

## Factors affecting skilled delivery in a health facility in Mwingi north Subcounty, Kitui County, Kenya 2018

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### Abstract

#### Introduction

High maternal mortality rate is one of the major public health concerns in developing countries, Kenya included. Most of the deaths are caused by factors attributed to pregnancy and childbirth. In Kenya, maternal mortality increased from 380/100,000 live births to 530/100,000 live births between 1990 and 2008. Skilled assistance during childbirth is central to reducing maternal mortality yet the proportion of deliveries taking place in health facilities where such assistance can reliably be provided has remained below 50% since the early 1990s. The objective of this study was to estimate the prevalence of home deliveries and identify factors affecting health facility deliveries in Mwingi North Sub County.

#### Methods

This was a cross sectional study design done between December 2017- February 2018 in Mwingi North Sub County. Multistage and proportionate sampling techniques were used. A structured questionnaire was used to collect data. Data was collected from the five wards of the sub county. Descriptive statistics, variables significant at p value = 0.02 in bivariate analysis were included in the multivariable regression model and variables with a p value of  $\leq 0.05$  were considered statistically significant.

#### Results

We interviewed 240 women from the five wards of the sub county ie Kyuso 91 (37.4%), Ngomeni 45 (18.3%), Tseikuru 43 (17.7%), Mumoni 33 (13.5) and Tharaka 32 (13%) respectively. The age group 16-25 years formed a large proportion 45.5% (110/240). Mean age was 27 years (SD of 6.6). Delivery by skilled birth attendant was 51.1% in government/private whereas 38.8% delivered in their home or traditional birth attendance (TBA)'s home. On bivariate analysis 6 variables out of the ten variables of interest had a p value of  $\leq 0.05$ . Women who lived  $< 5$  kms from the health facility had 3.4 odds of delivering in a health facility compared to those living  $> 5$  km from health facility p value- 0.0001 (CI 1.812-6.48). Households with 1-2 children were 3.2 times likely to deliver in a health facility than households with more children (p value 0.0001, CI 1.833-5.642). Women who attended ANC  $\geq 4$  visits had 4 odds of likely to delivery in a health facility as opposed to who attended less than 4 visits, p value 0.0001 (CI 2.01-8.789). Women whose partner had formal occupation had 3.4 odds of likely to deliver in a health facility than those women whose husbands did not have formal jobs (p value 0.0001, CI 1.81-6.45).

#### Keywords

Home deliveries  
Mwingi  
Health facilities  
Kenya  
Maternal mortality

On multivariate analysis distance from health facility, number of ANC visits and parity of the mother had the following OR & CI 2.8,7.5,2.58-21.51 and 2.4,1.03-5.9 had statistical significance ( $p$  value $\leq$ 0.05) influencing health facility delivery.

#### **Conclusion/Recommendations**

Health facilities are the preferred sites for delivery regardless of the level of education, religion, marital status and occupation of the respondents. Long distance from the health facility is a hindrance to accessing health services. Inadequate prescribed ANC visits is associated with delivery at home.

Improving accessibility of health care services and health education on family planning would increase delivery at a health facility. Kitui County should therefore opt for satellite clinics or ambulatory services to ensure that expectant women have access to antenatal care and maternal services.

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## **Background Information**

The number of deliveries not attended by skilled birth attendants have continued to grow while hospital deliveries have continued to decline worldwide [1]. A home delivery is a state in which a pregnant woman gives birth to her baby away from the health facilities (institutions). Maternal mortality is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy. This is irrespective of the duration (length) and site of the pregnancy. Maternal mortality rate is the number of maternal deaths per 100,000 live births [2]. Globally maternal mortality rate has continued to increase leading to failure by countries to achieve the millennium development goals that were set in year 1990 to 2015 [3]. Maternal mortality rate was expected to be 5.5% but only managed to reduce to 2.3% reduction [3]. This made it impossible to achieve the millennium development goal number five (5) that aimed at reducing maternal and neonatal deaths (now sustainable development goal number three). However, maternal deaths have reduced from 546 000 in 1990 to 358 000 in the year 2015 representing 34% reduction. On the other hand between year 2016 and 2030, as part of the Sustainable Development Goals, the target is to reduce the global maternal mortality ratio to less than 70 per 100 000 live births [4]. In order to achieve this universal health care has been recognized as one of the four pillars of the government and is therefore receiving support from many quarters.

