structures delivered at the hospital. An association existed between accessing buildings with ease and physical structures and choosing the delivery place (χ^2=0.602, df=1; p=0.804). Regarding provision of information before and after services, the results revealed that 189 (81.1%) who had been given information delivered at the hospital. Further results showed an association that was significant between provision of information prior to and after receiving services service and choosing the delivery place χ^2=46.486, df=1; p=0.001). The results are presented in Table 4.13.

Table 4.13: Association of health facility factors and delivery place (n=411)

Independent variable	Response	Choice of place of delivery		Statistical significance
		Home (N=178)	Hospital (N=233)	
Nearness to health facility	Less than 1 KM	40(22.5%)	64(27.5%)	χ^2=50.489 df=2 p=0.001
	2-3 KM	61(34.2%)	82(35.2%)	
	Over 4 KM	77(43.3%)	87(37.3%)	
Cost of accessing antenatal care services in Kshs	None/free	49(27.5%)	115(49.3%)	χ^2=7.623 df=4 p=0.053
	1-99	9(5.1%)	16(6.9%)	
	100-199	18(10.1%)	23(9.9%)	
	200-299	37(20.8%)	37(15.9%)	
	≥ 300	65(36.5%)	42(18.0%)	
Hindrances from delivery in health facility	Lack equipment	11(6.2%)	48(20.6%)	χ^2=80.087 df=5 p=0.008
	Lack enough finances	9(5.1%)	24(10.3%)	
	Poor provider attitude	26(14.6%)	16(6.9%)	
	Poor quality services	10(5.6%)	23(9.9%)	
	Distant health facility	110(61.8%)	60(25.7%)	
	No hindrance	12(6.7%)	62(26.6%)	
Experience with care providers during service delivery	Good	101(56.7%)	137(58.8%)	χ^2=10.825 df=2 p=0.012
	Fair	46(25.8%)	69(29.6%)	
	Poor	31(17.4%)	27(11.6%)	
Easier to access buildings and physical structures	Yes	131(73.6%)	174(74.7%)	χ^2=0.602 df=1 p=0.804
	No	47(26.4%)	59(25.3%)	
Liked the quality of services received	Yes	161(90.4%)	168(72.1%)	χ^2=21.267 df=1 p=0.091
	No	17(9.6%)	65(27.9%)	
	No	25(14.0%)	46(19.7%)	
Given information about antenatal care services	Yes	154(86.5%)	189(81.1%)	χ^2=46.486 df=1 p=0.001
	No	24(13.5%)	44(18.9%)	

4.7.3 Logistic regression

The variables that showed association at Chi-square, were subjected to further regression analysis. The results revealed that information about ANC had a strong positive influence on choice of place of delivery (t=6.315, p=0.000) while distance to nearest health facility had a strong negative influence on choice of place of delivery (t=-5.935, p=0.000), hindrance to hospital delivery (t=-2.277, p=0.23) and experience with

the care providers (t=-0.528, p=0.598). Therefore the health system predictors of choice of place of delivery were source of information on ANC, distance to health facility and hindrances to hospital delivery. Overall, the factors combined predicted the choice of place of delivery (t=13.020, df=4; p=0.000) thus the null hypothesis was rejected as shown in table 4.14.

Table 4.14: Regressing of health system factors on choice of place of delivery

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% CI for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1.583	.122		13.020	.000	1.344	1.822
Distance	-.169	.028	-.270	-5.935	.000	-.224	-.113
Hindrance to hospital delivery	-.030	.013	-.102	-2.277	.023	-.056	-.004
Experience with care providers	-.016	.030	-.024	-.528	.598	-.076	.044
Information about ANC	.381	.060	.286	6.315	.000	.263	.500

a. Dependent Variable: Place of delivery

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Covered in this chapter are the discussions, their conclusions and the recommendations on community based referral agents, mother pack incentives, individual and health system factors that are associated with choice of delivery place.

