

Research Article

A quantitative study on the determinants of utilization of skilled birth attendance, Bamba division, Kilifi

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ABSTRACT

Background: Improving maternal health by three quarters is the fifth millennium development goal that is set to be achieved through the provision of skilled attendance during delivery. However, the proportion of Skilled Birth Attendance (SBA) is generally poor in most developing countries, including Kenya with an estimate of 43%. This study aimed at determining the factors associated with the utilization of SBA among women 18 to 49 years of age, who had delivered within the last 12 months.

Methods: This study was a population based cross sectional study conducted in Bamba division. It used a structured questionnaire where random selection of households was done. Logistic regression of multiple factors was done to identify the determinants of SBA.

Results: A total of 286 women participated in the survey and 47.2% of them sought skilled care in the health facilities while 52.8% delivered at home under unskilled care. The questionnaire identified factors such as distance (OR=73.195, 95% CI=5.993-873.936), pregnancy problems (OR=6.389, 95% CI=2.057-19.844), mosquito net use (OR=6.389, 95% CI=2.057-19.844) and prolonged labour (OR=110.671, 95% CI=24.618-497.523) to be highly significant with SBA.

Conclusions: This study confirmed that the proportion of women seeking SBA was still low. Long distance to the health facility was the most significant predictor of SBA. Therefore more effort should be put in addressing long distances to the health facilities in order to ensure that SBA is embraced by women.

Keywords: Maternal mortality ratio, Skilled birth attendance, Unskilled birth attendance, Maternal health

INTRODUCTION

Globally, there were an estimated 287 000 maternal deaths in 2010, yielding a maternal mortality ratio (MMR) of 210 maternal deaths per 100,000 live births. The developing countries account for 99% (284,000) of the global maternal deaths, majority of which are in sub-saharan Africa (162 000) and Southern Asia (83 000). The MMR of 240 per 100,000 live births in developing regions is 15 times higher than 16 per 100,000 in developed regions. The MMR in sub-saharan Africa was

highest at 500 maternal deaths per 100,000 live births while eastern Asia had the lowest MMR of 37 per 100,000 live births. In addition Southern Asia had 220 maternal deaths per 100,000 and Western Asia had MMR of 71 per 100,000 live births.¹ In Kenya the MMR is estimated at 488 maternal deaths per 100,000 live births which present an increase from 414/100,000 live births in 2003 as per the 2008/2009 KDHS report. An estimate of 8,000 women die annually due to pregnancy related complications.² Skilled birth attendance is among the indicators established for monitoring the achievements of

the MDG 5.³ Skilled delivery care prevents both direct and indirect causes of maternal deaths such as, infection, shock, blood loss, convulsions and surgical procedures such as caesarean delivery. Use of skilled attendance at birth was reported to reduce maternal mortality rate by a range of 13% to 33%.^{4,5} Globally, during the period 2005 to 2012, 70% of women were assisted by a skilled attendant during birth. However access to skilled care is lowest in the WHO South East Asia and African regions with low income countries reporting 47% coverage of skilled attendant at delivery compared with 60% in lower middle income countries and 99% in upper middle income countries.¹ In addition, skilled attendance at birth in Kenya was estimated at 43% according to the Kenya Demographic and Health Survey (KDHS), 2008/2009.²

The low utilization of care during delivery may be responsible for the poor maternal health outcomes experienced in the country. The introduction of free maternity service in Kenyan health facilities is expected to address the poor maternal health outcomes experienced and the inequitable access to maternity care across women of different socio-economic groups. Evidence reveals that, user fees delay care, may contribute to inappropriate home treatment, food and economic insecurity among others.⁶⁻⁸ Currently, 56% of deliveries are not attended by skilled health professionals as per the 2008/2009 report.² Hence the free maternity programme in government facilities is expected to increase utilization of skilled attendance at birth. Skilled attendance at birth is important in the prevention of maternal deaths and the exemption of user fees is a step towards achieving the fifth millennium development goal.⁵ In spite of undoubted progress towards greater coverage rates, however, studies done in African countries have shown that women continue not to attend ANC services and not to seek skilled attendance at birth even after the exemption of user fees.^{9,10} This has been attributed to long distances to the health facilities, unavailability of drugs, limited health care workers and cultural practices.¹⁰⁻¹³

It is therefore important to understand who continues to remain excluded from access to maternal care services and determine factors that are associated with the utilization of skilled attendance at birth.

