

Original Research Article

# An Evaluation of Demographic Determinants on Utilization of Skilled Delivery Services By Maasai Women in Kiekonyokie Sub Location of Kajiado County in Kenya

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## ABSTRACT

**Background:** Maternal health is one of the eight Millennium Development Goals, is central to poverty reduction and overall development efforts and it increased international attention for monitoring progress on maternal health and improving access to skilled attendants at deliveries. In Kenya, 44 percent of births are delivered under the supervision of a health professional, mainly a nurse or midwife. Traditional birth attendants continue to play a vital role in delivery, assisting with 28 percent of births.

**Objective:** This research paper aimed to study demographic determinants on the utilization of skilled delivery services by Maasai women, the study population belonging to a community of nomadic life style in North of Kajiado County in Kenya population.

**Methodology:** The study design was a cross sectional descriptive study adopting both quantitative and qualitative methodologies. The sample size was 264 women of reproductive age obtained by using Fisher et al., formula when the population is more than 10,000. The quantitative data has been analyzed using (SPSS) version 17.0 while the qualitative data was analyzed by summarizing of the themes.

**Results:** Results show that early age (15-19) years was associated with low utilization of skilled delivery service while advanced age of maternal status (45-49) was associated with the lowest utilization of skilled delivery service. Skilled delivery utilization was higher amongst other categories at 32% compared to the married 24%. Marital status had no statistical significance as  $p=0.356$ . At the early age of reproduction, the women were guided by relatives, their mothers in law and husbands who followed the Maasai traditional way of life in regard to child birth. In later age, the women became more inclined in the tradition hence home delivery becomes a normal practice.

**Conclusions:** There is underutilization of skilled delivery in Kiekonyokie sub location, the biggest proportion of the women who used skilled delivery were between 30-34 years at 24.6% , those whose utilization was lowest, were in age group between 45-49 years at 3.8%. 32% of the women in other relationships delivered in hospital compared to their married counter parts who were 24%.

**Key Words:** Maasai Women, Demographic Determinants, Utilization of Skilled Delivery Services, Kajiado County, Kenya

## **INTRODUCTION**

The identification of maternal health as one of the eight MDGs firmly situates it as central to poverty reduction and overall development efforts. Its inclusion has resulted in increased international attention for monitoring progress on maternal health and improving access to skilled attendants at deliveries as a key indicator for measuring progress for Goal 5. <sup>[1]</sup> The current estimates of maternal mortality ratios vary from more than 1000 per 100,000 live births in most African countries, to around 500 in some Asian countries, to between 200-400 in South America and fewer than 10 in developed countries. In developing countries, specifically in sub Saharan countries, many women don't have the good fortune to be attended by skilled personnel during child birth, most childbirth occurs at home and is not assisted by skilled attendants, this lack of skilled attendance could be considered as one of the major factors in maternal and infantile mortality. <sup>[2]</sup> The Cairo International Conference on Population and Development <sup>[3]</sup> placed a lot of emphasis on reproductive health of which safe motherhood is a component. Kenya adopted the plan of action on reproductive health. The government recognized the right of access to appropriate health care services that will enable women to safely go through pregnancy and child birth and provide couples with best chance of having healthy infants. It is every woman's right to access high quality maternal health services that in turn must be accessible, affordable, effective, appropriate and acceptable to them in order to avoid preventable morbidity and mortality. <sup>[4]</sup> Many complications of pregnancy and child birth that lead to mortality can be prevented by providing quality care that involves early detection of problems and appropriate timely interventions. Skilled attendants may perform deliveries either at home, in health centres or in hospitals, but it is argued that the most efficient strategy is to place them in health centres with referral capacity. <sup>[5]</sup>

In Kenya, 44 percent of births are delivered under the supervision of a health professional, mainly a nurse or midwife. Traditional birth attendants continue to play a vital role in delivery, assisting with 28 percent of births. The 2008-09 KDHS found that two out of five births, 43 percent are delivered in a health facility, while 56 percent are delivered at home. Relatives and friends assist in 21 percent of births. The proportion of births assisted by medically trained personnel increased slightly since 2003. Maternal mortality ratio for the 10-year period before the survey was estimated at 488 maternal deaths per 100,000 live births. This was statistically insignificantly different from the rate of 414 maternal deaths per 100,000 live births for the ten-year period prior to the 2003 KDHS.