5.2 Discussions

5.2.1 Choice of place of delivery

The study sought to establish the proportion of respondents who delivered at home and at the health facility respectively. The results showed that 56.7% of respondents delivered at the health facility. This shows a significant increase in facility based deliveries in the county as compared to previous rates which showed that health facility deliveries had stood at 44.4% in 2017 (MoH, 2018). This may be attributed to various interventions including mother pack incentives and existence of a working community based referral agents. The results were against those from remote parts of India which depicted that (50.0%) of pregnant women interviewed ended up delivering in health facilities (Gorain *et al*., 2017). In Guinea Bissau, it was reported that only 39.8% of deliveries occurred in hospital settings (Yaya *et al*., 2019). According to a comparative study done in rural Ghana, it was reported that 52.7% of women from the savanna zone delivered at home while 65.6% of women from the forest zone delivered at health facilities (Dickson *et al*., 2016).

According to this study results, instant labor pains was the main reason for occurrence of home deliveries. This was followed by successful previous deliveries occurred at home. This may be attributed to the fact that the health facilities were far distances apart

and accessing them could be an issue especially if one experiences instant labor pains. The results were similar to a study done in rural Zambia where occurrence of shorter than expected labor pains prompted women to deliver at home (Scott *et al*., 2018). According to another study that was done in Nigeria, it was noted that lack of husbands to give their wives consent hindered them from delivering at health facilities (Shehu *et al*., 2016). Inconsistent results were reported from coastal Kenya among HIV/AIDS positive women who concluded that lack of good access to information was the main hindrance to hospital deliveries (Chea *et al*., 2018).

Perceived quality of service provision was the main motivation for having their children born in health facilities. This means that they knew the dangers of home deliveries and believed in deliveries under the hands of skilled birth attendants to help minimize occurrence of complications. This disagreed with results from Dodoma municipality in central Tanzania where nearness to the health facility was the main reason for hospital deliveries (Muhunzi, 2020). In another study done in Zambia, inconsistent results were reported where fear of complications among pregnant women was the main driver for health facility deliveries (Sialubanje *et al*., 2015). Findings from Northwest Ethiopia showed that free availability of delivery services was the main reason for hospital deliveries (Nigatu and Gelaye, 2019).

The results revealed that 58.6% of the respondents were assisted by health care providers. This is probably because most of the deliveries occurred at facilities thus attended by SBAs. However, still this was below the national average which stood at 62% skilled birth attendant deliveries (WHO, 2019). Findings from Dodoma region of Tanzania were a replication of this study where three quarters of child deliveries were

conducted under the care of SBAs (Ngowi *et al*., 2017). In Guinea Bissau, it was reported that slightly more than a third of deliveries were conducted by skilled birth attendants (Yaya *et al*., 2019).

5.2.2 Community based referral agents

The study revealed existence of community-based referral agents as reported by majority of respondents. Community based referral systems is a strategy aimed at identifying community health issues and referring them to healthcare facilities. There was an association between existence of community-based referral agents in the community and choice of place of delivery. Study findings have been documented to show effective community referral systems being significantly associated with beneficial effect and could lead to a reduction in home deliveries which is a major cause of maternal mortalities and disabilities as well as neonatal deaths (WHO, 2019). Research findings from a study on role of community referral system in increasing hospital deliveries in Kisii found out that 80% of the referrals made to the health facilities could be categorized as being useful in encouraging women to deliver at facilities (Malachi & Onkware, 2020).

Most respondents were introduced to the health facility by community based referral agents. Due to high home deliveries witnessed in Marsabit County and high maternal deaths, the county together with other stakeholders have established community based referral agents as link persons to identify health issues and refer them to health facilities. The referral agents are able to convince women at the community level as the only trusted and skilled individuals to assist them in delivery. This explains the existence of a statistically significant association between being recommended to

deliver at the facility by community-based referral agent and choice of delivery place. Most women who delivered at the hospital reported they were lured by community-based referral agents. Similarity in results were depicted from Laikipia County in Kenya where it was noted that community based referral agents played a key role in ensuring that pregnant women delivering in healthcare institutions (Kibera *et al*., 2020). In another qualitative research from Maputo, Mozambique, health care providers introduced pregnant women during ANCs to community based referral agents which led to improved health facility deliveries (Give *et al*., 2019).

