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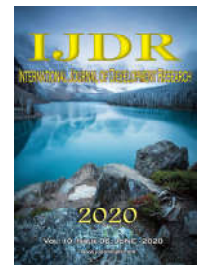
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RESEARCH ARTICLE

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DETERMINANTS OF MATERNAL HEALTH CARE CHOICES AMONG WOMEN IN LUNGA LUNGA SUB COUNTY IN KWALE COUNTY-KENYA

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ABSTRACT

Maternal and neonatal morbidity and mortality are major public health concerns in most developing countries and in under resourced settings. Provision of safe motherhood is of utmost importance in the reduction of maternal mortality. Increasing the proportion of babies that are delivered in health facilities is an important factor in reducing the health risks to both the mother and the baby. This study explored maternal healthcare choices of expectant mothers in Lunga Lunga Sub County, Kwale County. The objectives of the study were; the identification and description of maternal healthcare providers in the area; the examination of the determinants for maternal healthcare choices; and the exploration of the perceptions and attitudes of the local community towards both formal and informal maternal healthcare providers. This was a community based cross-sectional descriptive study, the study employed community survey for which mothers with children below eight months were purposively sampled. Key informant interviews involving twelve maternal healthcare providers, from popular, professional and folk sectors were also purposively sampled to shed light on services they provide to expectant mothers. The study also used focused group discussion of discussants, who were sampled by region in the area. Information on maternal health care providers in the area, the kind of maternal healthcare services they provided, social support system and the perception of the community towards maternal healthcare providers was collected guided by the Disease Explanatory Model (DEM) proposed by Kleinman (1980). All analysis was done in SPSS version 21.0 for windows. P-value less than 0.05 was considered statistically significant. Results were considered significant at 95% confidence level. Results of the study indicates that, among the 333 mothers who participated in the study, 293(88%) were married and 219(65.8%) were of Islamic religion. Most of the mothers, 266(85.2%) had not completed Primary level of education. Of all the deliveries, 212(64%) were under skilled attendants at the health facilities. Mothers from Shimoni were less likely to deliver at the hospital as compared to those from Vanga, Mwena, Malamba and Mzizima. Controlling for distance from the facility, Mothers education level, Sub location of residence, presence of a health facility in the locality and mothers preference to a particular Maternal health service provider were significant predictors of choice of place of delivery among the study participants ($p < 0.05$). In conclusion, the study revealed that utilization of skilled delivery attendance services was still low than expected with a high number of deliveries being attended by unqualified lay persons at home. There was need to strengthen the education infrastructures, implement cost effective and sustainable measures to improve the quality of maternal health services with an aim of promoting safe delivery and hence reducing maternal mortality.

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INTRODUCTION

Maternal Health

Maternal health remains a challenge in developing countries. The numbers of women dying every year from maternal related causes have remained high in developing countries despite various efforts to bring them down. Globally, over 500,000 women, 99% of them mainly from low-income countries are estimated to die each year from complications arising from pregnancy and childbirth (WHO, 2015).

For every maternal death, 30% or more women suffer disabling and humiliating injuries. In addition, almost 9 million children die every year, of which 4 million newborn babies die within the first month of life and 3.3 million babies are born dead (Canavan 2009). Globally, an estimated 548 000 maternal deaths occurred in 2014, a decline of 47% from levels in 2010. Sub-Saharan Africa (56%) and Southern Asia (29%) accounted for 85% of the global burden (245,000 maternal deaths) in 2014. At the country level, two countries account for a third of global maternal deaths: India at 19% (56,000) and Nigeria at 14% (40,000). The global maternal mortality rate (MMR) in 2014 was 210 maternal deaths per

100 000 live births, down from 400 maternal deaths per 100 000 live births in 2010. The MMR in low-income countries of 240 per 100,000 live births was 15 times higher than in high-income countries with 16 per 100,000 live births. Sub-Saharan Africa had the highest MMR at 500 maternal deaths per 100 000 live births, while Eastern Asia had the lowest among developing regions, at 37 maternal deaths per 100 000 live births. The MMRs of the remaining developing regions, in descending order of maternal deaths per 100 000 live births are Southern Asia 220, Oceania 200, South Eastern Asia 150, Latin America and the Caribbean 80, Northern Africa 78, Western Asia 71 and the Caucasus and Central Asia 46 (WHO, 2015). In 1994, Kenya was one of the countries that endorsed the resolution of the International Conference on Population and Development (ICPD) in Cairo, Egypt. As a follow up on these recommendations, the government drew up the National Reproductive Health Strategy (NRHS) 2010. The NRHS identified the following as priorities: Access to quality maternal and child care services; utilization of quality and cost effective Mother/Child Health (MCH) services; effective referral systems; clean/safe delivery and emergency obstetric care; adequately equipped health facilities to provide quality MCH services; effective management of complication of pregnancy; post abortion care and establishment of district audit systems on maternal and perinatal deaths. According to the government of Kenya's Sessional paper no. 1 of 2010, the National Council on Population and Development (NCPD) in the Ministry of Finance and Planning, set the following demographic targets for Kenya: reduction of maternal mortality rate from 590 per 100,000 births in 2008 to 230 by 2015 and 170 by 2020, and increase the proportion of deliveries attended to by qualified personnel from 45% in 2008 to 90% by the year 2020.