Births in urban areas and births to mothers who have more education, wealth are more likely to be assisted by medical personnel than those births to mothers who reside in rural areas or who have less education and no wealth. Regional variations in type of assistance at delivery are also pronounced, with Western province recording the 26 percent of births assisted by medical professionals, followed by North Eastern province, 32 percent. Nairobi has the highest proportion of births assisted by medical personnel 89 percent. 32 percent of births in North Eastern province are attended by a skilled provider, only 17 percent occur in a health facility and it is the only province in Kenya where a sizeable proportion of births are attended by skilled providers at home. The proportion of births assisted by medically trained personnel has increased marginally from 42 percent in 2003 to 44 percent. <sup>[6]</sup>

Kajiado County is within the Rift Valley Province and it is located in the Southern part of the Province. It borders the Republic of Tanzania to the Southwest, TaitaTaveta County to the Southeast, Nairobi City to the Northeast, Kiambu County to the North and Narok County to the West. The county covers an area of approximately 21,902.9 Km<sup>2</sup> and is divided

into 7 wards namely: Ngong, Magadi, Isinya, Central, Namanga, Mashuru and Loitokitok. It has five constituencies namely: Kajiado North, Kajiado East, Kajiado West, Kajiado Central and Kajiado South. Kajiado has two local authorities namely: Olkejuado county Council and Kajiado Town Council. [7]

The population of women of reproductive age (15-49 years) in Kajiado County in 2002, which is approximated to be 25% of the total population, was 110,548 in 2002 and was projected to rise to 218,547 by the year 2020. The challenge has therefore remained the provision of Maternal Child Health/Family Planning services to cater for the health needs of the expanding number of women of reproductive age. Nevertheless, in Kajiado county, different aspects of provision of reproductive health services are still found to want. [7]

The county has 3 county Hospitals, 19 health centers, 40 dispensaries, 26 private health institutions and the average distance to a health facility is 10 Kilometres. The most prevalent diseases are malaria, respiratory infections, diarrhoea, skin diseases and eye infections. The doctor/patient ratio is 1:66,412. Life expectancy level in the District is 43 years, which is below the national average of 53 years. The county has experienced difficulties in providing efficient health services for the fast growing population because it needs heavy investments to upgrade, modernize and construct new health facilities. [7]

The prevalence of home deliveries in some parts of Kajiado County is as high as 77.8%. [8] The proportion of mothers assisted by traditional birth attendants during delivery is equally high at 56.7%. This poses a high risk to both the mother and new born. [8] Despite Kajiado District having 145 health facilities, several problems affecting skilled delivery utilization exists. The county is predominantly Maasai pronounce for their strong culture and traditions including

female genital mutilation which can pose grave danger to the women during childbirth and especially if unattended by a skilled attendant.

It is noted that Maasai's have unique economic, social, cultural and environmental characteristics which could play a role in that respect as well as the level of knowledge, attitude, practice and their perception towards modern health facilities. No substantive study has related these to utilization in delivery services in Kajiado North. [7] The numbers of home deliveries at the National level are of 56% compared to 77.8% within the county despite the existence of public health facilities.

This study therefore aimed to evaluate the interplay of various demographic determinants on the choice of place of delivery and utilization of skilled delivery services by Maasai women in Kiekonyokie sub location of Kajiado County.