Most respondents were counseled on reproductive health issues by the community-based referral agents. Reproductive health is a sensitive area that people shy off from talking in public especially among most African communities. However, when this is done by someone who is common and known to them, they can be easily convinced. Being counseled on reproductive health issues by community-based referral agents was not associated with choosing delivery place. However, majority of the respondents who delivered at the hospital were counseled on reproductive health issues by community-based referral agents. Whenever pregnant mothers have been identified, counseled and referred to hospitals by community health workers they plan and deliver in hospitals (Mohan *et al.*, 2017). Different findings from Ghana noted that community based counselling and referral programs lead to increased uptake of modern contraceptive obtained from healthcare facilities (Henry *et al*., 2020).

Finally, the results revealed most of the respondents revealed that community-based referral agents determined their place of delivery. The success of the community-based referral system is determined by the effectiveness of existing community health workers

who form the essential link between the households and the health care facilities. From the current study, it was evident that community-based referral agents plays a key role in making decisions regarding choice of delivery place. The community health workers are instrumental in encouraging pregnant women to attend antenatal clinics as well as postnatal clinics by accompanying them and referring them to the health facilities (Give *et al.*, 2019).

The community workers are more trusted and respected by the women since they mostly come from the same community as these women. Home visits by community extension health workers (CHEWs) also involve promotion of birth and newborn-care preparedness via home-based antenatal care by female community health workers, and home-based postnatal care (Olaniran, 2019). The community health workers as referral agents need to be well trained with functional supervision structures to help come up with community health workers' facilitated referral system which is normally preferred because of its success rate (Kitui *et al*., 2017).

5.2.3 Mother pack incentives and choice of place of delivery

The study further sought to find out the source of information on mother pack incentives, the results revealed majority of the respondents heard of them from healthcare providers followed by community referral agents. This is because one is given a mother pack incentive after delivering in the health facility. There was a significant statistical association between source of information on mother pack incentives and choice of place of delivery among the respondents. In fact, most of those who got information about mother pack incentives from healthcare provider delivered at the hospital. The results were contrary to a study done in Narok County, Kenya, where

it was reported that traditional birth attendants who were converted to community based referral agents were the main source of information on mother pack incentives (Kitui *et al.,* 2017).

Most participants did not receive mother pack incentive during their last delivery. This may be because not all health facilities have implemented the provision of mother pack incentives. However, among those who were given the incentives, they reported that the mama kits contained baby clothes, baby rapper, pampers, and pads. There was a statistically significant association between receiving mother pack incentives and choice of place of delivery. Provision of incentives to women motivates them to seek skilled birth attendant services in hospitals thus breaking the cultures attached to home deliveries (Henrietta, 2015). In Narok County, a study done revealed that TBAs were given Kshs 500 for each pregnant women they referred to a health facility while women who delivered in the facility were given a range of baby care items (Kitui *et al*., 2017).

This finding agreed with a faith-based health facility in South-eastern region of Nigeria where increased hospital deliveries were attributed to financial provisions for transportation to the healthcare facility (Egharevba *et al.,* 2017). Creation of formal links with the community through community-based referral agents and the idea of the mother-pack incentives has strengthened home-to-hospital continuum of care (Uny, 2017). In Zambia, introduction of Mama Kit Incentives comprising of small packages of childcare items provided to mothers on condition that they delivered their baby in a facility led to increased facility-based deliveries (Wang, 2016).

Majority of the respondents could not tell whether they were satisfied with the mother pack incentives provided during their last child delivery. This is because incentives did not reach most participants hence would not be in a position to rate their satisfaction levels. Satisfaction with mother pack incentives was not associated with choosing delivery place. Becker *et al* (2018), on their study, they reported that women were satisfied with the financial incentives they were given to encourage breastfeeding.

5.2.4 Individual factors and choice of place of delivery

The study results revealed that most of the respondents reported that they made decisions on where to deliver. This may be attributed to the fact that in a true African community, matters to do with pregnancy and child care are seen as women affairs while men are tasked with role of providing for the family. The findings contradicted an Ethiopian study in which decisions on where to deliver were done on a partner agreement basis (Nigatu and Gelaye, 2019). According to Dickson *et al.* (2016), in his study, he concluded that men take sole control on family decisions including place of delivery. There was a significant statistical association between making decision on place of delivery and choice of place of delivery. In another study done in Southeastern Ethiopia further noted that making joint family decisions affected choosing where one delivered (Belda and Gebremariam, 2016).

