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Original Research Article

Effect of traditional birth attendants-led health education intervention on utilization of skilled birth care in West Pokot County, Kenya

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ABSTRACT

Background: Globally, between 2000 and 2017, maternal mortality ratio declined by 38%, with global lifetime risk of maternal death falling from 1 in 73 to 1 in 180, respectively. In West Pokot County, Kenya, over half of deliveries are managed by traditional birth attendants. The study investigated the effect of TBAs-led intervention on utilization of skilled birth care in this County.
Methods: The study employed a prospective experimental design. In the intervention arm, TBAs were recruited and trained on SBC. They were assigned expectant mothers and followed until they delivered their babies. Chi-square test was used to determine the relationship between variables. Binary logistic regression was used to compare utilization of SBC between the intervention and control sites.
Results: Majority of mothers (95%) in the intervention arm of the study went for TBAs' services , and 79.5% of those in the control did the same. Most mothers in the intervention (81.4%) delivered in health care facility compared to 58.2% in the control ($\chi2=21.256$, $p<0.001$). There was a significant difference in the odds of mothers utilizing SBC between intervention and control groups. Those in the intervention group were almost 3 times more likely to utilize SBC than those in the control group (UOR; 95% CI: 3.137; 1.909-5.155).
Conclusions: TBAs-led intervention increased utilization of SBC among mothers in the intervention compared to those in the control arm who utilized available ministry of health's standard care.

Keywords: Traditional birth attendants, Skilled birth care, Traditional birth attendants'-led intervention, Maternal and child health

INTRODUCTION

The world health organization (WHO) vision, moving beyond 2015, which envisions a world where every pregnant woman and new-born receives quality care throughout pregnancy, childbirth and the postnatal period, is in alignment with two complementary global action agenda conceptualized by WHO and partners in 2013-2014 strategies, namely towards ending preventable maternal mortality (EPMM) and every new-born action plan (ENAP). This strategy is articulated at a critical time when the global community is developing the new global strategy for women's, children's and adolescent's health (2016-2030) for the post-2015 sustainable development goal (SDG) era.[1] Over 70% of maternal deaths occur because of complications related to pregnancy and childbirth. Effective care to prevent and manage complications during this critical period is likely to have a

significant impact in reducing maternal deaths, stillbirths and early neonatal deaths.[1]

WHO recommends skilled birth care with the help of a skilled birth attendant as one of the critical strategies, among other interventions, to reducing maternal and neonatal/child morbidities and mortalities in both high income and low-income countries.[2] Globally, several studies have been carried out with regards to interventions involving traditional birth attendants (TBAs) to improve utilization of skilled birth care. For instance, the study findings of Jiang and colleagues in China support the utilization of skilled birth care during childbirth. Based on their findings, the authors proposed an institution-based childbirth policy for rural areas, which became a cornerstone of a new national safe motherhood policy in China.[3] In this policy, the role of traditional birth attendants, was transformed. TBAs were directed to discontinue home delivery and advocate for health institution-based childbirth as well as assist with maternal health care as village maternal health workers (VMHW). Therefore, China successfully integrated TBAs into the health system in rural regions with the goal of universal access to skilled birth care. As a result of this, China was able to achieve the millennium development goal (MDG) 5a, so that, by 2015, the country recorded a maternal mortality ratio (MMR) of 23/100,000 live births.[3] The present study draws insight from the reviewed work to find ways to ensure West Pokot County realizes the aspirations of reducing maternal mortality through the adoption of skilled birth services.

In Kenya, maternal mortality ratio stood at 362/100,000 live births and West Pokot County 565/100,000 live births, [4] and infant mortality ratio of 37.1 deaths/1000 and 81 deaths/1000 live births in West Pokot County, respectively.[4] Similarly, in Kenya, SBC usage stands at 89.0%, whereas in West Pokot County, SBC use as a health promotion strategy stands at 55.0%.[5] The high maternal and child mortalities in West Pokot County may be due to poor utilization of skilled birth care. Studies have shown that high-quality obstetric delivery in a health facility reduces maternal and perinatal morbidity and mortality.[6] Kenya has made notable progress in improving maternal and child health outcomes. Despite this progress, the country could not achieve the MDG for maternal and child health by 2015. This shows that a lot still needs to be done by the government to address demand/supply barriers in the delivery of essential services, like maternal and child health care services, to realize the goals of Vision 2030 and the aspirations of the 2010 constitution. In addition to this, the bill of rights articulates the right to health, including reproductive health.[7] There is therefore need for innovative intervention to help improve the utilization of SBC, which may help reduce the maternal and child morbidities and mortalities in West Pokot County. A study reports that pregnant women in the rural areas of most developing countries have a lot of trust in TBAs.[7] Since most mothers seem to prefer TBAs in this region of Kenya, the study found it important to establish if TBAs could help improve SBC usage in this county.

