
ACCESS TO HEALTH FACILITY AS A DETERMINANT OF CHOICE OF PLACE OF BIRTH AMONG WOMEN OF REPRODUCTIVE AGE IN MURANG'A COUNTY, KENYA

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ABSTRACT

Introduction: Maternal and child mortalities are among major health problems facing most of developing countries including Kenya. Most of these deaths are avoidable if women access and utilize maternity healthcare services. The aim of the study was to assess how the accessibility to health care facilities influenced choice of place of delivery among mothers seeking Child Welfare services in selected health facilities in Kandara Sub County.

Methods: The study adopted a facility-based cross-sectional survey design using an interviewer guided questionnaire. The population comprised of mothers who had delivered within 12 months prior to the study and seeking Child Welfare services at the selected health facilities in the Sub County. A purposive sampling method was used to identify the facilities which participated in the study. The desired sample size was 352 respondents who were selected using systematic random sampling method. Descriptive statistics were used to present analyzed the data.

Results: The study found that access to health facility significantly (p value of 0.049) influenced the choice of place of birth within the study area.

Conclusion and Recommendations: Accessibility to health facility had significant positive influence on the choice of place for delivery. The study therefore recommends concerted effort by County government and other stakeholders interested in maternal healthcare and infrastructure development and teamwork with the department of health services to improve and increasing the accessibility of health facilities. A broad based study covering all counties in Kenya be done to find out the determinants of choice of place of birth.

Key words: Access, place of birth, choice, women, Kenya, reproductive age, determinants

Introduction

Delay in accessing emergency obstetric-care during life-threatening obstetric complications is a significant determinant of high maternal mortality in developing countries (Killewo et al., 2004). Delay in reaching care due to - distance to health centers and hospitals, availability of and cost of transportation, poor roads and infrastructure and geography formation e.g. mountainous terrain, rivers is the second delay in the three delay models of safe motherhood. Globally, half a million women die each year from pregnancy and childbirth related complications of which over 90% of these deaths occur in developing countries (Oguntunde et al., 2010).

In Africa and Asia, approximately 536,000 women die every year from complications related to pregnancy and childbirth, with 99% of these deaths taking place in Sub-Saharan Africa (WHO, 2008). In Kenya, Maternal Mortality Rate (MMR) of 362/100,000 has been reported this is minor decrease from the 2009 survey which was at 488/100,000 live birth (KDHS 2014). The fourth (4th) and fifth (5th) MDGs are geared to reducing the Child Mortality rate and Improving the Maternal Health respectively by the year (UN, 2007).

A measure of the proportion of deliveries assisted by skilled attendants and maternal mortality ratio (MMR) are the indicators of progress towards achieving MDG numbers 4 and 5 (UN, 2007). According to Kenya Demographic and Health Survey (KDHS 2008/09), increasing the proportion of women that deliver in health facilities is an important factor in reducing the health risks to both the

mother and the baby. Proper medical attention and hygienic conditions during delivery can reduce the risks of complications and infection that cause morbidity and mortality to either the mother or the baby (CBS et al., 2003).

In Kenya, an estimated 7,700 women die each year as a result of pregnancy-related causes (Republic of Kenya, 2010). In Kenya, according to the Ministry Of Public Health and Sanitation (MOPH) most of maternal deaths are due to obstetric complications (MOPHS, 2008). A study by Ronsmans (2006) showed that, most maternal deaths occur during labour, delivery and the immediate postpartum period. Obstetric haemorrhage is the main direct cause accounting for 25% of maternal deaths, infections (15%), unsafe abortion (13%), eclampsia (12%), and obstructed labour (8%). To create awareness about the numbers of women dying each year from complications of pregnancy and childbirth, and to challenge amelioration of the situation “The safe motherhood initiative” was launched in Nairobi in 1987 (Starrs, 2006).

Pillars of Safe Motherhood include: safe delivery, antenatal care, postnatal care and family planning are among the strategies and specific interventions for the reduction of maternal morbidity and mortality (WHO, 2005). Safe delivery ensures that all deliveries are attended by persons with the right knowledge, skills and equipment and also provide post-partum care to mother and baby (Kabir, 2007). In an effort to reduce maternal mortality, the indicators of progress are Maternal Mortality Ratio (MMR) and proportion of births attended by skilled

attendants (UN, 2007). A study by WHO shows that, one third of births take place at home without the assistance of a skilled attendant globally (WHO, 2008.).

In Africa less than 50% of births are attended by a skilled health worker (WHO, 2008.). A significant proportion of women in developing countries still deliver at home unattended by skilled health workers (Montagu et al, 2011). In this regard, the researcher intended to identify how accessibility to health facilities influenced the place of delivery among women of child bearing age in Kandara Sub County.