Most did not believe in myths and misconceptions about hospital delivery. Existence certain cultural and religious beliefs especially among the Muslims have been found to play a key role in choice of place of delivery. There was an association between myths and misconception about hospital delivery and delivery place. In remote areas of Ethiopia, myths and misconceptions surrounding institutional delivery affected facility-

based deliveries (Kelel *et al*., 2020).In southeastern Nigeria, people belief that there are some foods which when taken may lead to prolonged and difficult labor thus preferring delivering at home (Ekwochi *et al*., 2016).

Most of the respondents of the respondents believed that it was not better to deliver in the hands of someone they knew. Matters of reproduction and sex are sensitive thus people always shy off from exposing their nakedness to people they know. In Indian, pregnant women did not mind on who assisted them during delivery so long as they have a successful delivery (Sahoo *et al*., 2015). Nevertheless, choosing a place of delivery was not influenced by delivering it he hands of someone they knew and choice of place of delivery. The results contradicted findings among pastoralist mothers in Kenya, where it was reported that many women delivered at home because they felt comfortable with delivering in the hands of the people they knew (Caulffield *et al*., 2016).

Majority of the respondents revealed that delivering at the hospital helps in avoiding complications. In the United States of America, study findings showed that women chose home deliveries in preference to hospital deliveries simply because of the fear of contracting Covid-19 (Gildner & Thayer., 2020). Home delivery is a risky exercise that has been discouraged due to poor management under unskilled birth attendants in the communities. There was an association between delivery at facilities helping reduce complications and choosing where to deliver. Fearing labor pains and lower complication rates attracted women to hospital deliveries in Bushehr City (Najafi-Sharjabad *et al*., 2018).

Most of the respondents revealed that delivery at the hospital was not time consuming. This may be because health facilities were distant apart and access to such institutions was not easy. The results concur with a study done in India which revealed that it was not time consuming to deliver at the facilities (Bhattacharyya *et al*., 2016). Delivery at the hospital being time consuming was associated with choosing the delivery place. In remote settings of Maasai in Kenya, it was showed that time consuming was one of the hindrances to hospital delivery as they thought travelling to distant hospitals wastes their time as they would still get the services from traditional birth attendants (Karanja *et al*., 2018).

Additional findings showed that majority of those interviewed did not have an insurance. A peri-urban study conducted in Nairobi, Kenya, showed about seventy-nine percent of the interviewed women did not have a health insurance (Oluoch-Aridi *et al*., 2020). Being covered by a medical insurance was linked to where one chose to deliver their babies. This is explained by the fact that majority of the respondents who did not possess a medical insurance cover delivered at home as they probably lacked adequate finances to cover hospital charges. In Ghana pregnant women were given free medical insurance to help them deliver in healthcare facilities (Nesbitt *et al*., 2016). Possession of a valid national health insurance significantly influences health facility delivery (Gudu & Addo., 2017).

5.2.5 Health system factors and choosing delivery place

Results from health facility factors revealed that the respondents approximated 4 kilometers separated respondents' homes from hospitals. The results concurred Ghanaian study where averagely, 4.7 kilometers separated homes from the facilities in

their vicinity (Doste-Gborgbortsi *et al*., 2020). Nearness to facilities was found to be statistically associated with choosing the place where one delivers. The longer the distance to facilities, the more likelihood one would deliver at home. Long distances and poor road networks were associated with low hospital deliveries among pastoralist women in Kenya (Caulffied *et al*., 2016). In Northwest Ethiopia, distance barred women from delivering in health facilities (Kidanu *et al*., 2017).

Most of those interviewed perceived that it was free to deliver at health facilities. This could be attributed to the fact in Kenya due to introduction of Linda Mama Insurance Cover which guarantees free deliveries in public health facilities. Inconsistent findings were reported among ethnic minorities in Lao where it was extremely expensive to access hospital delivery services (Sato *et al*., 2019). There was no association between cost of accessing delivery services and choice of place of delivery. According to a study done by Caulfield *et al* (2016), they concluded that women deliver at home to avoid the costs incurred in hospital delivery. The indirect costs associated with hospital deliveries in remote areas of Sierra Leone were high hence opting for home deliveries (Treacy *et al*., 2018).