According to Safe Motherhood Initiative (SMI) by WHO, hospital deliveries were fewer than home deliveries in many regions of Sub-Saharan Africa (SSA). The reason for this is that the initiative lacks a clear, concise realistic strategy [5]. This has continued to cause high number of still births; 3.2 million

stillbirths, 4 million neonatal deaths and more than half a million maternal deaths. Most of these deaths are preventable [5] when a skilled health personnel provides delivery services within health facilities to pregnant women, maternal and neonatal health outcomes improve [7].

In Kenya, skilled birth attendance (44%) has remained far below the international target of 90% whilst skilled birth attendance during delivery makes it a benchmark indicator for safe motherhood [8]. Delivery by a skilled birth attendant reduces chances of maternal complications. A study by Nyongesa C. found out that the sex of a service provider, Cost, number of antenatal visits and education level were strongly associated with client's intention to deliver with a skilled birth attendant at delivery.

In Kitui county skilled birth attendance has equally remained very low. Moreover, Mwingi North Subcounty has recorded low number of deliveries in the health facilities. According to district health information system (DHIS2) data 2015, normal deliveries reported were 1472, year 2016 had 1594 while 2017 had 1194 normal hospital deliveries [9]. According to Kitui county development plan 2018 to 2022, maternal health has received top priority geared towards ensuring universal health care is achieved. Part of this is the increased number of health care workers who have recently been employed and deployed in almost all the health care facilities.

Even though the delivery by a skilled birth attendants have remained low, the immunization coverage country wide and county level have remained above the national government rate of skilled birth attendant of 44%. According to the DHIS2 the number of Bacillus calmette Guillen (BCG) antigen doses administered in Mwingi north Subcounty 2017 was 3268 while the number of deliveries recorded by skilled birth attendants was 1154. This means that over 65% of babies were delivered at home without the help of a skilled birth attendant.

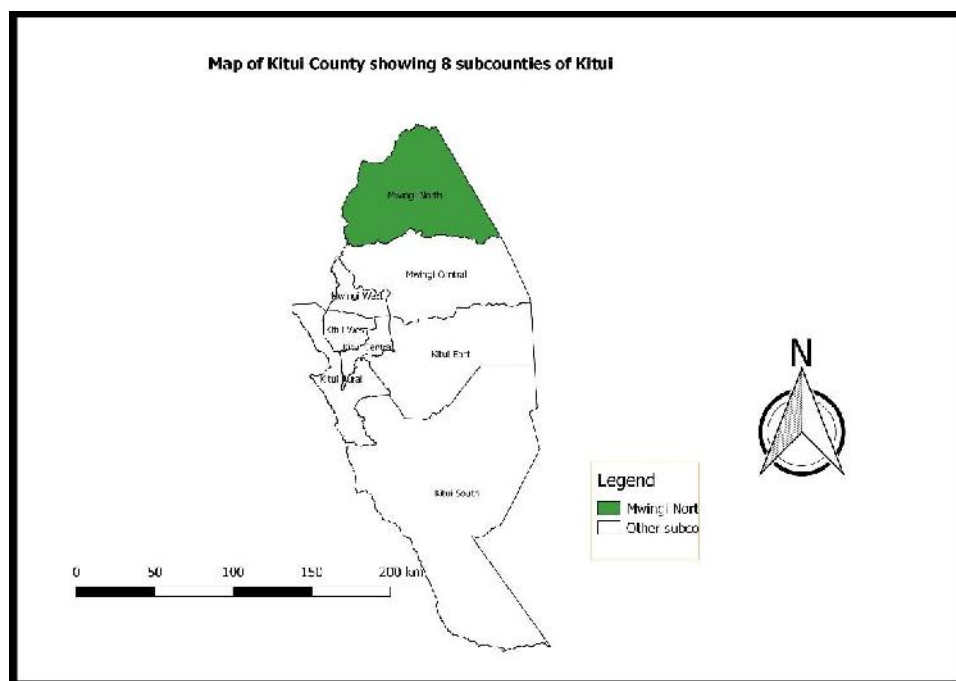
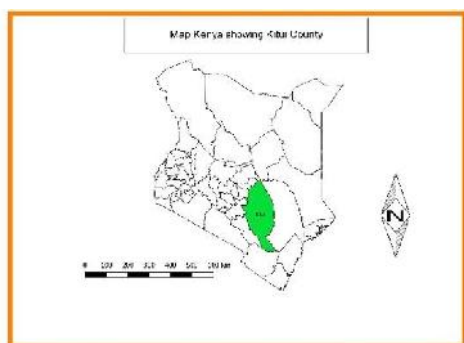
Improving maternal health and most importantly reducing maternal mortality and morbidity are top agenda for the Government of Kenya. Therefore, improving maternal delivery care is an essential element of attaining improved maternal health. In order to achieve this agenda, information about the rates and trends in maternal mortality is essential for resource mobilization, monitoring and evaluation of progress towards SDG. However, for this to be attained, maternal health programs should be based on evidence or on the right type and quality of information. This study aimed to identify factors affecting health facility deliveries in Mwingi North Sub-county

