

INFLUENCE OF SOCIODEMOGRAPHIC FACTORS ON UTILIZATION OF SKILLED BIRTH CARE IN WEST POKOT COUNTY, KENYA

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ABSTRACT

Background

In Kenya, maternal mortality rate (MMR), was 362 deaths/100000 live births and West Pokot County was at 565 deaths/100,000 live births. Currently mothers can access free birth care services in public health facilities in Kenya. Despite this, maternal mortality is still high in West Pokot County. Therefore, the study sought to determine the socio-demographic features influencing utilization of skilled birth care (SBC), which helps reduce maternal mortalities. Descriptive cross-sectional survey was adopted in the study. Subsequently, data on socio-demographic features affecting utilization of skilled birth care was collected by use of researcher-administered questionnaires involving a sample of 408 expectant women. Binary logistic regression model was used to assess the influence of socio-demographic features on SBC service utilization. The study found that age, education level and employment status were significantly associated with choice to utilize SBC (all $p < 0.05$). The employed were also almost 3 times more likely to utilize skilled birth care compared to those not employed (OR; 95CI: 2.698; 0.803-9.065). Those with no education were more likely to utilize SBC compared to those with secondary level education. From the results, it was concluded that age, level of education and employment status do influence the choice to utilize SBC. Therefore, there is a need to continue sensitizing rural communities on the importance of utilizing SBC. Moreover, mothers should be empowered to make them financially able to pay for skilled birth care and improve their health and those of their respective babies.

Keywords: Skilled Birth Care, Maternal and Child health, utilization, expectant mothers

I. INTRODUCTION

Skilled birth care is said to be a process by which a woman is provided with adequate care during labour, delivery and the postpartum period. This is a process that requires both skilled attendant and an enabling environment (Munabi-Babigumira, Glenton, Lewin, Fretheim & Nabudere, 2017). Improving access to skilled care during child birth and postpartum remains a priority strategy for improving maternal and child health, and is key to achieving one of the indicators specified in SDG 3 (reducing the global MMR) (Miller & Smith, 2017).

Between 2000 and 2015, the global maternal mortality ratio (MMR) declined by 37%. As such, in 2015, an estimated 303,000 women died from pregnancy-related causes (MMR 216 per 100,000 live births in 2015). This translated to an approximate global lifetime risk of maternal death falling considerably from 1 in 73 to 1 in 180, respectively (WHO, UNICEF, UNFPA, World Bank Group & UNPD, 2015).

Despite this global progress, regional disparities still persist. In the sub-Saharan Africa (SSA), maternal and child mortalities are still high. Estimates show that these mortalities stood at 546 per 100,000 live births and 84 deaths per 1000 live births, respectively, by 2015 (United Nations, 2017). In Kenya, the MMR is a major public health problem. According to the National Bureau of Statistics-Kenya and ICF International (2015), the MMR was 362 deaths per 100000 live births. In West Pokot County, the MMR stands at 565 deaths/100,000 live births.

In low and middle-income countries (LMIC), majority of babies are born outside health facilities. Most of these births are attended to by unskilled birth attendants. This high rate of home deliveries is believed to be the key underlying factor contributing to high rates of global maternal and new-born mortality (Bucher *et al.*, 2016). Approximately 90% of maternal deaths and 98% of all perinatal mortality occur in these countries where birthing outside a health facility, assisted by other people other than skilled birth attendants are common (Bucher *et al.*, 2016).

The percentage of births assisted by a skilled provider is still low in Kenya where less than 44% of births are delivered by a skilled birth attendant (Liambila & Kuria, 2014). Despite concerted efforts by the government to increase the proportion of deliveries conducted by SBAs, non-skilled birth attendants, like traditional birth attendants (TBAs), and others, continue to play an important role in childbirth activities. For instance, about 28% of all deliveries in Kenya are conducted by TBAs (Liambila & Kuria, 2014).

In Kenya, according to Ogolla (2015), safe motherhood initiatives, like the provision of free maternity services, are still being underutilized by many women. The situation is especially worse in the poor, rural and remote settings of the country, like West Pokot County whose MMRs is 565 deaths per 100,000 births annually. Nearly all maternal deaths can be prevented if mothers could deliver at a health facility, under the care of a skilled birth attendant (SBA), since the presence of a SBA during child birth in a hygienic environment, with necessary skills and equipment to recognize and manage any emergency complications, reduces birth complications, infection or death of either the baby or mother (Dickson & Amu, 2017). Therefore, this study looked at the socio-demographic features that influence choice of an expectant mother to utilize SBC in West Pokot County.