Most of the respondents had a good experience with care providers during service delivery. Good handling of patients means they can seek subsequent services in the health facilities thus more hospital deliveries. Mistreatment of women during delivery has been noted as factor that affected hospital delivery among pregnant women in Nigeria (Bohren *et al*., 2017). Experience with health services providers significantly influenced choice of place of delivery. According to a study done by Altman *et al*

(2019), in his study found that the healthcare providers criticized and provided fragmented care during pregnancy and child birth.

The findings of this study there was ease of access to buildings and physical structures as reported by majority of respondents. There was a significant statistical association between ease of access to buildings and physical structures and choice of place of delivery. Friendly structures coupled organized channels of service delivery means pregnant women can easily access services without struggles. The results concur with a study done in Northwest Ethiopia where it was reported that existence ease of access to hospital infrastructure was significantly associated with hospital deliveries (Gashaye *et al.*, 2019). Good physical accessibility of services influenced choice of place of delivery among women from ethnic minority villages in Lao (Sato *et al*., 2019).

Further, most participants liked the reception they received from health care providers. Poor handling of clients may make them shy off from making subsequent visits to the health facilities. There was an association between how one was received and deciding on where to deliver. Perceived potential behavior and reception from the healthcare staff was an issue in Serra Leone that significantly influenced hospital delivery (Treacy *et al*., 2018). Provision of support by those conducting deliveries improves maternal outcomes as most women would cooperate and deliver in health facilities (Chityaka and Ngoma, 2018). In a qualitative study done in Tanzania, most people preferred to deliver at private hospitals and/or at home because they reported bad reception at government facilities (Kohi *et al.*, 2018).

Perceived quality of service delivery especially among pregnant women has been noted to be a significant determinant of choice of place of delivery. However, in this study

there was no statistically significant association between liking the quality of services one received and choosing delivery place. This may be because they had already been admitted to deliver in the facilities hence this could only affect their subsequent visits. Choosing to deliver at home is associated with concerns about the quality of services prompting women to shy from hospital facilities (Sudhinaraset *et al*., 2016). Outcomes of health are linked to perceived quality of service provided thus should be emphasized. It is therefore needful to offers services which are aimed at meeting expectations, needs and wishes of women leading to high hospital deliveries (Ngugi *et al.*, 2017).

Additional results indicated most participants received information before and after services. Caulfield *et al* (2016), noted that wrong information was provided to service seekers thus persisted practice of in home deliveries. There was an association in providing information prior to and after service and choosing the delivery place. Information empowers women to make informed decisions on the most appropriate place of delivery. Provision of information to pregnant women has been associated to great impact on choosing the delivery place (Kamali *et al*., 2018).

5.3 Conclusions

i. The study found that community based referral agents influenced choice of delivery place in Marsabit County, Kenya. Introduction of pregnant women to referral agents predicted choice of place of delivery.
ii. Presence of mother pack incentives predicted choice of place of delivery in Marsabit County. Source of information on mother pack incentives and receiving mother pack incentives predicted the choice of place of delivery.

iii. The individual factors influenced choice of delivery place in the county. Myths and misconceptions, reduced complications in hospitals, risky home delivery, time consuming in hospital delivery and medical insurance predicted choice of delivery.

iv. Further, health facility factors influenced the choice made on delivery place. Distance to facility, provision of information and hindrances to hospital delivery predicted choice of place of delivery.

v. Finally, the study fails to accept the null hypotheses. Therefore community based referral agents, provision of mother pack incentives, individual and health system factors are associated with choice of delivery place.

5.4 Recommendations

5.4.1 Recommendations from the study

i. The County Government of Marsabit in collaboration with other health stakeholders should encourage/motivate community based referral agents to reach more people with information regarding the importance of health facility delivery.

ii. Marsabit County and other non-governmental organizations in the county should ensure constant supply of mother pack incentives to cover all women delivering in health facilities.

iii. The Health Ministry, Marsabit County and other relevant stakeholders in health should dispel myths against hospital deliveries and create awareness on necessity of obtaining a medical insurance to improve access to health facilities for delivery.

iv. The Health Ministry, Marsabit County and other health stakeholders should invest in mobile clinics thus enable women to travel short distances to access skilled delivery services.