METHODS

The study was conducted in West Pokot County in Kenya. It involved two of the four sub-counties, namely Pokot South (Kipkomo) and Pokot North Sub-Counties. These sub-counties were purposively selected because of their environmental similarities in the county. The two sub-counties were assigned to being intervention site (Pokot south sub-county) and control site (Pokot north sub-county) by use of simple random sampling procedure. The study population were women of child-bearing age (15-49years) residing in the County. The study was quasi experimental study with two groups: one being the intervention and one control group. The study was carried out between August 2019 and April 2021. At the beginning of the study, we recruited 204 self-reported expectant women who become the research participants from both study arms respectively. In the intervention group, mothers were exposed to a TBA-led health education intervention on utilization of skilled birth care as one of the maternal new born and child health (MNCH) health promotion practice. In the control group, mothers continued to receive the Ministry of Health's current standard care and information on MNCH care with no TBAs-led health education intervention.

In the intervention site TBAs followed the recruited expectant mothers to ensure they delivered through SBC. In the control site, expectant mothers were allowed to receive the usual available standard maternal and child health care and services in the region. At the end of the study, a survey was carried out in both the study arms to note where mothers delivered their babies. The self-reported data was collected with the use of semi-structured questionnaires and verified using mother and child health booklet (purple book), to confirm their utilization of SBC.

Data was collected using semi-structured questionnaires. The interviews took place either at the homesteads of the research participants or local health care facilities within the community where research participants resided. End-line data was verified using mother and baby clinic booklet (purple book), to verify on utilization of SBC. Completed questionnaires from the study were coded and transferred to SPSS Version 24 for analysis. Descriptive statistics were used to summarize these data. Chi-square test was used to determine any significant difference on proportions of utilization of SBC among mothers in the intervention and those in the control groups. To control for any possible confounders, we conducted a multiple logistics regression for factors influencing utilization of skilled birth care, and to estimate the likelihood of utilization of SBC between the intervention and control sites. The effect size was determined by use of odds ratios (OR) at 95% significance interval. Permission to carry out the study was given by the West Pokot County commissioner's office. Respondents were recruited on

voluntary basis and given informed consent forms to affirm their voluntary participation in the study. To ensure anonymity, respondents were advised not to write their names on the research tools. Study was approved by Moi University and Moi Teaching and Referral Hospital (MTRH)'s independent research ethics committee (IREC).

RESULTS

Socio-demographic characteristics of research participant at baseline are shown in (Table 1).

The study examined the effect of traditional birth attendants-led health education intervention on utilization of skilled birth care in West Pokot County. At the beginning of the study, expectant mothers (research participants) were asked where they plan to deliver their babies. The responses were: 96.1% and 97.6 % in the control and intervention arms desired to deliver their babies in a hospital and utilize skilled birth care services respectively. At the end-line of the study, it was observed that there was a higher proportion of women utilizing skilled birth care in the intervention arm, 131 (81.87%: 95% CI: 75.02, 87.51), compared to those in the control arm, 103 (58.19 95% CI: 50.56, 65.55), as shown in Table 2 and the difference was statistically significant ($p<0.001$). In terms of ANC attendance, a similar trend was observed with all the participants in the intervention arm attending ANC during pregnancy and 140 (79.54 95% CI: 72.82, 85.24) in the control arm ($p<0.001$). Table 1 shows other pregnancy and delivery related variables by arm.

Table 1: Socio-demographic characteristics of research participants at baseline.

Parameters	Baseline			
	Control		Intervention	
Level of education	**N**	**%**	**N**	**%**
No education	90	44.1	60	29.4.
Primary level education	84	41.2.	108	52.9
Secondary and above	30	14.7	36	17.6
Religion				
Protestant	90	44.1	84	41.2
Catholic	86	42.2	80	39.2
Others	28	13.7	40	19.6
Employment				
Employed	79	39.7	82	40.2
Unemployed	125	61.3	122	59.8
Main source of food				
Home gardening and animal rearing	190	93.1	192	94.1
Buying food from the market	14	6.9	12	5.9

Table 2: Skilled birth care.