Literature Review

Various factors have been found to influence the utilization of skilled birth care (SBC). For instance, distance to the nearest care facility has been found to be a factor in the use of SBC by women. A study by Mahato *et al.* (2017) examined the determinants of choice of place of birth in Nepal. The results of the study showed that closeness to a hospital was a great enabler of use of SBC. Other enabling factors included access to media technologies such as television and radio, availability of means of transport to the nearest hospital. Increased ANC visits were also positively correlated with the use of SBC.

Dickson and Amu (2017) examined the factors influencing use of skilled birth in Ghana. The study relied on data obtained from a demographic health survey. The findings revealed that place of residence determined the use of skilled birth. Women in metropolitan areas were more likely to use skilled birth than those in rural environments. Some regions also lacked health facilities, forcing women to opt for home delivery. A related factor was that of the distance to nearest health centre. Age was also a factor, as older women preferred home delivery than did younger ones. Next was household income, which influenced the family's ability to pay for treatment or care after delivery in a hospital. Level of education of both mother and her partner also influenced the use of skilled birth. Women with higher education tended to seek skilled birth services than did those with basic or minimal education. Religious affiliation also shaped some women's decision to seek skilled birth services. Some religious traditions forbade women to seek any form of artificial treatment or care for the unborn child, much less facilitate the delivery of the baby. The situation became worse where C-section may be needed. Some religious groups prohibit any forms of intrusive surgical operations on the body.

In Ethiopia, Tadese and Ali (2014) studied the factors that influenced the use of SBA. The study focused on 584 women who had given birth within the previous year. Their findings showed that there was a slow use of SBA by women. Majority of those who used SBA lived in the urban areas, meaning there was low use of SBA in rural areas. Moreover, older women with more children tended to require SBC less than did the younger women with less children. Mother's formal education level also positively impacted the uptake of SBC services. The participation of the male spouse in decisions to use SBC further increased the uptake of skilled birth services. Lastly, women and men's attitudes towards the health risks during pregnancy were associated with increased use of SBCs.

A study by Vondo (2018) in Zimbabwe examined the factors related to the low use of SBC. The study relied on data obtained from the Zimbabwe Demographic Health Survey records. The findings revealed that women with higher education had an increased propensity to use SBC. The woman's age also played a role in SBC uptake, so that more women in the age cohort of 20-29 years had used SBC than had women in the age bracket of 40-49 years. Household income was among the most significant determinant of use of SBC. The study found that all those who considered themselves to be in the middle to high income class said they had used SBC. Meanwhile, some in the low income category said they had used SBC. Lastly, Vondo found that religious affiliation influenced the propensity to use SBC in the study area. For instance, most of those who professed traditional African religions had not used SBC. Majority of those who had used SBC were Christians of Catholic and Protestant denominations. A few Muslim women had also used SBC.

In Kenya, Mangeni, Mwangi, Mbugua and Mukthar (2012) explored the influence of male partner's involvement on pregnant women's choice to use skilled birth services. The study used data obtained from the Kenya Demographic Health Survey. The study tested the effect that a male partner's attendance of antenatal care influenced pregnant women's propensity to use skilled birth services at delivery. The study results showed that mothers whose male partners had accompanied them in one or more ANC visits tended to use skilled birth services. Therefore, it was concluded that male partner's participation in ANC was a factor in women's choice to use SBA during delivery. Age has also been found to be a determining factor in utilization of skilled birth attendants. In a spatial analysis of SBC in Ghana, Asamoah et al., 2014 found that over half (56.9%) of women under the age of 25 years used skilled birth attendants. Among women in the more reproductive age bracket of 25-34 years, it was found that at least 61.5% had used skilled birth attendants. However, women of ages above 35 years had had the least use of SBC. Asomah et al. concluded that younger women were more informed about skilled birth care than did their older counterparts. As such, there was increased use of SBC among younger women than older women.