5.4.2 Recommendations for further study

A further study is recommended to assess the implementation of community based referral systems in Marsabit County, Kenya.

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APPENDICES

Appendix I: Consent form

Introduction

I am Christine Bokayo Arero, a Kenyatta University student undertaking a Master of Public Health (Reproductive Health option). The research being undertaken is, ***"Assessing influence of community based referral Agents reorientation and mother packs incentives on choice of place of delivery in Marsabit County, Kenya.***" Therefore permission is requested from you for engagement.

Study purpose

Exploring Influence of community-based referral systems and mother packs incentives as well as individual and health facility factors that affect how one choses the delivery place in Marsabit County, thus address the challenges leading to low hospital deliveries. The findings would address hindrances in delivering in facilities hence help in reducing poor maternal outcomes associated with pregnancy.

Study procedure

You are invited to take part in this research by answering questions on influence of community-based referral system and mother packs incentives delivery choice place in Marsabit County. Your contribution is thus very important. I would like you to complete a questionnaire that would take about 40 minutes.

Voluntary participation

Your participation is voluntary and if you prefer not, you can freely do so. You may opt out any time or refuse to give answers to questions that interfere with your beliefs and cultures.

Discomforts and risks

You will get the same services and attention from the care providers irrespective of your participation status. You may feel uncomfortable with some queries, in such a scenario you may choose not to answer or opt out. Feel free to enquire more about the study.

Benefits and rewards

Directly you may not benefit but your engagement in this exercise is likely to help us find out more about community based referral agents and mother pack incentives' role on choice of delivery. Confidentiality will be strictly maintained and all information shall be not disclosed. The knowledge that we get from this research will be shared with your community. This will improve effectiveness of community based referral systems and mother pack incentives thus increase hospital deliveries among pregnant women. No monetary rewards will be provided.

Confidentiality

The setting for the interview will be private. The tools of data collection and gathered information shall be kept very confidential.

Contact information

In case of any clarification, kindly get in touch with supervisors;

Prof Margaret Keraka

Email: keraka.margaret@ku.ac.ke Tel No: 0721817521

Dr. Shadrack Ayieko

Email: shadrackyongez@yahoo.co.uk Tel No 0733920015

Kenyatta University Ethics and Review Committee (KUERC)

The Kenyatta University Ethical Review Committee Secretariat on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke, ercku2008@gmail.com.

Statement from the Participant

The information above on my engagement in this research has been clarified and my concerns have been satisfactorily addressed. Voluntarily, I accept to be involved in the study. I am aware privacy of my records shall be ensured and can disengage at any juncture. It is to my understanding that disengaging voluntarily will not affect access to services.

Sign…… Date……

Statement by the Investigator

"I, the undersigned, have explained to the participant in a language that he/she best understands the procedure to be followed in the research and the risks and benefits to be involved."

Name: Christine Bokayo Arero (Q139/CE/25792/2014)

Email address: bokayoarero@yahoo.com

Tel No:+254 729 479988

Signature…… Date…….....

Appendix II: Questionnaire for the post-natal women
"Influence of community based referral agent's reorientation and mother packs incentives on choice of place of delivery in Marsabit County, Kenya."

Participant number…… Date of the interview……

Instructions: Please insert or tick the option that best fits you

Section A: Socio-Demographics

1. What is your age in years? ……..

2. Highest education level attained…….

3. Marital status……

5. Occupation…….

6. Level of family income in Kshs……

Section B: Choice of Place of delivery

9. Where did you deliver your last child

[1] Home [2] Health facility

10. Why did you decide to deliver at home (Those who delivered at home only)

[1] lack of finance [2] distance to facility [3] instant labor pains

[4] previous deliveries at home [5] Others, Specify.....

11. Why did you decide to deliver at the health facility (Those who delivered at health facility only)

[1] fear of complications [2] Quality services [3] Referrals

[4] Hospital near [5] Others specify.....