## **METHODOLOGY**

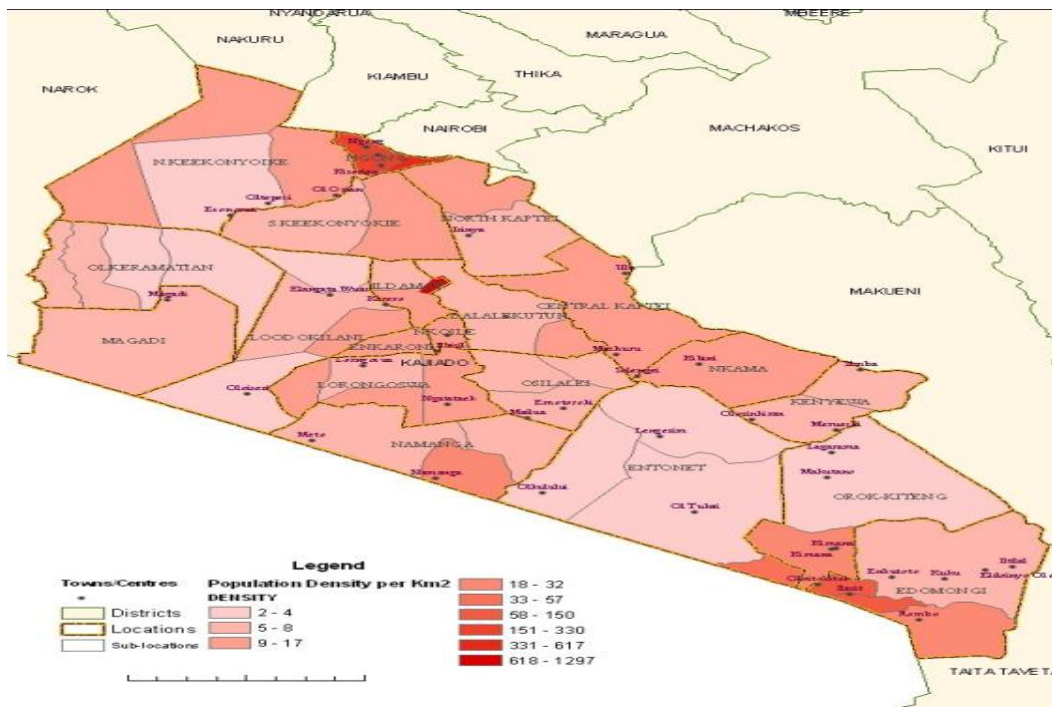
### **Study Design:**

This was a descriptive cross-sectional study that applied quantitative and qualitative research methods of data collection to examine the demographic determinants of skilled delivery services utilization among the Maasai women in Kiekonyokie ward in Kajiado North. The quantitative data was captured through an individual questionnaire while the qualitative data was through focused group discussions and the key informant interviews.

Map of Kajiado County by Courtesy of Central Bureau of statistics 2010.

### **Study Population:**

The study population were women of child bearing age 15-49 years in Kiekonyokie ward of Kajiado County. Target populations were all women who had had a baby in the past 5 years prior to the research. The study targeted a population of women of child bearing age (15-49) years and delivered a child in the last 5 years.



**Sample size determination:**

To compute the required sample size, Fisher [9] formula with a confidence interval of 95% and a degree of accuracy 0.05 were used. The probability of finding a woman who has had delivery of a child in the last 5 years was not known therefore a probability of 50% shall be used. The population of Maasai women of reproductive age (15-49) years in Kajiado County was more than 10,000.

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

- N=desired sample size (pop > 10,000)
- Z=normal standard deviation (1.96)
- p=proportion of population with target characteristics/observations
- q=proportion without the attribute of interest (1-p)
- d=degree of accuracy (0.05)
- N-sample size for population above 15,636 and households of 3133
- Z= 1.96 (Standard deviation at 95% significance interval)
- p- Prevalence of assisted deliveries 22.2%
- d<sup>2</sup>-0.05<sup>2</sup> (Standard error at 95% confidence interval)
- Therefore;

$$N = \frac{1.96^2 \times 0.78 \times 0.22}{0.05^2}$$

$$= \frac{0.6592}{0.0025} = 264$$

264 women were included in the study.

**The Sampling strategy:**

Systematic random sampling was used whereby the total number of women listed (n) were then divided by the total number of the proportionate allocation (N) which gave the interval of the interviews.

**Research tool:**

The survey tools were adopted from those developed by Great Lakes University of Kisumu (GLUK) normally used for conducting baseline surveys in various Counties.

**Qualitative Methods:**

The tools for qualitative data collection comprised of focus group discussion tool, key informant interview tool and a manual note taking at the time of the discussions.

**Pre-testing of research tools:**

After the training on the research tools, the questionnaire, the focus group discussion (FDG) guide and the key informant interview guide were pre-tested in a



neighbouring sub-location. Prior the actual data collection, the questionnaires were pre-tested in Kiekonyokie south location area (outside the cluster areas under study) and each enumerator had a chance to interview at least one woman who has had a child in the last 5 years.

**Data collection:**

Quantitative data was collected using semi-structured questionnaires administered by a team of trained enumerators and supervisors. The questionnaire was segmented into sections to capture information on the specific target objectives.

Qualitative data was collected using focus group discussions and key informant interviews. 3 FGDs were held i.e. one in each of the cluster areas through *barazas* forum. In each FGD there were 6 to 9 discussants who were women aged between 15 and 49years

**Data Analysis:**

Quantitative Data was entered into Statistical Package for Social Sciences (SPSS) software version 17.0 and further analysed using descriptive statistics including narration. Bivariate and univariate analysis was used to describe the correlations. Qualitative data were analysed through content and thematic analysis. The main themes included are Age group distribution, Age group at the time of marriage, Number of births at home, Number of births in the health facility, Types of Marriages, Relationship between marital status and utilization, Relationship between age at the time of marriage and utilization of skilled delivery services.