Despite major efforts by the Kenyan government to promote the health and survival of mothers and babies through the provision of adequate Reproductive Health (RH) services and specifically the inauguration of the Safe Motherhood and Child Survival initiative, success still remains elusive. Although significant gains have been achieved in Kenya's health indicators, high maternal morbidity and mortality levels still persist, particularly associated with prolonged and obstructed labour, unsafe abortion, hemorrhage, hypertensive diseases of pregnancy, sepsis, anemia, malaria, STDs and HIV/AIDS (KSPA, 2010). An estimated 488 women per 100,000 live births die as a result of pregnancy related complications, childbirth and sequelae in the postnatal period, making maternal death the leading (27%) cause of death among women of reproductive age. However, there has been a decline in the proportion of births occurring at home from 59% in 2008 to 56% in 2014-15, according to the 2014-15 Kenya Demography Health Survey (KDHS) only 44% of births in Kenya are delivered in a health facility. The Kenyan Government in 2015 launched the community Health Strategy (CHS) Policies, guidelines and strategy standards that provide mechanisms, procedures and incentives that encourage stakeholders - including public, non-governmental organizations and communities - to work together to improve health service delivery and eliminate exclusion of populations from access to services. The standards also support efforts that promote effective accountability mechanisms that assure implementation of agreed priorities with available resources. They provide an enabling environment for the implementation of community health services. Health service delivery is viewed as a process where CHVs and CHEWs are involved in

the sequence of activities and services to achieve improved health status. They work as a team to ensure safe and efficient promotive, preventive and basic curative services at the household in line with the set standards. This is aimed at strengthening the responsive community health structures and increasing cover to ensure all mothers within the household receive essential care and are appropriately referred for obstetric care and health facility delivery. Literature shows that a number of factors have been cited to affect the utilization of maternal health care. Using the demographic and health survey data for Bolivia, Egypt and Kenya, found that the use of maternal health care (delivery services) are influenced by a myriad of social, cultural and economic factors. They found that it was positively and significantly associated with urban residence, education level, household wealth, age and parity.

Objective of the Study : To examine the determinants of maternal healthcare choices among women in Lunga Lunga Sub County, Kwale County.

Research question

To realize this objective, the study adopted the following questions to guide the process of investigation:

- What critical factors influence the choices of maternal healthcare providers in Lunga Lunga Sub County?

METHODOLOGY

Research Site

Location: The study was conducted in Kwale County of Coast region. Kwale is one of the six Counties of Coast Region and consists of five administrative sub counties namely Matuga, Kinango, Samburu, Msambweni and Lunga Lunga. The study was based in Lunga Lunga, one of the five sub-counties. The Sub County geographical distribution is approximately 2,803.80 Sq. Km with a population of 153,354. It also consists of four (4) Wards namely Pongwe (*comprises Majoreni, Mzizima, Shimoni, Wasini/Mwakiro and Bumbani sub-locations*), Dzombo (*comprises Malamba sub-locations*), Mwereni (*comprises Kasemeni, Kilimangodo and Mwena sub-locations*), Vanga (*comprises jego, Kiwegu, Sega and Vanga sub-locations*). Lunga Lunga is located in extreme southeastern Kenya, at the international border with the Republic of Tanzania.

This location lies approximately 102 kilometers (63 miles), by road, south of the port city of Mombasa, the nearest large city. The coordinates of Lunga Lunga are 4°33'18.0"S, 39°07'23.0"E (Latitude: 4.5550; 39.1231). This location was chosen because of peculiar mixed attributes on socio-economic and demographic characteristics of its inhabitants though the history of most the people inhabiting the study areas owes allegiance to the Mijikenda ancestry, in which pregnant women are granted leave from their matrimonial home to return to their parental home to deliver. The Sub County is also unique since all the 40 community Units are fully fledged. The main subsistence crops are maize and cassava, with other fruit trees also grown as cash crops. In Lunga Lunga Sub County, there is a Sub County referral hospital and a number of health facilities offering maternal services.

Physiographic and Natural Conditions : The major physical feature in the Sub County is the Indian Ocean, which runs from the part of North Coast Lamu and Malindi to the border of Horo Horo Tanzania in the South west. Along its border with Kinango Sub County, runs several seasonal rivers that drain into the Indian Ocean. The Sub County has few scattered hills namely Kiruku in Mwereni Sub Location, Mrima malamba and Dzombo in Dzombo area (GOK, 2008). The altitude of the Sub County rises from 1,140 meters to 1,350 meters above sea level on the shores of Indian Ocean. The physical features have a bearing on the Sub County development potential. Areas with higher altitude have higher rainfall and are therefore suitable for agriculture and livestock production. Indian Ocean though salty, have great potential for irrigation, water development and fishing activities. The soils are mainly sandy with a low water retention capacity (GOK, 2008).