12. Who assisted you during delivery?

[1] Health care provider [2] Traditional birth attendant [3] Relatives/ friends

Section C: Influence of community based referral systems on choice of place of delivery

13. Have you ever heard of community based referral agents

[1] Yes [2] No

14. Are there community based referral agents at your community?

[1] Yes [2] No

15. What does community based referral agents do?.....

16. Have you ever been recommended to health facility by community referral agent?

[1] Yes [2] No

Section D: Influence of mother pack incentives on choice of place of delivery

17. Have you ever heard of mother pack incentives

[1] Yes [2] No

18. If yes, what was the source

[1] Media [2] church/mosque [3] Community referral agents

[4] health care provider [5] Friend/Relative

19. Have you ever received the mother packs incentives?

[1] Yes [2] No

20. Would the incentives make you choose the decision on place of delivery

[1] Yes [2] No

Section E: Individual factors influencing choice of place of delivery

21. Who makes decisions on where to deliver?

[1] Myself [2] Spouse [3] Parent/ guardian

22. Do you think delivering at the hospital can help your health complications?

[1] Yes [2] No

23. Have any of the following factors ever hindered you from delivery at the hospital? (*You can mark more than one*)

[1] Delivery method fear [2] Inadequate hospital equipment

[3] Providers who are insensitive [4] Poorly handled by providers

[5] Poor perceived quality of care [6] Distant facilities

[7] Others, *specify* ……..

24. What is the cost of delivering at health facilities in Kshs?

[1] Free [2] ≤ 1000

[3] 1000 to 2000 [4] 2000 to 4000

[5] ≥5000

25. Can your income enable you effectively deliver at the hospital?

[1] Yes [2] No

26. How much cost would you incur in terms of bus fare to nearest facility in Kshs?

[1] < kshs.20 [2] 20 to 50 [3] 50 to 80

[4] 80 to 100 [5] 100 to 200 [6] 200 to 500 [7] >500

27. Possession of health or medical insurance?

[1] Yes [2] No

Section F: Health system factors influencing choice of place of delivery

28. Is there a health facility in your area?

[1] Yes [2] No

29. How far is the facility from your home?

[1] Less than 1 KM [2] 2-3 KM [3] Over 4KM

30. Are antenatal services readily available in the health facility?

[1] Yes [2] No [3] I can't tell

31. How much were the cost of delivery ……. Ksh

32. If you ever sough for antenatal care including hospital delivery services, how can you rate your experience with care providers how were you handled by healthcare providers?

[1] Good [2] Fair [3] Poor

33. Were the buildings and other physical structures made your access to the facility easier?

[1] Yes [2] No

Thank you for your participation!!!

Appendix III: Focused group discussion guide for post-natal women

1. Where did you deliver your last child? How can you describe your experience with the person who assisted you during the last delivery?
2. Are you aware of the existence of community based referral systems? Do you think they are adequate to reach every pregnant woman in this community? What do you think should be done to ensure successful implementation of this strategy?
3. Have you ever heard of mother pack incentives? Do you think provision of such incentives would people's beliefs about hospital deliveries?
4. What do you think are the challenges affecting implementation of community based referral systems and mother pack incentives? What do you think should be done to improve their coverage?
5. Identify some of the individual factors associated with choice of place of delivery.
6. Do you have a medical insurance cover? If yes, which type of insurance cover do you have? If no, what are the reasons for not acquiring one?
7. What are some of the health systems factors that have hindered you from accessing health services in this community?

Thank for you time and participation!!

Appendix IV: Key informant interview schedule for community based referral agents

1. What is your role as a community based referral agent?
2. How can you describe the patter of deliveries in this region? Where do you think pregnant women prefer to have their deliveries? What are the reasons for your answer?
3. Do you think community based referral agents and mother pack incentives have improved facility based deliveries in your area of jurisdiction?
4. What are some of the challenges you have encountered as a community based referral agent?
5. What do you think should be done to ensure successful implementation of this strategy?
6. Have you ever heard of mother pack incentives? Do you think provision of such incentives would change people's beliefs about hospital deliveries?
7. What do you think are the challenges affecting implementation of community based referral systems and mother pack incentives? What do you think should be done to improve their coverage?
8. Identify some of the individual factors associated with choice of place of delivery.
9. What are some of the health systems factors that have hindered you from accessing health services in this community?