Approximately two million women have died in Africa during childbirth since year 2000 (UN, 2007). According to KDHS 2014, Maternal Mortality Rate (MMR) of 362/100,000 has been reported this is minor decrease from the 2009 survey which was at 488/100,000 live birth. More than 90% of women in Kenya already attend prenatal clinics in health facilities but only about 60% deliver at the hospital (KNBS 2010). According to the DHIS 2014, skilled deliveries in Murang'a County for 2014 financial year was 13820 (61.3%) out of expected 22,560 deliveries that year. In Kandara Sub-County there were 1315 (35%) skilled deliveries reported in 2014 financial year. This is far below the main aim of MDGs which is to increase the proportion of deliveries attended by skilled birth attendants to 90% worldwide by the year 2015 (UNFPA, 1999). In this regard, more studies ought to be carried out in order to find out how accessibility to health facilities influence the choice of place of delivery among WCBA in

the study area hence reducing child mortality and improve maternal health.

To achieve MDGs number four and five, deliveries should take place under the supervision of skilled attendants. The purpose of this study was to assess how accessibility to health facilities influenced the place of delivery among women of child bearing age as little or no study has been done in the study area. Despite the low number of skilled deliveries reported (35%) in the sub county, 99.9% of babies were taken to health facilities for child welfare services in the same period (DHIS, 2014).^{8 77}. The information that the study generated will be used by stakeholders working with maternal and child health in the Sub County to make informed decisions and policies that will address the determinants influencing the choice of place of delivery among Women of Child Bearing Age.

Physical access to health facilities through distance and/or lack of transport, are important barriers for women to delivering in a health facilities in Kenya (KDHS, 2009). This study correlates with one conducted by Eijk et al (2006) which looked at antenatal care and delivery care among women and found that women who had more than an hour walking distance to health facility were associated with delivery outside health facilities.

A systematic review has showed that better community referral and transport systems have increased rates of skilled attendance at birth in other contexts (Lee et al., 2009). Another Study done in Rural Kenya shows that birth preparedness is an important factor which can influence women choice of

delivery practice (Mutiso et al., 2007). Study done in Rural Malawi shows that key decision makers or household heads have a role to play in determining the place of delivery as well as the birth attendant (Seljeskog et al., 2006). Studies done in Nepal have found that time costs, travel costs, direct payments, and fear of unofficial payments can be barriers to the use of maternity services (Borghi, 2006).

In review of the literature, little is known in the study area about how accessibility to health facilities influences the choice of place of delivery among women of child bearing age. Therefore the researcher carried out a study to find out how accessibility to health facilities influences the choice of place of delivery hence bridging the existing gaps.

Methods

This was a facility based cross sectional descriptive design was used in this study. The study area was Kandara Sub County which is one of the seven Sub Counties in Murang'a County. It covers an area of 234 km² and is situated 45km north of Nairobi city. It borders Kigumo Sub County to the North, Maragua Sub County to the East and Gatanga Sub County to the south. Administratively, the Sub County is Sub divided into three Divisions namely; Kandara, Gaichanjiru and Githumu. The area has a good road communication network with tarmac and Murom roads. The main economic activity is small crop farming and animal rearing. There are small scale businesses in the few shopping centers in the Sub County. The sub county has 23 GOK facilities, 5 Faith Based Facilities and 4 private. Out of these, only six facilities offer maternity services. The sub

County 2014 projected population was 169,711 of which 37,211 are WCBA 18-49 yrs. The estimated deliveries are 3,691 and number of estimated under ones is 3750 (DHIS 2014).

The target population in this study is Women of Child Bearing Age (18-49years) seeking child welfare services at Kandara Sub County health facilities. The monthly average workload of WCBA in the Sub County is 4,158. Women of Child Bearing Age (18-49years) who had delivered within 12 months prior to the study and seeking child welfare services at Kandara Sub County health facilities participated in the study.

Mothers who had given birth within the last 1 year seeking Child Welfare services at the time of the study were included. Mothers whose age was below 18 years and beyond 49 years of age, who had not lived in the area for the last one year (visitors), or who had delivered more than 12 months prior to the study were excluded.

Sample size was calculated using the Fishers et al., 1998 formula [$n = Z^2 pq/d^2$] (cited by Mugenda & Mugenda, 2003). A sample size of 352 respondents identified to take part in the study. The researcher used randomly selected samples from 32 health facilities offering Child Welfare services. The researcher stratified the facilities as per the wards. The total work load of sub-county was used to determine the number of facilities (16) to be used in the study.