Infrastructure : The road network in Lunga Lunga Sub County is still poor. The Sub County has only 45.8 km of tarmac roads out of a total of 544.4 km. The other 498.6-km of roads are either gravel or earth and in some areas impassable during rainy seasons (GOK, 2002). There are impassable narrow roads barring the movement of vehicles to interior places. Also making the roads impassable are thick thickets growing all over the area. The rough terrain in the area may be too hostile to comfortably transport an expectant mother to a health facility. Since there are no enough vehicles, the community heavily relies on motorcycles and bicycles as means of transportation. It becomes a big challenge to transport a mother in labour by these means of transport given the fact that the roads are also hilly. Olungah (2007) observes that a woman would be called upon to do much of the walking after paying dearly for the transportation cost. The area also lacks adequate electricity supply.

Health Infrastructure : The Sub County has a good coverage of biomedical health facilities. There is one Sub County Referral Hospital(Lunga Lunga Sub County Hospital), Two Health centers(Kikoneni and Vanga) and twenty one dispensaries spread across the entire sub counties namely Riziki Medical Clinic, Teens Watch Centre, Mbegani Dispensary, Qatar Medical Clinic, Reachout Centre Trust, Mwangwei Dispensary, Diani Beach Hospital, Perani Private Clinic, Bwiti (Tiomin) Dispensary, Mzizima (CDF) Dispensary, Ngathini Dispensary, St Joseph Maledi Clinic, Kikoneni Health Centre, Shimoni Dispensary, Lunga Lunga Dispensary, Majimoto Dispensary, Mwananyamala (CDF) Dispensary, Mkwiro Dispensary, Wasini Dispensary, Mwangulu Dispensary, Vitsangalaweni Dispensary, Majoreni Dispensary, Mamba Dispensary, Kilimangodo Dispensary, Mrima (Catholic) Dispensary, Godo Dispensary, Lunga Lunga Catholic, Mwanguda, Mweni. Muga (2004) observes that traditional birth attendants (TBAs) are preferred in this area because they always live with them and their mode of payment is flexible.

Research Design : The study employed a community based cross-sectional descriptive study design. The design gives a snapshot of the frequency of the characteristic in the population which is the number of women delivering in hospitals at a point in time.

Study Variables: The variables in this study were; the utilization of health facility for child delivery (place of

delivery) among women as the dependent variable and the independent variables as the factors/varied reasons for not delivering in health facilities such as the Socio-demographic, cultural, economic factors, and distance to the health facility.

Population: The population of the study comprised of all mothers of child bearing age and maternal healthcare providers in Lunga Lunga Sub County. The participants had to meet criteria of having lived in the study area for more than two years.

Unit of analysis: A single mother of child bearing age constituted the unit of analysis.

Target Population: This was a community-based study thus carried out at the homesteads. The target population were the women of reproductive age in the Sub County. The study employed community survey for which mothers with children below eight months were selected by purposive random sampling. Key informant interviews involving twelve maternal healthcare providers, from popular, professional and folk sectors were also purposively sampled to shed light on services they provided to expectant mothers. The study also used focus group discussion of discussants, sampled by region in the area. Information on maternal health care providers in the area, the kind of maternal healthcare services they provide, social support system and the perception of the community towards maternal healthcare providers was collected guided by the Disease Explanatory Model (DEM) proposed by Kleinman (1980).

Sampling Techniques and Sample size : A multi-stage sampling technique was used to select the study subjects. Lunga Lunga Sub County currently has 4 Wards and 13 Sub locations. All the 13 Sub locations were visited for data collection during the study. The number of households included in each sub-location was determined in proportion with the total number of households found in each sub-location. Finally, based on the sampling frame of each sub-location, mothers who had delivered within eight months were selected from all the sub-locations using purposive random sampling method. A systematic selection was conducted across every 3rd household with a random start, where the sampling interval calculated by dividing number of households of the selected sub-location by the sample size allocated to the sub-location. In cases where no eligible candidate was identified in a selected household, the interviewer moved to the next household until an eligible respondent is found. This being a formative study, the sample size reflected the number of women seeking care from the maternal health care choices in Lunga Lunga without reflecting on a size proportional to the general population.

The sample size was determined using the formulae by Fisher et al (1998).

$$N = \frac{Z^2 pq}{d^2}$$

Z = Standard normal deviate (1.96)

p = Proportion of pregnant women delivering in Health facilities in County (32%)

q = 1- p

d = Degree of (precision) accuracy desired (0.05)

$$N = \frac{(1.96)^2 \times 0.32 \times 0.68}{(0.05)^2}$$

= 333 Respondents

333 respondents were interviewed as calculated above.