Kibe (2018) undertook a study to determine the factors influencing the use of SBC among women of reproductive age (15-49 years) in Kakamega, Kenya. From the study results, women with 2-3 children were more likely to use SBC than did those with more than 3 children. Additionally, attendance of ANC during pregnancy was associated with increased tendency to use SBC during delivery. More educated women also tended to use SBC compared to their less educated counterparts. The study found that marital status and age did not have a substantial influence on women's propensity to use SBC.

II. MATERIALS AND METHODS

A descriptive cross-sectional survey was carried out in the entire study area of Pokot South and North of West Pokot County of Kenya. This involved both intervention and control sites. The two sub-counties were purposively selected as the intervention and control sites (Pokot South and Pokot North sub-Counties, respectively). Expectant mothers were purposively selected and recruited into the study with the help of community health volunteers in the control site and the intervention site. The research was conducted between August to December 2019.

Sample Size

The sample size was calculated using equation for comparative epidemiologic studies (Jaykaran & Biswas, 2013).

$$n = \frac{2(Z_{\alpha/2} + Z_{\beta})^2 P(1 - P)}{(P1 + P2)^2}$$

Where:

n = Sample size per group

Z $\alpha/2$ = Statistical constant=1.96

Z β = Power of the study=80% =0.84

P = Pooled prevalence (P1+P2/2) = 0.42+0.27/2 = 0.345

P1 = Prevalence in intervention group = 0.42

P2 = Prevalence in control group) = 0.27 the current SBC prevalence (KDHS, 2014)

The researcher expects the intervention to raise the uptake of skilled birth care by 15%.

$$n = \frac{2(1.96 + 0.84)^2 0.435(1 - 0.34)}{(0.42 - 0.27)^2} = 157.479 \approx 157 \text{ per group}$$

(30% attrition rate was arbitrarily chosen based on conventional practice for lack of local data on clinic attendance attrition rate) = 157+47 = 204 per group.

n = expectant mothers per group (Total n = 204)

Total sample size = 408 participants

Data was collected by use of researcher-administered questionnaires to expectant mothers. The items in the questionnaire were related to their socio-demographic characteristics and utilization of SBC. Completed questionnaires from the base-line survey was coded and entry done in epi-data v.3.1. (EpiData Association 2000-2018). Baseline survey data on information about maternal and child health indicators was exported to SPSS, V.20, for analysis. Descriptive statistics (frequencies, means and standard deviation) were used to summarize these data.

III. RESULTS AND DISCUSSION

The study examined the socio-demographic factors affecting the use of SBC in West Pokot County. The factors examined included mothers' age at birth, religious affiliation, marital status, level of education, husband's level of

education, employment status, number of living children, main source of food and household income. The findings for each of the socio-demographic factors were as summarized in Table 1.

Table 1: Socio-demographic Factors Influencing Utilization of Skilled Birth Care

Indicator	Place of delivery		Chi-value/t-value	P-value
	Away	Facility		
Mean age (yrs)	25.0±5.7	24.1±5.7	t=1.708	0.088
Religion				
Protestant	158(79)	163(76.9)	0.267	0.605
Others	42(21)	49(23.1)		
Marital status				
Married	174(87)	184(86.8)	0.011	0.100
Single	17(8.5)	18(8.5)		
Divorced /Separated/ Widowed	9(4.5)	10(4.7)		
Level of education				
Primary	116(58)	98(46.2)	11.256	0.010
Secondary	22(11)	30(14.2)		
Tertiary	9(4.5)	3(1.4)		
No formal schooling	53(26.5)	81(38.2)		
Husband's level of education				
Primary	83(41.5)	76(36)	5.951	0.114
Secondary	33(16.5)	27(12.8)		
Tertiary	14(7.0)	28(13.3)		
No formal schooling	70(35)	80(37.9)		
Employment status				
Employed /Salaried	5(2.5)	8(3.8)	7.472	0.024
Self/informal employment	62(31)	91(42.9)		
Unemployed	133(66.5)	113(53.3)		
Number of living children				
3 and below	72(36)	91(42.9)	3.636	0.304
4-6	58(29)	57(26.9)		
7-9	41(20.5)	44(20.8)		
10 and above	29(14.5)	20(9.4)		
Main source of food				
Home garden/animal rearing	190(97.4)	193(94.6)	2.072	0.150
Buying from market	5(2.6)	11(5.4)		
Household income (Kshs)				
<5000	64(32)	79(37.3)	2.309	0.315
5000-10,000	58(29)	65(30.7)		
>10,000	78(39)	68(32.1)		