Appendix V: Research authorization from Kenyatta University Graduate School

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Our Ref: Q139/CE/25792/2014 DATE: 8th July, 2019

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MS. CHRISTINE BOKAYO ARERO – REG. NO. Q139/CE/25792/2014

I write to introduce Ms. Christine Bokayo Arero who is a Postgraduate Student of this University. She is registered for M.P.H. degree programme in the **Department of Population, Reproductive Health and Community Resource Management.**

Ms. Arero intends to conduct research for a M.P.H. thesis Proposal entitled, **"Assessment of Community Based Referral Agents Reorientation and Motherpacks Incentives Influence on Choice of Place of Delivery in Marsabit County, Kenya."**

Any assistance given will be highly appreciated.

Yours faithfully,

PROF. ELISHIBA KIMANI
DEAN, GRADUATE SCHOOL

Appendix VI:Research Approval from Kenyatta University Graduate School

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Internal Memo

FROM: Dean, Graduate School **DATE:** 8th July, 2019

TO: **Ms. Christine Bakayo Arero**
C/o Department of Population,
Reproductive Health & CRM

REF: Q139/CE/25792/2014

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that Graduate School Board, at its meeting on **26th June, 2019**, approved your Research Proposal for the M.P.H. Degree entitled, **"Assessment of Community Based Referral Agents Reorientation and Motherpacks Incentives Influence on Choice of Place of Delivery in Marsabit County, Kenya."**

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

JULIA GITU
FOR: DEAN, GRADUATE SCHOOL

CC. Chairman, Population, Reproductive Health & CRM Department
Supervisors:

1. Prof. Margaret Keraka
   C/o Population, Reproductive Health & CRM Dept.
   Kenyatta University

2. Dr. Shadrack Ayieko
   Department of Environmental and Health Sciences
   Technical University of Mombasa
   C/o. Population, Reproductive Health & CRM Dept.
   Kenyatta University

Appendix VII: Ethical clearance from KU Ethics and Review Committee

Kenyatta University
P.O Box 43844-00100
Nairobi-Kenya

REF: KU/ERC/APPROVAL/VOL1/54 Date: 13th February, 2020

Christine Bokayo Arero
P.O Box 43844-00100
NAIROBI

Dear Ms. Arero,

RE: ASSESSMENT OF COMMUNITY BASED REFERRAL AGENTS REORIENTATION AND MOTHERPACKS INCENTIVES INFLUENCE ON CHOICE OF PLACE OF DELIVERY IN MARSABIT COUNTY, KENYA

This is to inform you that ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** has reviewed and approved your above research proposal. Your application approval number is PKU/2005/I1153. The approval period is ***13th February, 2020- 13th February, 2021.***
This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.

Appendix VIII: Research License from National Council for Science, Technology and Innovation

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **781762**

Date of Issue: **20/June/2020**

RESEARCH LICENSE

This is to Certify that Ms.. Christine Bokayo Arero of Kenyatta University, has been licensed to conduct research in Marsabit on the topic: ASSESSMENT OF COMMUNITY BASED REFERRAL AGENTS REORIENTATION AND MOTHER PACKS INCENTIVES INFLUENCE ON CHOICE OF PLACE OF DELIVERY IN MARSABIT COUNTY KENYA. for the period ending : 20/June/2021.

License No: **NACOSTI/P/20/5313**

781762

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix IX: Research authorization from Marsabit County

REPUBLIC OF KENYA
COUNTY GOVERNMENT OF MARSABIT
OFFICE OF THE CEC MEMBER OF HEALTH

25 /6/2020
To Whom It May Concern

Dear Sir/Madam,

REF AUTHORIZATION TO CONDUCT RESEARCH AND DATA COLLECTION

This is to introduce Christine Bokayo Arero who is an employee of County government of Marsabit Department of health service, Christine is currently a postgraduate student at Kenyatta university doing a master's degree and will be conducting research on Assessment of community Based Referral Agents Reorientation and Mother Packs Incentives Influence on Choice of Place of Delivery in Marsabit County, Kenya.

Please accord her necessary assistance and support.

COUNTY DIRECTOR OF HEALTH
25 JUN 2020
MARSABIT • COUNTY

Yours faithfully

Dr M.S Ndakalu

Ag County Director Health Services, County Government of Marsabit.

Appendix X: Map of Marsabit County