Simple verification of authenticity of biological mothers was sought. This is because the main purpose of the study was to get a wide variety of proposed solutions to the existing problem of pregnant women not delivering in hospitals. Therefore, the technique permits the deliberate selection and inclusion of the targeted respondents.

Methods of Data Collection: The research adopted both qualitative and quantitative techniques of data collection. Emphasis was laid on the qualitative method of data collection. The data collection tools were loaded on Kobo collect and android phones were used to collect the data. The data would automatically synchronize on the cloud platform and later downloaded, coded and captured on a database designed in excel sheet. It was later exported to SPSS V.21 for analysis.

Survey questionnaire: The interviewers administered structured questionnaires where respondents gave either answers or views during the study period. To allow for quantification and qualification of the data collected, the questions in the questionnaires were both open and closed ended (Bernard, 1995). 333 structured interviews were conducted to women with children below eight months using this tool (Appendix 1). The questionnaires yielded information on the demographic characteristics of the respondents, their knowledge and awareness of the maternal healthcare care providers in their area and determinants such as the occupation, distance to healthcare provider, the belief surrounding pregnancy and social support system in maternal healthcare seeking behavior in the study area. The questionnaire was also used to get information on where the expectant mothers seek help when faced with pregnancy problem and the perception and attitude they have towards both formal and informal maternal healthcare providers.

Key informant interviews: Key informants are people believed to be knowledgeable on the topic under investigation (Bernard, 1995). The researcher personally conducted in depth interviews with key informants who included three nurses from Lunga Lunga Sub County Hospital, Mwereni Health Center and Vanga health center, five traditional birth attendants and two mature old mothers. These key informants were purposively selected based on their positions and knowledge in maternal health issues. They were important in giving insights into the role played by the maternal healthcare providers in dealing with the problems of pregnancy, healthcare seeking behavior in pregnancy and healthcare delivery. Issues of cultural practices in the community in relation to pregnancy, the accepted healthcare provider to deal with specific problems of pregnancy, the determinants for the use of maternal healthcare provider and the perception the community members have towards both formal and informal maternal healthcare providers.

Focus Group Discussions: Focus group discussion is a special type of group interview in which a small group discusses ideas, information freely and spontaneously among themselves guided by a moderator (Bernard, 1995). Three

separate Focus Group Discussions was conducted with participants as follows: 8 participants consisting of young mothers between ages 15 – 30, 11 participants consisting of mothers between ages 31 – 45, 9 participants consisting of old mature mothers who had long experience with births. The researcher facilitated each focus group and the proceedings tape-recorded and later transcribed. One research assistant took notes during all the focus group discussion. The discussions we anticipated that they will provide rich qualitative information on perceptions and attitudes of the community members towards both formal and informal maternal healthcare providers and determinants for the use of maternal healthcare providers in the area. An FGD guide for Focus Group Discussion with set of instructions was used. This exercise supported in the verification of information obtained from the structured survey questionnaires.

Data Analysis: Data was analyzed using both qualitative and quantitative methods. The results of community Survey were coded and simple frequency tables generated to summarize the information using Microsoft Excel. Qualitative data were analyzed thematically along the lines of set objectives. This involved reading and reviewing field notes after the process of transcription. Key quotations from the data using informants' own words were incorporated to illustrate the main ideas and to give a detailed picture of the existing maternal healthcare providers in the area, determinants for their use and consequences of the perceptions and attitudes towards both informal and formal maternal healthcare providers. SPSS version 21.0 was used to analyze the data for compilation of the final study report. Data was summarized using descriptive statistics (frequencies, means and standard deviation). Cross tabulations done to establish relationships between factors and utilization of hospital delivery services using a chi-square test. Factors significant at 0.05 threshold were entered in a multiple logistic regression to identify significant predictors of hospital delivery controlling for confounders. Results were considered significant at 95% confidence level. The results were presented in form of tables, pie charts and graphs. Qualitative data was analyzed by establishing the common themes as the flow.

RESULTS

Socio-Demographic Characteristics of the Study Population: A total of 333 mothers consented and responded to the interviews, translating to 100% response rate. Two hundred and twenty two (66.6%) of the mothers were of the youthful age below 29 years old while 293 (88%) were in marriage unions and more than half 219 (65.8%) were from Islamic religion. Among those that had other children apart from the current delivery, 71 (21.3%) reported to have two. Among the respondents who took part in the study, only 36(10.8%) had attained secondary level of education. The majority 142(42.6%) had acquired upper primary level while 64(19.2%) had acquired lower primary level of education. Eighty (24%) of the respondents had no formal education while only four (1.2%) of the respondent had attained college or university level of education. Majority 104 (31.2%) of respondents were subsistence farmers and 146 (43.8%) engaged in other forms of livelihoods, accounting for more than half of the sample size. Small-scale business accounted for 66(19.8%) of the respondents, fish-mongering 1(0.3%) and lastly, teaching accounted for 7(2.1%). The subsistence farmers majorly depend on produce they obtain from their small gardens such as maize, millet, cassava, beans, vegetables

and produce from cattle that they keep such as milk and meat. They live a bit far from the ocean and in most cases they sell their produce to ocean dwellers who spend most of their time fishing in the deep sea. They also keep goats and sheep. Besides, they rear chicken that they may sell for money. The subsistence farmers reported that they get an average of Ksh.1, 500 per month. Table 1 illustrates the results