Source; Researcher 2020

Education level and employment status were significantly associated with utilization of skilled birth care (p=0.010) and (p=0.024) respectively

Table 2: Multiple Binary logistic regression: Factors associated with utilization of SBC

Variable/characteristic	B	S.E.	P-value	OR	95.0% C.I. for OR	
					Lower	Upper
Age	-.050	.020	.010	.951	.915	.988
Marital (Ref=Divorced/separated/widow)			.939			
Married	-.173	.488	.724	.842	.323	2.191
Single	-.171	.583	.769	.843	.269	2.643

Employment (ref=unemployed)			.014			
Employed	.992	.618	.109	2.698	.803	9.065
Self employed	.591	.223	.008	1.805	1.166	2.794
Education level (ref=no education)			.012			
Primary	-.658	.235	.005	.518	.327	.821
Secondary	-.220	.358	.539	.803	.398	1.619
Tertiary	-1.511	.718	.035	.221	.054	.901
Constant	1.610	.688	.019	5.002		

Source; Researcher 2020

Controlling for marital status, age, education level and employment status were significantly associated with utilization of skilled birth care (all $p < 0.05$). A unit increase in age reduces the odds of utilizing skilled birth care by 5%. The employed are almost 3 times more likely to utilize skilled birth care compared to those not employed (OR; 95CI: 2.698; 0.803-9.065). Those with no education are more likely to utilize skilled birth care compared with those with either primary, secondary or tertiary level of education as indicated in table 2 above.

The study utilized baseline data from a larger ongoing prospective quasi experimental study, whose purpose is to determine the effect of traditional birth attendant's led health education intervention on selected maternal and child health indicators in West Pokot County, Kenya. We used the baseline situational data that was collected at the beginning of the larger study. From the above results, it was found out that socio demographic factors such as age, marital status, level of education and employment status were significantly associated with the mother's choice for utilization of skilled birth care. This study showed that older women would prefer to deliver their babies necessarily under skilled birth care. From the above results, a unit increase in age reduces the odds of utilizing skilled birth care by 5%. This finding was consistent with those of a study (Nzioki, Ouma, Ombaka & Onyango, 2017) in Mwingi District in Kenya. The study found that the probability of women's choice to deliver with the health of a skilled birth attendant decreases with age. In addition, those women who are employed are 3 times more likely to deliver with skilled birth care services compared to those who are not employed; this could be due to the affordability and accessibility of the services. It could be possible the employed women can afford the transport to the hospital and be able to pay for skilled birth care services whenever required as compared to those who are not employed as this may be too expensive for them. Nevertheless, the findings concurred with those of Vondo (2018) in Zimbabwe. The study found that women's age also played a role in SBC uptake, so that more women in the age cohort of 20-29 years had used SBC than had women in the age bracket of 40-49 years.

This study findings are also similar to those (Ganle, Kombet, & Baatiema, 2019) which showed that socio-demographic factors such as age, employment status and religion were all statistically associated with the choice to use SBC services where all the p-value were below 0.01). The same study findings had another similarity where marital status of respondents was not significantly associated with the choice to utilize skilled birth care during delivery, p-value < 0.28 . In a study among women of reproductive age (15-49) in Kakamega, Kenya, Kibe (2018) found that marital status and age did not have a substantial influence on women's propensity to use SBC.

The findings showed that women with secondary education were not likely to utilize SBC as compared with those with no education and those with tertiary OR 0.8 at 95% CI 0.803-1.619, P-value .538. This was not consistent with a study in Tanzania by Damian and colleagues, where SBC utilization was significantly higher among women having at least a secondary education OR 2.14 at 95% CI 1.19-3.93 P-value = 0.012. The findings also contrasted those of Dickson and Amu (2017) in Ghana, which showed that level of education of both mother and her partner also influenced the use of skilled birth. Dickson and Amu found that women with higher education tended to seek skilled birth services than did those with basic or minimal education. However the study findings slightly differed with those of Nyongesa *et al.* (2018) when it came to level of education and choice of delivery service, where women with primary education and above had the highest odds ratios (6.6 times higher) than those with no education, P-value + 0.001 at 95% CI: 3.66-11.95, women without education were more likely to utilize SBC than those with higher education.