Variables	Control (N=177)	Intervention (N=161)	Total (N=338)	P value
Sought TBA services during pregnancy	154 (87.0)	153 (95.6)	307 (91.1)	0.006
Where delivered baby				
Missing	0	1 (0.3)	1 (0.3)	-
Health facility	103 (58.2)	131 (81.37)	234 (69.23)	
Home assisted by TBA	69 (39)	22 (13.7)	91 (26.92)	
Home assisted by others	3 (1.7)	0 (0.00)	3 (0.89)	
Other places	2 (1.1)	7 (4.4)	9 (2.66)	
Helped decide where to deliver				
Missing	0	4 (1.2)	4 (1.2)	-
Healthcare personnel	48 (27.1)	79 (50.3)	127 (37.6)	
TBA	72 (40.7)	68 (43.3)	140 (41.4)	
Other	57 (32.2)	10 (6.4)	67 (19.8)	

Table 1 shows that majority of research participants (81.37%) from the intervention arm delivered their babies at a health care facility compared to 58.2% from the control arm of the study and the difference was statistically significant. Majority of the mothers in the intervention group (81.4%) reported to have delivered in the health facility, meaning they utilized SBC. In contrast, only 58.2% in the control group ($\chi^2=21.256$, $p<0.001$ delivered their babies in a health care facility). Since $p<0.05$, we therefore reject the null hypothesis and conclude that there is a significant difference in the odds of mothers utilizing skilled birth care (SBC) between the intervention and control groups.

Table 3: Differences in utilization of skilled birth care between control and intervention groups.

Indicators	Groups		Chi-squared value/t value	P value
	Control	Intervention		
Place of delivery				
Away from health care facility	74 (41.8)	30 (18.6)	21.256	<0.001
In the health care facility	103 (58.2)	131 (81.4)		

UOR; 95%CI: 3.137; 1.909-5.155

Table 4: Factors influencing utilization of SBC: multiple logistics regressions for skilled birth care.

Variables	UOR	95% CI	P value	AOR	95% CI	P value
Arm						
Control	1	-	-	1	-	-
Case	3.25	1.98, 5.42	<0.001	5.60	2.67, 12.4	<0.001
Age	0.96	0.92, 1.00	0.028	1.02	0.94, 1.11	0.700
Religion						
Catholic	1	-	-	1	-	-
Other	0.56	0.28, 1.12	0.10	0.34	0.15, 0.80	0.014
Protestant	0.83	0.49, 1.38	0.500	0.97	0.53, 1.78	>0.900
Education						
No education	1	-	-	1	-	-
Primary	2.66	1.61, 4.44	<0.001	3.89	1.35, 11.7	0.013
Secondary and higher	8.20	3.11, 28.3	<0.001	9.04	2.03, 47.9	0.006
Husband education						
No education	1	-	-	1	-	-
Primary	1.87	1.10, 3.20	0.022	0.30	0.10, 0.84	0.023
Secondary and higher	3.31	1.71, 6.72	<0.001	0.32	0.08, 1.23	0.100
Employment						
Employed	1	-	-	1	-	-
Unemployed	0.75	0.27, 1.86	0.600	0.35	0.10, 1.03	0.066
Parity	0.83	0.75, 0.91	<0.001	0.85	0.70, 1.03	0.100
Income						
≤5000	1	-	-	1	-	-
>5000	1.43	0.86, 2.40	0.200	0.60	0.29, 1.22	0.200

Those in the intervention group were almost 3 times more likely to utilize skilled birth care (SBC) than those in the control group (UOR; 95% CI: 3.137; 1.909-5.155). The (Table 3) presents the findings for the multiple logistics regression. Controlling for religion and employment status, group and education level of the mother were significant predictors of utilization of skilled birth care (p<0.001 and p=0.002, respectively). Those in the intervention group were 3 times more likely to utilize skilled birth care compared to those in the control group (OR; 95% CI: 3.180; 1.79-5.65). Those with secondary and above level of education were 6 times more likely to utilize skilled birth care compared to those without any formal education (OR; 95% CI: 6.118; 2.032-18.421).

DISCUSSION

Access to high quality care during pregnancy, labour, delivery, and post-partum period has been shown to promote positive maternal and neonatal outcomes and very critical to reducing maternal and neonatal mortality.[8] This need can be addressed by an increase in access to institutional deliveries under the care of a skilled birth attendant.[9] Access to skilled birth care has been a challenge in developing countries, especially in rural areas of Kenya. This has led to initiation of free maternity policies in public health facilities, yet it is not well documented if this has led to a significant increase in utilization of skilled birth care in these regions[10] and significant reduction on maternal and neonatal morbidities and mortalities.[11] The study sought to find out the effect of TBAs-led health education intervention on utilization of killed birth care (SBC) in West Pokot County, where the prevalence was as low as 27%.[4] This was a prospective-experimental study comprising intervention and control groups. In the intervention group, TBAs were trained on maternal and child health care and tasked to give health education to expectant mothers on skilled birthing in a formal health facility, refer them and even accompany them to deliver their babies in these facilities. The findings of the study showed that a majority of mothers in the intervention group (81.1%) delivered their babies in health facility under skilled birth care, with only 13.8% having delivered at home with the help of traditional birth attendants, and 4.4% at other places. This was in comparison to skilled delivery on the

control arm of the study where about 58.2% delivered in a health care facility, and assisted by health care providers.