## Methods

### Study site

The study was carried out in Mwingi North Sub-county. Its one of the eight sub-counties of Kitui County. It has five wards (Appendix I) and has an area of 4,814.9 square kilometers. Has a catchment population of 160,938. It has 2 Subcounty hospitals, 6 health centres, 20 dispensaries, 2 private nursing homes. However the Subcounty does not have any operation theatre facilities nor newborn units in any of the hospitals. The Mwingi level 4 hospital, a referral facility is situated about 100 kilometers away from Mwingi north Subcounty hospitals. Therefore all cases requiring surgeries are usually referred to Mwingi hospital level 4 hospital. Mwingi north Subcounty has the following cadres of staff– Medical officers -2, pharmacist-1, Nursing officers -60, clinical officers – 12, public health officers-10, nutritionist -2, medical laboratory technologists -13

Mwingi North has approximately 34800 women of reproductive age (KDHS, 2014).



Appendix I: Map of Kenya showing study site-Kitui County and Mwingi north Subcounty

### Study design

A cross section study design was used, bivariate and multivariate analysis were carried out

### Sample size determination

Sample size was determined using proportion of home deliveries to proportion of hospital deliveries; the number of home deliveries (80%) and in the institutions (20%) in the study area. The standard error was set at 5%.

### Sampling technique

Multistage and proportionate sampling techniques were applied. Multistage sampling technique was used. First purposively Mwingi North Subcounty was selected among the eight (8) sub counties of Kitui County.

Secondly proportionate sampling was done among the five (5) wards of Mwingi north Subcounty according to their catchment population and the number of health facility deliveries

### Data collection and data collection instruments

Data collection was done using structured questionnaire that was administered by five (5) research assistants for a period of two months (December 2017 to January 2018). These research assistants were recruited to assist in carrying out the study. Data was collected from six high volume facilities in Mwingi North Subcounty and are located within the headquarters of the wards.

### Data analysis plan

Data was entered into Epi info version 7.2.2 then uploaded in Microsoft excel for data cleaning. We calculated measures of central tendency and dispersion for continuous variables while frequency and proportion for categorical variables was calculated.

### Inclusion criteria

All women attending MCH services and have delivered their last baby within the last two (2) years prior to the interview were interviewed

### Exclusion criteria

Women attending services in the selected health facilities and are under age and are not accompanied by guardian/ adult. Vulnerable women like those with mental disorders were not interviewed

### Study variables

#### Independent variables

Place of delivery

#### Dependent variables

These included age, marital status, level of education, parity, occupation, number of people living in a house and distance from health facilities

### Ethical considerations

Scientific approval was sought from the departmental Graduate committee of the school of health sciences at the Meru University of Science and Technology (MUST). Ethical clearance was obtained from the MUST Institutional Research Ethics Review Committee (MIRERC) Respondents were assured that the research findings would be used only for scholarly/academic purpose as well as policy formulation if adopted.