With regards to financial capabilities, this study found out that those women who had money for example the self-employed are more likely to seek skilled delivery with higher OR 1.805, 95% CI: 1.066-2.94, P value, 0.008 for utilizing skilled birth care (Damian *et al.*, 2020). These findings are consistent with those of a study by (Nyongesa *et al.*, 2018) that was based on the Kenya Service Provision Assessment (KSPA) (2010), which forms part of DHS. This study revealed that women who had money were more likely to go for skilled birth care during delivery OR 4.34, 95% CI 1.78-10.87, P-value 0.002. These findings concurred with those of Vondo (2018) with respect to Zimbabwe where household income was reported to be among the most significant determinant of use of

SBC. Vondo observed that all the women who considered themselves to be in the middle to high income class said they had used SBC. Meanwhile, only a few in the low income category said they had used SBC.

The findings of this study are also similar with findings from a study from Central region of Ghana (Asiedu, 2019), that looked at socio-cultural and physical factors which influenced the use of skilled birth attendant with the current pregnancy. Money for transport and fee payment for the health care service was found to be a factor. About 65% (n=716) of the respondents reported this to hinder their utilization of SBC. Similarly, in the current study, employment status of the research participants was found to be significant, as it increased the odds of a woman's choice to utilize skilled birth care. For example, women who were self-employed were more likely to utilize SBC as compared with the unemployed, OR; 1.805, P value = 0, 95% CI: 1.166-2.794. This was in agreement with another study among women of Northern part of Ghana (Gudu & Addo, 2017), where it was revealed that mothers' educational attainment and subsequent employment, among other factors, including ANC visits and having a national insurance, significantly related to the women's choice for SBC. These findings reiterated those of Kibe (2019) who in a study in Kakamega Kenya, found that attendance of ANC during pregnancy was associated with increased tendency to use SBC during delivery. Moreover, educated women also tended to use SBC compared to their less educated counterparts.

IV. CONCLUSION, RECOMMENDATIONS

The study concludes that age, level of education and employment status are significantly associated with choice to utilize skilled birth care. Older women tend to prefer to deliver their babies away from the hospital. Women with employment or those self-employed are more likely to utilize SBC during delivery. This may be attributed to their financial capabilities, which enable them go to hospital and pay for any other expenses as may be required. Therefore, empowering women with education and employment can enhance their uptake of skilled birth care services.

Based on the research findings and conclusions, the study makes the following recommendations:

1. There is need to make health care services, including SBC, accessible to all even those women who live in the rural areas within West Pokot County.
2. There is need to continue educating women and entire community on the importance of SBC services to women and their babies.
3. Women in this community should be financially empowered. This can be done by helping them to identify and establish income generating activities. Through such initiatives, women can be taught business ideas and encouraged to engage in small businesses that will enable them earn money.
4. It is important to advice expectant mothers to have birth plan to enable them utilize SBC at a favourable postpartum period.

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REFERENCES

- [1]. Asamoah, B. O. ppon., Agardh, A., & Cromley, E. K. (2014). Spatial analysis of skilled birth attendant utilization in Ghana. *Global Journal of Health Science*, 6(4), 117–127. <https://doi.org/10.5539/gjhs.v6n4p117>
- [2]. Asiedu, C. (2019). Influence of Socio-cultural and Physical Factors on Use of Skilled Birth Attendants by Pregnant Women at Central Region. *Universal Journal of Public Health*, 7(6), 255–261. <https://doi.org/10.13189/ujph.2019.070603>
- [3]. Bucher, S., Konana, O., Liechty, E., Garces, A., Gisore, P., Marete, I., Tenge, C., Shipala, E., Wright, L., & Esamai, F. (2016). Self-reported practices among traditional birth attendants surveyed in western Kenya: a descriptive study. *BMC Pregnancy and Childbirth*, 16(1), 219. <https://doi.org/10.1186/s12884-016-1007-8>
- [4]. Damian, D. J., Tibelerwa, J. Y., John, B., Philemon, R., Mahande, M. J., & Msuya, S. E. (2020). Factors influencing utilization of skilled birth attendant during childbirth in the Southern highlands, Tanzania: A multilevel analysis. *BMC Pregnancy and Childbirth*, 20(1), 420. <https://doi.org/10.1186/s12884-020-03110-8>
- [5]. Dickson, K. S., & Amu, H. (2017). Determinants of Skilled Birth Attendance in the Northern Parts of Ghana. *Advances in Public Health*, 2017(November), 1–8. <https://doi.org/10.1155/2017/9102808>
- [6]. Ganle, J. K., Kombet, M. L., & Baatiema, L. (2019). Factors influencing the use of supervised delivery services in Garu-Tempene District, Ghana. *BMC Pregnancy and Childbirth*, 19(1), 141.