Since there is a hospital in each ward, the three were purposively included in the study due to their level of service delivery and workload. To select the dispensaries, the

researcher wrote all the names of the facilities on pieces of papers shuffled them and randomly picked 13 health facilities. The selected health facilities formed the sampling frame.

To ensure validity, five research assistants with O-level certificates were recruited and trained on how to administer the interview schedules. Together with the researcher, the interview schedules were pre-tested in three health facilities which did not participate in the final study.

Thirty-two (32) (10% of the sample size) interview schedules were administered. According to Gall and Borg, (2003) the total number of respondents for the pretest/ pilot study should be between 9% -10% of the sample population hence the study met this criteria. After the pre-test, correction was done to improve the research tool before use on the entire sample ensuring validity.

Reliability Analysis of the instrument was done which refers to the ability of a tool to produce consistent and stable measurements. Bagozzi (1994) explains that reliability can be

Findings

The researcher obtained responses from 287 (81.5%) response rates. The response rate is considered satisfactory to make conclusions for the study. Bailey (2000) asserts that a response rate of 50% is adequate, while a response rate greater than 77% is very good.

seen from two sides: The most common reliability coefficient is the Cronbach's alpha which estimates internal consistency by determining how all items on a test relate to all other items and to the total test - internal coherence of data. The reliability is expressed as a coefficient between 0 and 1.00. The higher the coefficient, the more reliable is the test. In this study, Cronbach Alpha was used to test the reliability of the proposed constructs. The findings indicated that accessibility to delivery services 0.779. The constructs depicted that the value of Cronbach's Alpha was above the suggested value of 0.5 thus the study was reliable (Nunnally and Bernstein, 1994; Nunnally, 1974).

Quantitative data was analyzed using Statistical Package for Social Science Program (SPSS) version 20. Both descriptive and inferential statistics were used in analyzing data. This entailed frequencies and percentages, means, standard deviations and regression analysis. The research findings are presented in form of tables and graphs discussed and formed the basis for the research conclusion and recommendations.

Most 184 (64.1% (95% confidence interval = 58.5% - 69.7%)) of the respondents travelled between one and five kilometers to the health facility while 8 (2.8%) travelled between 11 and 15 kilometers. Only 3 (1%) travelled 21 kilometers and more. These are as shown in Table 1 below.

Table 1: Distances to the Health Facility

Distance (Km)	Freq.	%
1 to 5	183	64.1
6 to 10	82	28.8
11 to 15	8	2.8
16 to 20	11	4.0
>21	3	.3
Total	287	100.0

Most of the respondents 91.3% (95% confidence interval = 88.0% - 94.6%) could access a health facility within one hour with 180 (62.8% (95% confidence interval = 57.0% - 68.6%)) of them spending between 0 and 30 minutes to the health facility offering maternity services. 16 (6%) reported spending more than 90 minutes to reach the nearest health facility offering maternity services.

Less than half 124 (43.3% (95% confidence interval = 37.5% - 49.1%)) used public transport to access maternity services while 94 (32.8% (95% confidence interval = 27.3% - 38.3%)) walk to the health facilities offering maternity services. Less than a half 126 (44.0% (95% confidence interval = 38.2% - 49.8%)) paid between 1 to 50 shillings to the facility while 64 (22.9% (95% confidence interval = 18.0% - 27.8%)) walked to the facility as detailed in Table 2 below.

Less than half 130 (45.2% (95% confidence interval = 39.4% - 51.0%)) of the respondents indicated that the cost of travel influenced the choice of place of delivery to high extent while less than a third 85

(29.4% (95% confidence interval = 24.1% - 34.7%)) reported it influenced to low extent.

Table 2: Cost of Travel to the Facility

Cost of Travel (KSHS)	Freq	%
0 (Walk)	65	22.9
1 to 50	126	44.0
51 to 100	64	22.6
101 to 150	8	2.8
15 to 200	17	5.3
>201	7	2.5
Total	287	100.0

Accessibility to Maternity Services Rating

Respondents were required to indicate their level of agreement with various aspects on access to maternity services in relation to choice of place of delivery. Items that were measured on a five point Likert-Type scale ranging from 1 being “Strongly Disagree” to 5 being “Strongly Agree”. Means of 3256 to 4.3116 and standard deviations of 0.52115 - 0.94525 were registered.

It was clear from the study findings that walking long distances to hospitals encouraged of the women to deliver at home to a great extent as revealed by high means of 4.3116. The findings further revealed that high travelling costs, direct payments and fear of unofficial payments are a barrier to use of maternity services offered in hospitals discouraged most women to deliver in hospitals (4.3116). On the same note, the findings revealed that poor infrastructure i.e. roads encourages most women to deliver at home 3.6465 as presented in Table 3 below.