## Results

Most of the respondents were age 16-25 years at 110 (45.8%) while a small proportion of respondents did not know their age 8 (3.3%). Majority of the respondents 181(75.4%) were married followed by single ladies with children at 51 (21.3%). Kyuso ward had the highest number of respondents at 88 (36.7%) followed by Ngomeni and Tseikuru at 18.8% and 17.5% respectively

Over 69% of the respondents live over 5 km away from a health facility. On bivariate analysis women who live within a radius of 5km from a health facility had 3.4 odds of delivering in a health facility than those living farther from a health facility (p value 0.0001, CI1.812-6.48) Table 2.

Table 1: Number of Children/Parity and Place of Delivery of Last Baby in Mwingi North sub county Jan 2018

No of children	Place of last delivery				
	Own home	TBA's home	Private health facility	GOK health facility	Other
0-2(n=115)	30.4% (35)	0.00%	12.2% (14)	53.9% (62)	3.5% (4)
3 to 4(n=77)	44.2% (34)	1.3% (1)	7.8% (6)	32.5% (25)	14.3% (11)
5 to 6(n=29)	31% (9)	14.8% (4)	10.3% (3)	27.6% (8)	17.2% (5)
7 and above (n=16)	56.9% (9)	0%	%	18.8% (3)	25% (4)
Total	36% (87)	2.1% (5)	9.7% (23)	41.4% (98)	10.1% (24)

Table 2: showing exposure indicators influencing delivery outcome p values and Confidence intervals (CI)

Variable	n	P value	Odds	CI
Attended at least 4 ANC visits	99	0.0001	4.18	2.38-7.3
Education level at least sec	77	0.097	1.48	0.86-2.57
Tradition practice present	40	0.011	2.32	1.13-4.57
HH Head husband	169	0.147	0.713	0.41-1.25
Tradition rituals present	12	0.590	0.96	0.30-3.09
Marital status-married	181	0.276	0.81	0.45-1.47
No of children atmost2	117	0.0001	3.21	1.83-5.44
Partner occupation formal occupation	70	0.0001	3.42	1.81-6.45
Distance from health facility<5	72	0.0001	3.4	1.81-6.48
People living in HH < 5	121	0.014	1.63	1.09-3.05

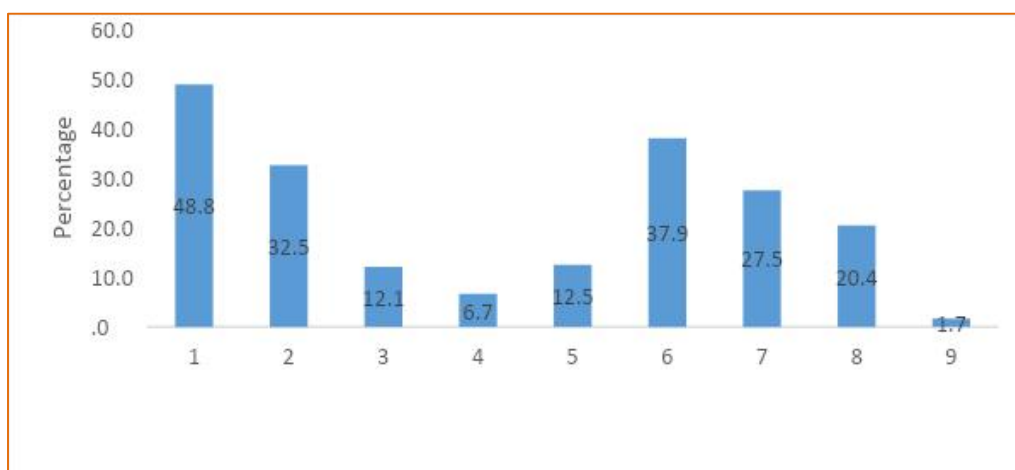


Figure 1: showing the number of children and people living in a household in Mwingi north Subcounty Jan 2018(n=240)