METHODS

This study was done in Bamba division in Ganze constituency within Kilifi county. It covers an area of 1,532.70 sq.km. Bamba division has a population of about 45,563 of which an estimate of 10,573 are women of child bearing age 15-49 years.¹⁴ The main ethnic group living in the study area are the Giriama. It has five locations including Bamba, Mtsara wa Tsatsu, Ndigiria, Bandari and Mitangani with a total of 14 sub-locations and three Ministry of Health facilities (MOH) and two private owned health facilities. Farming is a major economic activity and it includes maize production, coconuts, cashew nuts, cassava and local cattle rearing with a few goats.¹⁵

This was a population based cross sectional study and the study population constituted women of reproductive age (18-49) years, who had delivered during the last twelve months prior to the study and who had or not had a living child. The sample size was calculated using fisher's formula based on the prevalence of skilled attendance at birth taken to be 21.6% (according to Kilifi HMIS July 2010 to June 2011). Multi-stage sampling was used, one location was randomly selected and the list with the number of population clusters was used as a sampling frame.

Random households were selected and included in the study and if any of the selected households did not have women who met the study inclusion criteria they were replaced by using Ms Excel generated random numbers until the target sample size was reached. In each selected household, all women who delivered within the last twelve months prior to the study were included after giving their consent. In cases where more than one wife was in a household, each woman was considered separately as long as they met the study inclusion criteria regardless of whether they were cooking from one pot.

Ethical clearance was given by KNH/UoN Ethical clearance committee and permission to collect data in Bamba division was given by the Kilifi county department of health. Informed Consent was sought from the study participants who met the study inclusion criteria and enrolment was based on whether they agreed to take part by signing the informed consent form. A structured questionnaire was used that was administered by the researcher and research assistants, the questionnaire was originally prepared in English and translated to Kiswahili to allow ease in the data collection process.

Respondents were asked on social demographic characteristics (age, place of residence, parity, religion, marital status, level of education), access factors (distance to the health facility, means of transport) and perceived benefit (pregnancy wanted, initiation of ANC visits, no. of ANC visits, previous facility use). Data captured in questionnaires was entered in Epi info version 7 for data cleaning and data imported to SPSS vs. 20 for analysis. The dependent variable was Skilled Birth Attendance and according to this study those women who delivered in the health facility were coded as one while those who delivered outside the health facility coded as zero. Descriptive statistics and Pearson chi-square tests were done on all study variables. Univariate and multivariate logistic regression done on some selected factors.

RESULTS

A total of 286 respondents were interviewed representing a response rate of 100%. This was possible because the questionnaires were administered by the researcher and research assistants. Majority of the respondents were aged between 18-29 years (70.3%) and most of the respondents (40.9%) had more than five children. On

religion, almost half of the participants had embraced Christianity (n=141, 49.3%), those with no religion were 97, (33.9%) and those who were Muslims comprised 16.8 % (n=48). Slightly more than half (57%, n=163) of the participants had no education and only 2% had college education. Farming was the most famous occupation followed by manual laborers and those in small business. Majority (65%) earned less than 1000 Kenya shillings. The distance between participant's home and the health facility ranged from within 30 minute walk and over two hours. Majority (75.9%) of the participants lived more than 5km from health facility (Table 1).

Health seeking behaviour of respondents

The women who either delivered at home or on the way were 151 (52.8%) while 135 (47.2%) delivered in the health facility. Among the home deliveries, 97 (33.92%) were conducted by relatives, 42 (14.7%) by TBAs and 12 (4.2%) by self. The deliveries conducted by skilled attendants were 135 (47.2%). The most common cited

reason for seeking traditional birth attendants was their nearness to the respondent's home (Table 2).

Univariate analysis: Further analysis using univariate logistic regression was done on the variables that showed some relevance with delivering in the health facility after chi-square tests were done. Some factors were found to be independently significant with the utilization of skilled care at birth (Table 3).