- <https://doi.org/10.1186/s12884-019-2295-6>
- [7]. Gudu, W., & Addo, B. (2017). Factors associated with utilization of skilled service delivery among women in rural Northern Ghana: A cross sectional study. *BMC Pregnancy and Childbirth*, 17(1), 1–10. <https://doi.org/10.1186/s12884-017-1344-2>
- [8]. Kamangar, F., & Islami, F. (2013). Sample size calculation for epidemiologic studies: Principles and methods. In *Archives of Iranian Medicine*. <https://doi.org/013165/AIM.0010>
- [9]. Liambila, W. N., & Kuria, S. N. (2014). Birth attendance and magnitude of obstetric complications in Western Kenya: a retrospective case-control study. *BMC Pregnancy and Childbirth*, 14(1), 311. <https://doi.org/10.1186/1471-2393-14-311>
- [10]. Kibe P.M., (2018). Determinants of utilization of skilled birth attendants among women of reproductive age (15-49 years) in Kakamega County, Kenya; a cross sectional study, Uppsala University, Unpublished Master Thesis.
- [11]. Miller, T., & Smith, H. (2017). Establishing partnership with traditional birth attendants for improved maternal and newborn health: A review of factors influencing implementation. *BMC Pregnancy and Childbirth*, 17(1), 1–10. <https://doi.org/10.1186/s12884-017-1534-y>
- [12]. Munabi-Babigumira, S., Glenton, C., Lewin, S., Fretheim, A., & Nabudere, H. (2017). Factors that influence the provision of intrapartum and postnatal care by skilled birth attendants in low- and middle-income countries: a qualitative evidence synthesis (Review). *Cochrane Database of Systematic Reviews*, 11(CD011558). <https://doi.org/10.1002/14651858.CD011558.pub2>. www.cochranelibrary.com
- [13]. National Bureau of Statistics-Kenya and ICF International. (2015). Kenya 2014 Demographic and Health Survey Key Findings. In *Kdhs* (Vol. 6). <https://doi.org/10.5261/2013.GEN1.04>
- [14]. Nyongesa, C., Xu, X., Hall, J. J., Macharia, W. M., Yego, F., & Hall, B. (2018). *Factors influencing choice of skilled birth attendance at ANC: evidence from the Kenya demographic health survey*. 362, 4–9.
- [15]. Nzioki, J. M., Ouma, J., Ombaka, J. H., & Onyango, R. O. (2017). Community health worker interventions are key to optimal infant immunization coverage, evidence from a pretest-posttest experiment in Mwingi, Kenya. *Pan African Medical Journal*, 28, 1–13. <https://doi.org/10.11604/pamj.2017.28.21.11255>
- [16]. Ogolla, J. O. (2015). Factors Associated with Home Delivery in West Pokot County of Kenya. *Advances in Public Health*, 2015, 1–6. <https://doi.org/10.1155/2015/493184>
- [17]. United Nations. (2017). The Sustainable Development Goals Report. In *United Nations*. United Nations. <https://doi.org/10.18356/3405d09f-en>
- [18]. WHO, UNICEF, UNFPA, World_Bank_Group, & UNPD. (2015). *Trends in maternal mortality: 1990 to 2015. Executive Summary*. 14. <https://doi.org/10>
- [19]. Vondo, N. (2018). Factors associated with low-use of skilled birth attendants in Zimbabwe. Unpublished Master thesis University of Western Cape