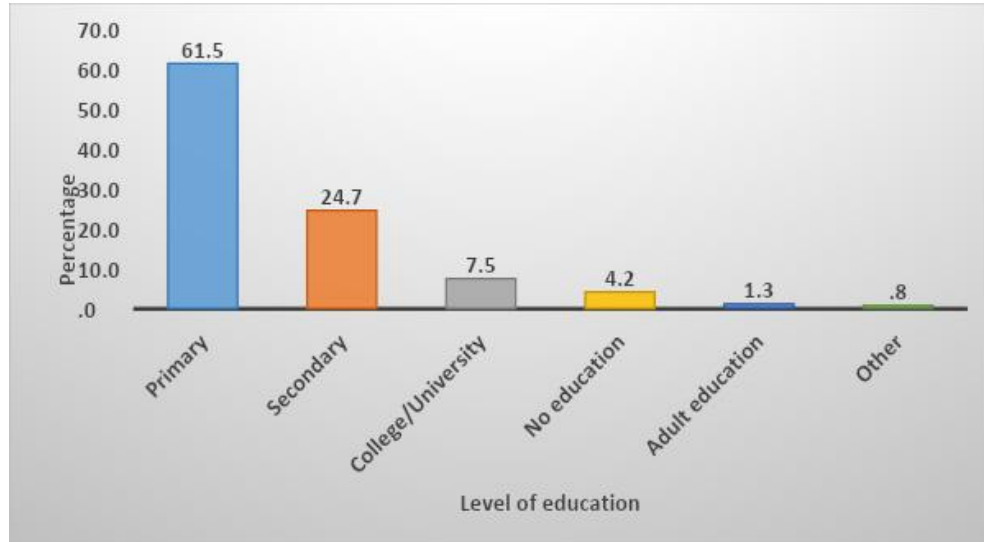


Figure 2: Level of education of women in Mwingi north Subcounty, 2018

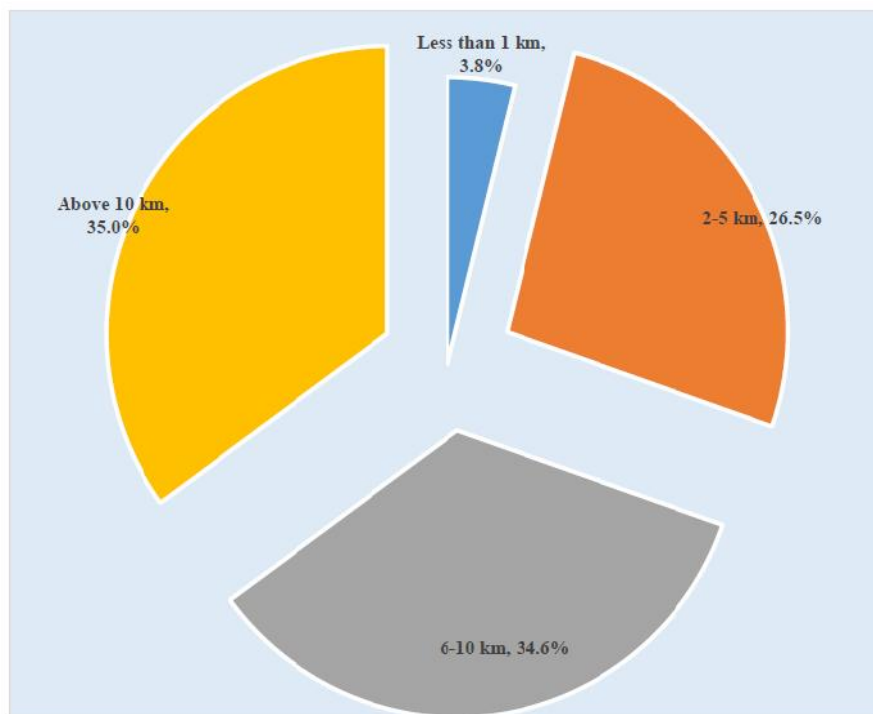


Figure 3: Distance in kilometers of women's home from the nearest health facility

## Discussion

According to Mrisho (2008) who conducted his studies in Tanzania, a higher percentage of younger women deliver at health facilities in contrast to older women who often choose to deliver at home. The results of the Tanzanian study were corroborated by similar findings in in Nepal and Zambia by Bolam et al (1998) and Shankwaya (2008). The reason given for this discrepancy according to studies in Zambia and Tanzania was that younger women were inexperienced and also more afraid of birthing complications than older women. However, the results of this study indicate that there is no relationship between age and attendance of antenatal clinics or age and hospital deliveries.