Table 1. Socio demographic Characteristics of Respondents (N=333)

Participants Characteristics		Frequency (n)	Proportion (%)
Sub-Location	Shimoni	2	0.6
	Vanga	57	17.1
	Malamba	90	27.0
	Mwena	93	27.9
	Mzizima	91	27.3
	Total	333	100.0
Marital Status	Single	20	6.0
	Married	293	88.0
	Divorced	5	1.5
	Separated	10	3.0
	Widowed	5	1.5
	Total	333	100.0
Age	10-17 years	5	1.5
	18-24 years	117	35.1
	25-29 years	100	30.0
	30-34 Years	61	18.3
	35-39 Years	36	10.8
	40-44 Years	12	3.6
	45-49 Years	2	.6
	Total	333	100.0
	Highest Level of Education	Lower primary	64
Upper primary		142	42.6
Secondary		36	10.8
University/College		4	1.2
Madrasa		7	2.1
None at all		80	24.0
Total	333	100.0	
Main Occupation	Agriculturalist	104	31.2
	Livestock keeping	7	2.1
	Merchant and trade	4	1.2
	Worker (County Govt)	2	.6
	Teacher	7	2.1
	Self Employed	62	18.6
	Fishing	1	.3
	Others	146	43.8
	Total	333	100.0
	Monthly Earning	0-500	197
501-2,500		47	14.1
2,501-5,000		54	16.2
5,001-10,000		19	5.7
Above 10,000		16	4.8
Total		333	100.0
Religion	Muslim	219	65.8
	Christian	108	32.4
	Other	6	1.8
	Total	333	100.0
Parity	1	68	20.4
	2	71	21.3
	3	59	17.7
	4	39	11.7
	5	46	13.8
	6	27	8.1
	7	12	3.6
	8	5	1.5
	9	5	1.5
	10	1	0.3
	Total	333	100.0

Determinants of Maternal Healthcare Choices: The variables examined in the study included: distance to healthcare facility, road conditions, common mode of transport, religious influence, social support systems and pregnancy related problems.

Distance to Health Facility and Cost of Maternal Healthcare Services: Majority of the respondents 288(86.5%) lived less than five kilometers away from the formal health

facilities, 45(13.5%) of them lived furthest from these facilities (more than 5km away from their homes). One Hundred and Sixty three (48.9%) of the respondents lived about 2km away from these health facilities.

Road Condition to the nearest health facility: Majority of respondents Three Hundred and twenty two (96.7%) confirmed that the road network is Marram While 11(3.3%) Tarmac.

Mode of transport: The most common modes of transport to the nearest health facilities are on foot 232(69.7%) and motorbikes 147(44.1%). Twenty nine (8.7%) reported to have commonly used bicycle, 32(9.6%) rely on public means of transport while 3(0.9%) use private means of travel to the health facility

Denomination influence on choice of MHC provider: Only 34(10.2%) of the respondents have their religion affecting the choice of pregnancy healthcare providers. Two hundreds and ninety-nine (89.8%) said their religion has no teaching regarding the choice of maternal health services.

Seeking Consent on choice of MHC provider: Two hundred and forty seven (74%) of respondents reported seeking consent from the husband, mother in-law, and father in law when going to seek maternal healthcare from either traditional birth attendants or modern maternal health care clinics. Majority of the respondents 222(66.7%) sought consent from the husbands, 40 (12%) from the mother in law and 4(1.2%) from father in law. 202(60.7%) felt that the husbands and mother in law demand that consent must be sought before an expectant mother goes for any form of maternal service provision. When asked if they have a clinic in their area 96.7% of the respondents answered in affirmative. Assuming that the respondents seek medical attention from the health facility the researchers sought to know where else they are likely to seek medical care in case of health related problems. The findings indicate that 53.5% of respondents sought medical care from chemists, TBAs 30% and the rest seek medical help from CHVs, witch doctors, traditional healers and religious leaders. Table 2 illustrates the results.