**RESULTS**

The following results show the role of demographic determinants on utilization of skilled delivery services in Maasai women in Kiekonyokie area of Kajiado County of Kenya.

The figure 1 shows that the highest age group was 30-34(24.6%) whereas the least age group was 45-49(3.8%) however among the 264 women who participated in the study the mean age group were 3.67 with the standard deviation 1.44.

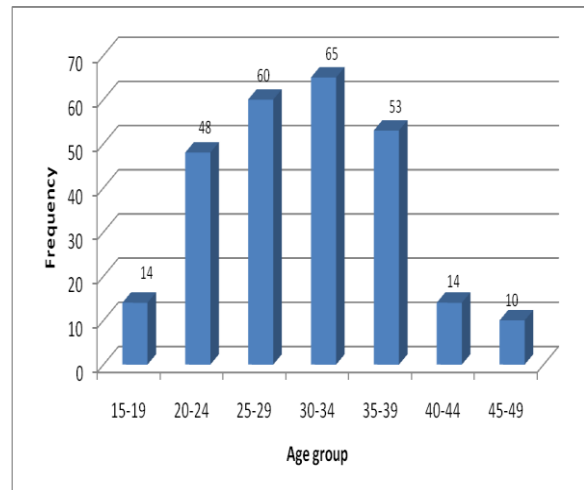


Figure 1: Age group distribution

Figure 2 shows that most of the women were married between the age group of 15-19(49.6%) and the least women were married at the age of group of 30-34(0.4%) with a mean of 1.90 and a standard deviation of 0.771.

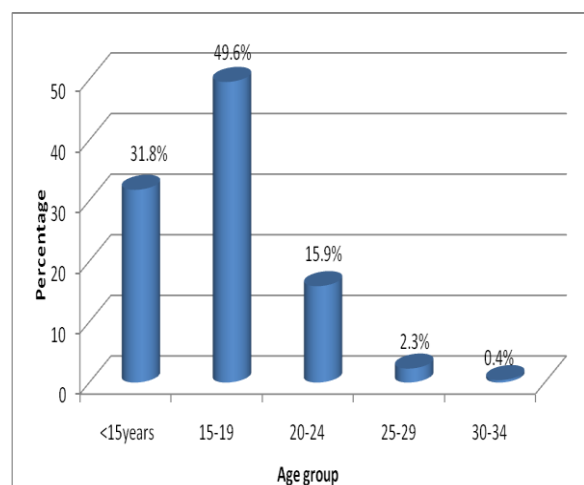


Figure 2: Age group at the time of marriage

The table 1 indicates that 24.2% of the women who delivered at home had >5 number of births while 4.5% had not delivered at home. The average number of births at home was 3.93.

**Table 1: Number of births at home**

Number of births at home	Frequency	Percent	Mean	Standard Deviation
None	12	4.5	3.93	1.575
Two	52	19.7		
Three	54	20.5		
Four	38	14.4		
Five and above	64	24.2		
<b>Total</b>	<b>264</b>	<b>100</b>		

The table 2 below shows 19.3% of the women who delivered in the health facility had only 1 birth while 75% had not delivered in the health facility. The average number of births in the health facility was 2.56.

**Table 2: Number of births in the health facility**

Number of births in the health facility	Frequency	Percent	Mean	Standard Deviation
None	198	75	2.56	1.469
One	51	19.3		
Three	5	1.9		
Four	5	1.9		
Five and above	5	1.9		
<b>Total</b>	<b>264</b>	<b>100</b>		

The table 3 below shows that most of the women were in monogamous 118(44.7%) and polygamous type of marriage 118(44.7%) whereas the least category were separated/divorced women representing 1(0.3%).

**Table 3: Types of Marriages**

Marital status	Frequency	Percent
Married (monogamy)	118	44.70%
Married poly	118	44.70%
Widow	22	8.3%
Separated/Divorced	1	0.3%
Single	4	1.52%
Others	1	0.3%
<b>Total</b>	<b>264</b>	<b>100</b>

Table 4 below shows 32% of the women in other relationships delivered in hospital compared to their married counter parts who were 24%. Marital status had no statistical significance.