Women with previous prolonged or difficult labour were thirty times more likely to deliver in a health facility than those who had no difficult labour during delivery (OR=30.667, 95% CI=12.481-75.350). Distance between the participants homes and the health facility was another interesting finding where women living 0-2 km had a 21 times probability of seeking skilled assistance in the health facility than those women living more than 10 km (OR=21.636, 95% CI=4.672-100.191) among others as indicated in Table 3.

Table 1: Descriptive statistics of the socio-demographic characteristics of the respondents.

Variable	Frequency (%), n = 286	Variable	Frequency, n = 286
Social-demographic factors		Husband education	
Maternal age		No education	51(17.8%)
18-29years	201 (70.3%)	Primary	192(67.1%)
30-39years	79 (27.6%)	Secondary	24(8.4%)
40-45years	6 (2.1%)	College	1(0.3%)
Parity		Maternal occupation	
1-2	76 (26.6%)	Business	37(12.9%)
3-4	93 (32.5%)	Skilled	8(2.8%)
Above5	117 (40.9%)	Unskilled	54(18.9%)
Marital status		Farmer	184(64.3%)
Married	267(93.4%)	Housewife	3(1.0%)
Single	10(3.5%)	Husband occupation	
Divorced	4(1.4%)	Business	44(15.4%)
Widowed	5(1.7%)	Skilled	53(18.5%)
Location/place of residence		Farmer	42(14.7%)
Paziani	71(24.8%)	Unskilled	128(44.8%)
Chapungu	73(25.5%)	Monthly income	
Maryango	71(24.8%)	Below1000	186(65%)
Mwakwala	71(24.8%)	1001-2000	58(20.3%)
Religion		2001-5000	28(9.6%)
Christian	141(49.3%)	Above5000	14(4.9%)
Muslim	48(16.8%)		
Traditional/no religion	97(33.9%)		
Maternal education			
No education	163(57.0%)		
Primary	118(41.3)		
Secondary	3(1.0%)		
College	2(0.7%)		

Multivariate analysis: Binary logistic regression of multiple factors using forward selection method was done on the eight factors that were found to be independently significant with the utilization of SBA. Only four out of the eight were significant (as shown in table 3). Women who had some difficulty in their previous labour (AOR=110.671, 95% CI=24.618-497.523) were more likely to deliver in the health facility than those who did not experience prolonged/ difficult labour. Distance from

the participants home and the health facility was also found to be a strong predictor of SBA, women living below 2 km had a 73 times likelihood of using skilled attendance at birth (AOR=73.195, 95% CI=5.993-873.936) than those living more than 10 km. Women who experienced problems during the pregnancy and those who reported to use mosquito nets were more likely to seek skilled attendance (Table 3).

Table 2: Descriptive statistics of variables on health seeking behaviour of women.

Variable	Frequency	Variable	Frequency
Assistance at birth		ANC visits made	
Nurse	110 (38.5%)	One	10 (3.5%)
Midwife	25 (8.7%)	Two	33 (11.5%)
TBA	42 (14.7%)	Three	73 (25.5%)
Relatives	97 (33.92%)	Four & above	168 (58.7%)
Self	12 (4.2%)	Initiation of ANC Visits	
Reasons for TBA		0-3months	58(20.3%)
Near to my house	32 (11.2%)	4-6months	172(60.1%)
I can able to look after my family	6 (2.1)	7-9months	54 (18.9%)
All the other deliveries were successful	4 (1.4%)	ANC tests done	
Means of transport		Good(tests done for at least 3times)	135 (47.2%)
Foot	26 (9.1%)	Poor(tests done for less than 3 times)	149 (52.1%)
Bicycle	5 (1.7%)	Malaria drugs	
Motorbike	96 (33.6%)	Yes	268 (93.7%)
Car	8 (2.8%)	No	16 (5.6%)
Previous Prolonged/difficult labour		Iron folic drugs	
Yes	70 (24.5%)	Yes	253 (88.5%)
No	186 (65%)	No	31 (10.8%)
ANC services		Tetanus jab	
Yes	283 (99%)	Yes	217 (75.9%)
No	3 (1.0%)	No	67 (23.4%)
If yes places sought		Mosquito net use	
GK clinic	282 (98.6%)	Yes	248 (86.7%)
Private	2 (0.7%)	No	38 (13.3%)
Permission sought		Pregnancy problems	
Yes	107 (37.4%)	Yes	69 (24.1%)
No	177 (61.9%)	No	217 (75.9%)
If yes by whom		Pregnancy problems experienced	
Husband	99 (34.6%)	Vaginal bleeding	12 (4.2)
Mother	2 (0.7%)	Severe headache	4 (1.4%)
Muminlaw	6 (2.1%)	Painful urination	1 (0.3%)
Pregnancyplanned		Severe vomiting	1 (0.3%)
Yes	105 (36.7%)	Genital ulcers	2 (0.7%)
No	181 (63.3%)	Body weakness	9 (3.1%)
If not,give reasons		Abdominal pains	19 (6.6%)
Husband forced me	4 (1.4%)	Flatulence	6 (2.1%)
Accidentally conceived	152 (53.1%)	Difficulty in breathing	5 (1.7%)
God's plan	26 (9.1%)	Less baby movements	10 (3.6%)
Mother	2 (0.7%)	Severe headache	4 (1.4%)
required ANC visits			
Three	16 (5.6%)		
Four & above	220 (76.9%)		
I do not know	50 (17.5%)		