Factors influencing the choice of maternal health service providers: Sub location of residence ($P= 0.042$), Level of education of the mother ($P= 0.006$), presence of a health facility closer to the respondents ($P= 0.002$), distance from the nearest health facility ($P= 0.004$) and mothers like for the Maternal health service provider were independently significantly associated with choice of place of delivery and maternal health service provider ($p<0.05$). Multiple logistic regression model revealed that controlling for distance from the facility, Mothers education level, Sub location of residence, presence of a health facility in the locality and mothers preference to a particular Maternal health service provider were significant predictors of choice of place of delivery among the study participants ($p<0.05$).

Those from Shimoni were less likely to deliver at the hospital as compared to those from Vanga, Mwena, Malamba and Mzizima. Chances of delivering at the health facility increased with a control of all the above factors.

To quantify the strength of relationships between the variables, the researcher used the following model:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \epsilon$$

Where;

Y = The Place of Birth

α = is a constant and it is the Y value when all the predictor values X1, X2, X3) are zero,

$\beta_1X_1 + \beta_2X_2 + \beta_3X_3$ = Are constants regression coefficients representing the condition of the Place of Birth to the dependent variable. X1 = Socio-demographic characteristics; X2 = Determinants of Maternal Health Care Choices; X3 = Perceptions towards MCH care ϵ = (Extraneous) error term explaining the variability as a result of other factors not accounted for.

Table 2. Determinants of Maternal Healthcare Choices (N=333)

		Frequency(n)	Proportion (%)
Distance of the health Clinic from home	0-0.5 Km	37	11.1
	0.5-1 Km	126	37.8
	1-3 Km	86	25.8
	3-5 Km	39	11.7
	Above 5 Km	45	13.5
Condition of the road to the nearest HC	Murram	322	96.7
	Tarmac	11	3.3
Usual mode of transport to the HC	On foot	232	69.7
	Bicycle	29	8.7
	Motobike	147	44.1
	Public Transport	32	9.6
	Private Vehicle	3	.9
Effect of denomination on choice of MHC provider	a. yes	34	10.2
	b. No	299	89.8
Seek Consent	a. Yes	247	74.2
	b. No	86	25.8
Consent givers	Husband	222	66.7
	Mother-in Law	40	12.0
	Father-in Law	4	1.2
	Other	18	5.4
do you think your husband or mother in law or father in law demand to be giving permission	Yes	202	60.7
	No	131	39.3
Ever had pregnancy related problems?	Yes	163	48.9
	No	170	51.1
where treated for that problem	TBAs	25	7.5
	CHVs	10	3.0
	Traditional Healer	10	3.0
	Witch Doctor	4	1.2
	Biomedical personel	230	69.1
	Religious leader	8	2.4
Advised on a particular MHC provider	Yes	124	37.2
	No	195	58.6

Table 3. Multivariate Logistic regression (POB*MCH Socio-Demographics & Determinants)

Variable Category	Place of Delivery						P-value
	Home		Home/Hospital		Hospital		
	No	(%)	No	(%)	No	(%)	
Sub-Location							
Shimoni	1	0%	0	0%	1	0%	
Vanga	2	1%	8	2%	47	14%	
Malamba	23	7%	15	5%	52	16%	0.042
Mwena	20	6%	16	5%	57	17%	
Mzizima	13	4%	22	7%	55	17%	
Highest level of Education							
Lower primary	10	3%	15	5%	38	11%	
Upper primary	24	7%	17	5%	101	30%	
Secondary	2	1%	4	1%	30	9%	0.006
University/College	0	0%	0	0%	4	1%	
Madrassa	2	1%	2	1%	3	1%	
None at all	21	6%	23	7%	36	11%	
Presence of Health clinic							
Yes	57	17%	61	18%	203	61%	
No	2	1%	0	0%	9	3%	0.002
Distance from Health facility							
0-0.5 Km	10	3%	6	2%	21	6%	
0.5-1 Km	18	5%	22	7%	86	26%	
1-3 Km	15	5%	16	5%	55	17%	0.004
3-5 Km	7	2%	15	5%	16	5%	
Above 5 Km	9	3%	2	1%	34	10%	
Like Informal MHC givers							
Yes	28	8%	27	8%	61	18%	0.015
No	31	9%	34	10%	151	45%	

DISCUSSION

Determinants of Maternal Healthcare Choices: Education seemed to have an impact on the healthcare choices in the study area. The study found out that a majority of the respondents had not attained secondary school level. The study also revealed that these respondents preferred non-formal health facilities. This reinforces a previous study done by Suda (1997) in which she concluded that formal education in women has affected the use of health care facilities. She observed that educated women have a changed mind from traditions to a modern way of interpreting and understanding problems arising from pregnancy. She suggested that a community where there is a low level of literacy is likely to avoid using modern health facilities that they do not understand. Since they do not understand the physiological processes and cannot interpret their problems from the perspective of formal education, they often turn to the sphere they know better. The occupation of a mother determines her income that could be used to seek maternal healthcare provision. Mothers working in formal sectors have access to health security and for that reason; they may choose to use modern healthcare facilities to treat diseases when they are pregnant. This goes hand in hand with the cost of maternal healthcare services. The majority of mothers who took part in the study were involved in informal sector of occupations. Their monthly incomes were minimal and could not cater for their medical services. This discouraged some mothers from accessing healthcare facilities. It is worth noting that within the study area, mothers were well sensitized on the NHIF Linda Mama program that enrolls all the expectant mothers and the insurance scheme covers all the costs during pregnancy and at delivery hence free maternal services within Lunga Lunga. This alone eliminated the cost of seeking care as a determinant in the study area. Even though the cost of care was catered for by the NHIF Insurance scheme, affordability of transport cost still predominantly became a factor that hindered access to care for many mothers. Given the informal occupation of most of the respondents, they can hardly afford to incur the cost of accessing care.