### Marital Status

Marital status has been shown to have a weak negative linear relationship with attendance of antenatal clinic during the last pregnancy. Therefore, marital status has little influence on the attendance of antenatal clinic during the respondent's last pregnancy. Single and married women mostly delivered either at home or at a government health facility. Majority of divorced women delivered at home whereas widowed women delivered at either a private or government health facility.

### Number of Children/Parity

Number of children/parity has a negative impact on hospital deliveries as attendance to antenatal clinics decreases with increase in the number of children. Studies in Zambia indicate that women who have given birth more than once are less likely to seek maternal care at a health facility because they feel can manage the birthing process without the assistance of a health care professional. The findings were corroborated by similar findings by Mrisho (2008) in Tanzania demonstrating that multipara women have a preference for home deliveries. Alternately, women who were giving birth for the first time sought health care services at health facilities because of an innate fear of developing birth complications.

Our study shows what?

## Socio-economic factors

### Education

The level of education was cited in the literature review section as being having a recognizable influence on the place of delivery. Furthermore, it was stated that a women with non-formal education were more likely to deliver at home as opposed to a formally educated woman with a higher probability of delivering at a health facility[10]. The studies were carried out in Nepal, Columbia and Kenya.

In contrast, the results of this study in Kitui County, Mwingi North Sub-county show that education has little or no influence on the place of delivery. From the data obtained from respondents, most of the women irrespective of their level of education delivered either at home or at a government health facility except for women with adult education who exclusively delivered at their own homes. The finding was in contrast to the anticipated results that would have shown a distinction in place of delivery depending on a woman's educational attainment.

### Occupation

The occupation of both the mother and father are principal determinants of the place of delivery. According to Addai[11] , farming women are less likely to seek medical care at the time of delivery than women in other occupations. Limitation of financial resources and poor access to health services are cited as the two reasons why farming woman give birth at home. In contrast, the results of this study show that occupation of the respondents was not a significant determinant in attendance of antenatal clinic. But on other hand partner occupation had significant role in determining hospital delivery

### Health services related factors

#### Distance to Health Facility

According Bhattacharyya[12], study in India women who gave birth at home would rather have delivered at a health facility but the long distance accompanied by transport challenges proved to be a hindrance. Studies in Nepal by Choe *et al* [13], came to similar conclusion where they found that approximately 18% of women who had intended to deliver at a health facility ended up delivering at home.

Health facilities are the preferred sites for delivery regardless of the level of education, religion, marital status and occupation of the respondents. Multiparous women are less likely to give birth at a health facility in preference of home deliveries. Long distance from the health facility is a hindrance to accessing health services and in turn maternal health care from qualified medical practitioners in Mwingi North Sub County. Level of education did not influence where a woman delivered

## Conclusions

Health facilities are the preferred sites for delivery regardless of the level of education, religion, marital status and occupation of the respondents.

Multiparous women are less likely to give birth at a health facility in preference of home deliveries.

Long distance from the health facility is a hindrance to accessing health services and in turn maternal health care from qualified medical practitioners in Mwingi North Sub County. Level of education did not influence where a woman delivered

## Recommendations

We recommend that antenatal care positively influence health seeking behavior among women of child bearing age in the study area. Antenatal education should be introduced in adult education classes for women. Or community based antenatal education targeting all the women.

Kitui County should opt for satellite clinics or ambulatory services to ensure that expectant women have access to antenatal care and to ease referral to the district hospital in case the patient incurs medical complications during delivery. Enhance implementation and enforcement of policy that disallows women from paying for maternal services.

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