**Table 4: Relationship between marital status and utilization**

Determinant of Skilled Delivery		Hospital Births		Total	p-value
		No Utilization	Utilization		
Marital status	Married	179(76%)	57(24%)	236(100%)	0.356
	Other	19(68%)	9(32%)	28(100%)	

The table 5 below indicates that 24% of the women who were <20years of age at the time of marriage delivered in the hospital while 29% were of those >20 years. Age at the time of marriage had no statistical significance, (p-0.522).

**Table 5: Relationship between age at the time of marriage and utilization of skilled delivery.**

Determinant of Skilled Delivery		Hospital Births		Total	p-value
		No Utilization	Utilization		
Estimated age at the time of marriage?	< 20 Years	163(76%)	52(24%)	215(100%)	0.522
	>= 20 Years	35(71%)	14(29%)	49 (100%)	

## DISCUSSION

This study found out that there was underutilization of skilled delivery in Kiekonyokie sub location, the biggest proportion of the women who used skilled delivery were between 30-34 years at 24.6%, those whose utilization was lowest, were in age group between 45-49 years at 3.8%. This findings agreed with those of a similar study carried out in Tanzania which stated that, the proportion of women who seek delivery by a skilled attendant seemed to have decreased significantly with increased age of women from 57.5% among women below 20 years of age to only 48.8%

among women aged 35 or more years (p < 0.01). [10] The same study in Tanzania further indicated that a significantly higher proportion 57.1% of women who were single, delivered with a skilled attendant compared to their married counterparts 41.8% (p <0.01) which again was in line with Kajiado findings whereby, 32% of the women in other relationships delivered in hospital compared to their married counter parts who were 24%.The findings of a study in Botswana noted that, the proportion of non use of maternal services among high-parity women was consistently higher than among low-parity women, except for

postnatal check-up. <sup>[11]</sup> This was another finding that confirmed the Kajiado study findings in which 24.2% of the women who delivered at home had >5 number of births while 19.3% of the women who delivered in the health facility had only 1 birth.

The present results are in line with a study which shows that in sub-Saharan Africa and in South/Southeast Asia variations in antenatal care by mother's age are more apparent, in more than half of the countries mothers age 20-34 are most likely to report four or more visits. Also, in the majority of countries in these two regions, mothers under age 20 are more likely to report four or more antenatal care visits than mothers age 35-49. Exceptions include Niger and Vietnam, where use of antenatal care increases by age, and also Zambia, Rwanda, Kenya and Ghana, where mothers age 35-49 have higher antenatal care use compared to mothers under age 20. The present results of number of births playing negative role on utilization of skilled delivery is also in line with study of which found that mothers are more likely to make four or more antenatal visits for the first birth than for later births. This pattern holds in almost all countries studied, except in a few sub-Saharan African countries, including Burkina Faso, Kenya, Madagascar, Mali, Namibia and Senegal, where a similar proportion of women report at least four antenatal visits across the first three births. The same study reveals that mothers are most likely to receive antenatal care from a skilled provider for the first birth than for subsequent births. This pattern is observed in all but a few countries studied, including Kenya, Tanzania and Indonesia, where the difference in use across parity is negligible. <sup>[12]</sup>

## **CONCLUSIONS**

There is underutilization of skilled delivery in Kiekonyokie sub location, the biggest proportion of the women who used skilled delivery were between 30-34 years at 24.6% , those whose utilization was lowest, were in age group between 45-49 years at

3.8%. 32% of the women in other relationships delivered in hospital compared to their married counter parts who were 24%.

## **RECOMMENDATIONS**

This study underpins the relevance of relatives, husbands and mothers in law as important in the child birth process influencing the place of delivery in Maasai community. Early age of motherhood was influenced by the decision of her relatives as to where a mother would deliver her baby. Age at the time of marriage had no significance in this study. Training of the spouses and mothers in law on the importance of health facility delivery through ante natal visits and community health care workers. All the community members and opinion leaders should be involved in the campaigns to shun down child marriages and arranged marriages at a tender age for girls.

## **ETHICAL CONSIDERATIONS**

The field work was conducted after obtaining clearance from The Great Lakes University and the National council for Science & Technology (NTSC). Informed consent was also obtained from relevant authorities and the community in which the study was to be carried. A preparatory meeting was also held with chiefs, assistant chiefs and village elders within the broad cluster where the study took place. During the meeting with local leaders the objectives of the research were explained and community guides identified. The principal investigator clarified the role of the community guides during data collection.

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