It was also found out that distance to a healthcare provider influences the choice an expectant mother makes. This is in line with a study done by Allen (2002) in Tanzania. She found out that physical distance from a woman's home to a health centre or hospital is an important determinant that influences whether or not she uses the facility. The expectant mothers in the study area reported that it is easier and practical to choose a mother-in-law or traditional birth attendant who is at their close proximity, rather than to rely on skilled maternal healthcare providers who usually operate within the perimeter wall of the health facility that is far. Nearly 85% of the respondents live within five kilometers from the nearest hospital, this is quite a distance within the Lunga Lunga sub county remote regions and since the road networks are marram roads, the conditions do not guarantee access at all times. This has made the cost of motorcycle transport go higher and this makes it extremely difficult for expectant mothers to reach even relatively nearby facilities. The KDHS (2014) reports that the poor infrastructure in Kenya complicates the matter of maternal issues and is a great impediment to a great number of people in accessing health care facility. Several studies also share the same view (Olungah, 2007; Nangendo, 2006; Mubyazi et al., 2010; Effendi, 2008; Couillet et al., 2007). The study further found out that the social support system is a

crucial institution in the decision-making process and access of maternal healthcare providers. In the study area, mothers-in-law in most cases were the decision makers in matters of maternal healthcare choices. As Olungah (2007) previously underscored, people in ones' social network may urge one to visit a doctor or antenatal care clinic to prevent problems from escalating or for just routine checkups. The social support group may also suggest for mothers to use the available options for health within their reach. For instance, they can decide that a mother either should use faith healers or traditional healers. Moreover, this is always dictated by their knowledge of the disease and how it presents itself. In making any plan of successful motherhood intervention, it is crucial to involve them. The study shows that an expectant mother has to depend on other people for assistance in decision making when it comes to dealing with the problem of pregnancy. This is supported by a study conducted by Nyamwaya (1992) amongst the Pokot community, who observes that a sick individual consults close relatives who decide for her the kind of treatment or healer to approach. As Nyamwaya noted that this group matter amongst the studied community, it also matters amongst the Duruma and Digo communities of Lunga Lunga Sub County. A number of people in the immediate environment of an expectant mother participate in decision-making process, for example the study shows that mothers-in-laws made decision on the maternal healthcare provider to approach. This indicates that she is not the sole decision maker regarding her care-seeking pattern during her pregnancy, a view shared by Olungah (2007). Usually, the social support system consists of a network of close relatives who ensure that the expectant mother observes the traditional rituals, attend to a proper maternal healthcare provider as per their knowledge, and is protected against the effects of jealous relatives or other people with evil minds.

As noted by the study, the social support system dictates the maternal healthcare provider to be used by the expectant mother. If a healthcare provider mistreats an expectant mother as it happened in the health facility in the full watch of a mother-in-law that forms a social support system, then she can advise her sister-in-law to use another available option for maternal health problem. The decision may not be right, since she might decide to take her sister-in-law to an unskilled care provider that is not recommended by the safe motherhood intervention. In this way, the support system action may curtail individual and limit the female agency. Several reasons explain the over-reliance of expectant mother on the social support system to make decision for a maternal healthcare to approach: it is from this social support system where all the social ills that afflict expectant mother emanate and subsequently, the arena where it can also be eliminated for the general good of future generation. The involvement of this system in social activities could offer psychological assistance against stress, anxiety and depression. The social support system can also protect an individual from developing an illness and cope better with the burden of pregnancy and other medical problems (Olungah, 2007). The role of safe motherhood can be achieved if the social support system is allowed to take part in all the happenings of the maternal health in all aspects of pregnancy. The study found out that belief systems surrounding pregnancy influence the expectant mothers' choices of maternal healthcare provisions, for instance, maternal issues stemming from women who often lose their children. The local people do not take this as a normal thing. They attach this occurrence to an evil spirits of

young mothers who died without bearing children or who died while giving birth. Spirits from such women are believed to cause unrest to young mothers who are successful in their marriage. It is believed, they are jealous of the progress, especially on fertility of these mothers. They manifest themselves by claiming the young ones of the mothers. It is inappropriate for a woman to lose children in two consecutive births. The community may think that something is wrong. In the study area, it was reported that it is wrong for a mother to lose children quite often. When they believed that something was wrong, they insisted on tradition as Kawango (1995) points out; if a woman usually 'killed' children, she was bound (to prevent further occurrences) with traditional medicine. An old woman who was experienced in this field could treat such a woman. The medicine was administered when the woman became pregnant and when she delivered and if it was time to shave off the baby's first hair, it was the same medicine woman who was summoned to do the shaving. This also has an influence on maternal healthcare choices, as a woman would prefer to be treated when pregnant in her house and especially when giving birth.