Table 3: Descriptive statistics on availability to maternity services

Item	Mean	Std. Deviation
Poor infrastructure i.e. roads encourages most women to deliver at home	3.6465	.94525
Long distances from where hospitals are located discourages most women from delivering in hospitals	4.3116	.52115
Early seeking of ANC and skilled assistance during child birth encourages delivery in hospitals	3.4755	.52115
Better community referral and transport system have increased delivery in hospitals	3.3256	.53449
Travelling costs, direct payments and fear of unofficial payments are a barrier to use of maternity services offered in hospitals	4.3116	.54167
Overall Mean	3.8142	

Multiple linear regression analysis models show the relationship between various determinants of choice of place of birth for child bearing age women with specific reference to Kandara Sub-county. The coefficient of determination (R^2) and correlation coefficient (r) shows the degree of association between choice of place of birth and various determinants of the same.

The research findings indicated that there was a very strong positive relationship ($r=$

0.852) between the variables. The study also revealed that 72.7% of choice of place of birth performance could be explained by the determinants under study as shown in table 4 below ($P= 0.003$).

Anova test revealed that the combined independent variables have significant effect on choice of place of birth. This can be explained by high F values (8.746) and low p values (0.003) which are less than 5% level of significance as shown in Table 4 below.

Table 4: Regression Coefficient

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.518	286	.138	8.746	.003
Residual	.185	1	.185		
Total	1.702	287			
	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	T	Sig.
Accessibility	.147	.358	.172	.410	.049

The results of regression coefficients reveal that a positive effect was reported for accessibility of the respondents under study. From this study it was evident that at 95% confidence level, the variables produce statistically significant values for this study (high t-values, $p < 0.05$). A positive effect is reported for all the variables under study hence influencing choice of place of birth among child bearing age women in Kandara Sub-County positively. The results of the regression equation below shows that for a 1- point increase in the determinants, choice of place of birth is predicted to be influenced by 0.864, given that all the other factors are held constant.

H₄: Accessibility to health facilities does not influence choice of place of delivery among mothers seeking Child Welfare services. The regression coefficients in Table 4 revealed that accessibility to health facilities registered a p value of 0.049 which is less than 0.05 at 95% confidence interval. Therefore the null hypothesis is rejected. This result is however on the borderline of the significance level which means that the

study would need to be repeated with a bigger sample size to confirm this result.

Discussion

The findings reveal that women walk long distances to hospital which, to a great extent, encourages most of them to deliver at home. This study correlates with the KDHS (2009) which showed that physical access to health facilities and/or lack of transport, are important barriers for women to delivering in a health facilities in Kenya. The finding could also be related with low access to skilled deliveries as indicated by Muranga County (DHIS, 2014) whereby during the year, only 39.8% of mothers accessed skilled deliveries. Skilled birth attendances especially in health facilities, is one of the most appropriate path to achieve the current SDGs on maternal and child health in Kandara and the county at large.

The findings further revealed that high travelling costs is a barrier to use of maternity services offered in hospitals which discouraged most 77% women to deliver in hospitals. On the same note, the findings revealed that poor infrastructure i.e. roads

encourages most 45.2% women to deliver at home correlating with KDHS study that proved that economic considerations are important barriers for women to delivering in a health facilities in Kenya (KDHS, 2009). The findings also correlate with a study done in Nepal which found that time costs, travel costs, direct payments, and unofficial payments can be barriers to the use of maternity services (Borghi, 2006).

Most of the respondents could access a health facility within one hour. Poor infrastructure i.e. roads encouraged most (45.2%) women to deliver at home. Most roads are murrum hence transportation is challenged. Poor community referral and transport systems have decreased delivery in hospitals correlating with a systematic review has showed that better community referral and transport systems have increased rates of skilled attendance at birth in other contexts (Lee *et al.* 2009).

Conclusion and Recommendations

The study findings revealed that there is a significant positive effect on choice of place of birth and the accessibility to delivery services among women of reproductive age in the Sub County.

Concerted effort by County government and Kandara Sub County Health Management Team are recommended. Stakeholders interested in maternal healthcare and infrastructure development and teamwork with the department of health services to improve and increasing the accessibility of health facilities offering maternity services are within the Sub County.

The service providers need to enhance counseling on individual birth plan for timely preparedness before onset of labor among women of child bearing age during their antenatal clinics

This study is a milestone for future research in this area as this study focused on determinants of place of birth in Kandara Sub-County, Muranga County and therefore, generalizations cannot adequately be extended to other counties. Based on this fact the researcher recommends that a broad based study covering all counties in Kenya be done to find out the determinants of choice of place of birth.

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