Table 3: Univariate analysis and multivariate analysis of some selected study factors.

Variable	Frequency n=286 (%)	OR& (95% CI of OR)	Multivariate analysis-AOR
Social-demographic factors			
Maternal age			
18-29years	201 (70.3%)	1.161 (0.229-5.892)	
30-39years	79 (27.6%)	0.436 (0.082-2.319)	
40-45years	6 (2.1%)		
Parity			
1-2	76 (26.6%)	3.241 (1.776-5.916)	
3-4	93 (32.5%)	2.227 (1.272-3.899)	
Above 5	117 (40.9%)		
Location/place of residence			
Paziani	71 (24.8%)	4.087(2.031-8.223)	
Chapungu	73 (25.5%)	1.707 (0.871-3.347)	
Maryango	71 (24.8%)	1.352 (0.683-2.676)	
Mwkwala	71 (24.8%)		
Maternal education			
No education	163 (56.9%)	2.438 (1.551-3.832)	
Primary/others	123 (43.01%)		
Monthly income			
Below1000	186 (65%)	0.295 (0.089-0.976)	
1001-2000	58 (20.3%)	0.325 (0.091-1.157)	
2001-5000	28 (9.6%)	1.000 (0.242-4.138)	
Above5000	14 (4.9%)		
Other factors			
Distance			
0-2km	16 (5.6%)	21.636 (4.672-100.191)	73.195 (5.993-873.936)
3-5km	53 (18.5%)	11.802 (5.458-25.520)	64.428 (9.651-430.095)
6-10km	82 (28.7%)	3.949 (2.196-7.102)	12.964 (2.871-58.531)
More than 10km	135 (47.2%)		
Previous Prolonged/difficult labour			
Yes		30.667 (12.481-75.350)	110.671 (24.618-497.523)
No			
Pregnancy planned			
Yes	105 (36.7%)	1.772 (1.090-2.880)	
No	181 (63.3%)		
Mosquito net use			
Yes	248 (86.7%)	2.846 (1.326-6.107)	5.903 (1.203-28.962)
No	38 (13.3%)		
Pregnancy problems			
Yes	69 (24.1%)	8.465 (4.282-16.733)	6.389 (2.057-19.844)
No	217 (75.9%)		
Pregnancy problems			
Yes	69 (24.1%)	8.465 (4.282-16.733)	6.389 (2.057-19.844)
No	217 (75.9%)		

DISCUSSION

This study established that the proportion of women delivering in the health facility and those having skilled care at birth was 47.2% while 52.8% delivered under unskilled care. Majority of the home births were delivered by relatives 97 (33.92%). The low SBA results are also similar to other studies done in other countries

such as Ethiopia and Tanzania and also comparable to studies done in other parts of the country such as Western Kenya and Nyandarua South District.¹⁶⁻²⁰ More women should be encouraged to seek care in the health facilities since unskilled birth attendants are more preferred in the locality. These estimates are low when compared to the WHO estimates and KDHS survey. Globally, the proportion of births attended by a skilled health personnel

from 2007-2014 was estimated to be 74%. In the European and American region SBA was estimated at 98% and 96% respectively, 68% in South East Asia, 67% in Eastern Mediterranean.