The study also revealed that religious background of the respondents had no influence on the maternal healthcare choices. When asked about the prescription of their religion on MHC matters the respondents said that their religious leaders do not bar them from seeking any kind of care but rather encourage attendance of clinics and delivery in health facilities. It must however be noted that out of the above study, many mothers had preference for informal care since the TBAs and Mothers in law took good care of them when pregnant and during delivery. Lunga Lunga for this reason has trained all the TBAs and allowed them to accompany pregnant mothers to the health facilities during labour pains and for delivery and this has in turn increased the number of women who deliver at the health facility. In as much as they ended up at the health facility, it is imperative to note that the high numbers were due to referral and TBAs accompany mothers to the health facilities for delivery.

SUMMARY

Maternal healthcare choices formed the basis of this study, whose objectives included the identification and description of maternal healthcare providers in the area, the examinations of determinants for maternal healthcare choices and the exploration of the perceptions and attitudes towards maternal healthcare providers. Maternal healthcare is crucial to the Duruma community of Lunga Lunga Sub County. The following determinants were found to influence maternal healthcare choices: social support systems, belief systems in pregnancy, sub location of residence, level of education of the mother, presence of a health facility in the locality, distance to the nearest health facility and preference to the MHC provider. A social support system, which is the network of relatives to the pregnant mother, is usually involved in making the choice for maternal healthcare services, being liable to incurring the costs of health services provided and weighing the right healthcare providers to approach, based on the last experience with a particular maternal healthcare provider. The belief systems surrounding pregnancy are also crucial in the choice expectant mothers make for it is believed that certain maternal issues should just be dealt with in a particular and specific way. Regarding long distances to the health facilities, expectant mothers may prefer to choose a maternal healthcare

provider at her close proximity and which is considered relatively affordable. As a result of this, expectant mothers quite often use the services of the traditional birth attendants, mothers-in-law and faith healers. These groups of people always live with them, share and understand the cultural contexts in which pregnancy problems may unfold and subsequent ways of dealing with them. They are more flexible in their mode of payment and are friendlier to the expectant mothers.

Conclusion

Maternal healthcare as a global problem requires immediate attention to safeguard the life of the mother and the unborn child. Clear knowledge of the existing maternal healthcare providers and the determinants of their choices are crucial to the improvement of healthcare services in any locality. All the maternal healthcare providers in Lunga Lunga Sub County play a pivotal role in addressing the ever rising maternal issues such as abdominal pain, miscarriages, prolonged labour, hemorrhages, unsafe induced abortion and correcting fertility. However, existing misconceptions are a serious hindrance to their relative contributions in this field. Maternal health issues should be approached holistically, bearing in mind that inclusion of traditional healers, traditional birth attendants, faith healers, mothers-in-law, friends, neighbors and biomedical health practitioners may significantly reduce the high rate of maternal and infant mortalities. It should also be borne in mind that the factors influencing the use of these maternal healthcare providers should be appropriately addressed to facilitate improved maternal healthcare provision in the sub county and other rural localities in the country.

Recommendations

The study makes a number of recommendations.

1. The government, in liaison with the local community and NGOs, should make available accessible, well-equipped health-care facilities and qualified personnel to manage pregnancy problems in the rural areas in the country.
2. Health education to the community on the importance of conducting their deliveries in health facilities, where skilled personnel will attend to them should be intensified and made more effective by the Public Health department.
3. Government need more comprehensive and customized interventions/ strategies to maintain and sustain high levels of utilization of facility delivery services.
4. Qualified health workers should be made available in all health facilities providing delivery services and that health workers should not humiliate clients but instead should exercise maximum politeness in handling pregnant mothers.
5. Government should avail essential delivery equipments in the rural health facilities and be made free if possible or affordable to all.
6. Government Health care workers need to accelerate the reduction of maternal and newborn deaths by promoting quality and accessible maternal, newborn and child health services. This can be fast tracked through the implementation of the Kenya First Lady's Strategic Framework for Engagement in HIV Control

and Promotion of Maternal, Newborn and Child Health in Kenya.

Recommendation on further study: The study further recommends more researches on identified specific issues related to choice of place of delivery among women of different age cohorts and geographical settings and find out possible interventions to overcome such issues.

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