While in the who african region 51% of women delivered under skilled personnel, which is lower compared to other regions.²¹ In Kenya according to the most recent KDHS survey 2014 SBA and health facility deliveries nationally were 62% and 61%, in Coast region were 58.2% and 57.7% while in Kilifi county were 52.3% and 52.6% respectively.²²

This study did not find education of both the woman and the spouse to affect whether a woman delivered at the health facility because of high illiteracy levels that exists in the study area. This is contrary to most studies that found that women with no education were found to be more likely to use unskilled care at birth compared to those who had primary or more education.^{11,23,27,29,31,32}

Younger women below thirty years were positively associated with the utilization of SBA than those above thirty years. The possible reason was that the older women were more experienced in giving birth and perceived skilled care as unnecessary, this was also revealed in other studies.^{10,17,19,20,23,24,26,27,28}

Lower parity women were more likely to deliver in the health facilities under skilled care compared to those who had three and more children. The possible reasons; women who were giving birth for the first time might be younger and have better understanding about the benefits of delivering in the health facility, less experienced in the birthing process thus fears about the possibility of a difficult labour may motivate them to seek skilled delivery care.^{17,19,26,28,29}

Low income was negatively associated with skilled care though charges for giving birth in the health facilities were abolished by the government. The possible reason was that transport charges were high and they also could not meet some additional charges that were required by the hospital.^{17,23,27,28}

This study did not find an association between marital status and seeking delivery care in the health facilities. This was contrary to other study findings that established that married women were more likely to seek care during delivery than single women who may feel ashamed to deliver in the hospital.^{16,30}

The utilization of ANC services among the study participants was also found not to influence the seeking of skilled care at the health facility. This was contrary to other studies that established that women who had utilized and had the highest number of ANC visits were more likely to deliver in the health facility.^{28,29} Access to the health facility was a strong factor that associated with SBA, women who lived within 0-2 kilometres from the

health facility were more likely to deliver in the health facility while those living more than 10 kms mostly had home deliveries. Similar results were observed in other studies, for instance, lack of transport and living more than one hour walking distance led to 80% of women delivering outside the health facility.^{10,11,17,19,25,29,31}

Women who had a history of prolonged or difficult labour were likely to deliver in the health facility. This was also established in other studies.^{26,28} Another finding was that women who planned to have the pregnancy were more likely to have safe births under skilled care than those who had unplanned pregnancies.^{32,33}

This study also established that women who had experienced some health related issues during the pregnancy period sought skilled delivery care in the health facilities. This result was comparable to other studies.^{10,20,31}

In addition, mosquito net use among women was found to be a positive factor to the use of skilled attendance at birth. The possible reason for the finding is that women who had and were using a mosquito net were more knowledgeable on the importance of preventing themselves from contracting malaria and were also aware of the benefits of seeking skilled care during delivery.

Certain study limitations were inevitable; the cross sectional nature of data collection could only provide evidence of statistical associations between independent variables and the use of skilled delivery care at birth and cannot establish cause effect relationship.

Data collection was based on self-report by the respondents and the validity of such responses would be uncertain. Therefore recall bias would affect the validity of the findings and to minimize this mother and baby booklet was used to verify the verbal responses from the respondents.

Data collection was done partly by research assistants and this may have brought about a certain degree of interview variation. To minimize this effect, the research assistants were trained before data collection. During the sampling process, long distances between homes made data collection very tiresome.

Several recommendations can be made; at the policy level the concerned parties should ensure that the health facilities are operational with all the required facilities and equipment and also more facilities to be established to curb the long distances the women have to make to seek skilled care. In addition more sensitization on the benefits of SBA should be done in the locality, adult education programs should be encouraged to ensure that the residents are literate so that they can be able to make informed decisions concerning their health. In general this study has established that women are not considerably utilizing skilled care at birth as expected

since the exemption of maternity fees by the government due to long distance to the health facility.

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