These study findings revealed that mothers in the intervention group were more likely to deliver at a health care facility and utilize skilled birth care services, compared to those in the control arm of the study. This deduction could be proof that more mothers from the intervention site were referred to these health care facilities by the traditional birth attendants, and therefore implied that traditional birth attendants-led health education intervention has a positive effect on and can promote utilization of skilled birth care in rural set-ups. The low level of utilization of skilled birth care in the control arm of the study could be explained by lack of the current intervention in the control arm of the study since mothers in this group utilized the standard available ministry of health's services in the area. These findings were comparable to those of previous works. For example, a case study in rural Guatemala that examined how a training programme on programming implementation, curriculum development, sustainable methodology and how educational partnership with the current national health care system could transform the role of TBAs from cultural practitioners to unique health care providers. In the study, the traditional birth attendants were trained on prenatal clinical skills and, six months post training, there was a significant increase of referrals for skilled maternal and child health services after TBAs were tasked to refer mothers for skilled birth services.[12] TBAs in the Guatemalan study, however, were allowed to perform normal deliveries in the rural areas and referred mothers with signs of complications, which was not the case in the current study where TBAs were only tasked to educate mothers on SBC, encourage and even accompany them to go for skilled hospital delivery services.

The same findings are also consistent with those of studies in Timor-Leste, in Sub-Saharan Africa and in Sierra Leone.[13-15] In these three studies, traditional birth attendants were trained and rebranded to conduct maternal health promotion-related activities and refer expectant mothers to health facilities for deliveries. This intervention had a significant impact on health facility delivery and 4 or more antenatal care (ANC) visits, especially in the intervention arm where health promotion activities in addition to (business activities) were carried out.[13-15] Nevertheless, in the current study, there were no business activities for the TBAs in the intervention site. They only provided the mothers with health education messages and ensure they sought skilled birth care in the nearby health care facilities. Other studies with similar findings were those undertaken in Nigeria-Ondo State-Agbebiye programme.[16] In this Nigerian study, the intervention to improve skilled birth care involving TBAs led to 61.8 percent increase in facility births from 33,077 in 2013 to 53,531 in 2016 and therefore attesting to the positive effect TBAs' involvement has on SBC usage.

In South Sudan, a study analysed the changing role of TBAs in Tirol West-South.[17] In the study, TBAs were directed by the government to refer expectant mothers for hospital delivery since 2014. The study found that after the government directive, many TBAs referred mothers to hospitals for skilled birth care though some deliveries still took place at home. Alaro's study was affirmed in the current study where there TBAs had a positive effect on uptake of skilled birth care. The South Sudan further found factors that facilitated TBAs referral role to include acceptance of the new role of TBAs by the community members, the expectant mothers and the TBAs themselves.[17] These findings were also noted in the current study where TBAs-led health education intervention was implemented, and showed majority of the mothers (about 81%) in the intervention site going for SBC, as opposed to mothers in the control site where slightly above a half of the study participants (58%) went for SBC services. This attested to the fact that engaging TBAs in maternal and child health care, by utilizing them to refer mothers for skilled deliveries in health care facilities and not home deliveries, could increase uptake of skilled birth care in rural set-ups. Indeed, in the current study, TBAs were recognized, trusted and highly accepted by the community members to offer services like child birthing. Therefore, TBAs also became strong agents of educating mothers on the benefits of SBC.

Studies from low-middle-income countries (LMIC) on TBAs and birth outcomes show that about 22% of pregnant women still prefer to deliver their babies at home with the help of a TBA Garces et al. further note that while WHO and other international organizations have focused efforts to reduce maternal mortalities on the availability of skilled birth attendance, they have done so without involvement of TBAs who are believed to offer birthing services at home.[18] The study recommended that as countries move towards utilization of skilled birth attendance and care, policy makers need to make the best use of TBAs as they plan for their replacement with skilled birth attendants.

Garces et al. also suggest that TBAs could still be allowed to accompany expectant mothers to health care institutions for delivery, which a role is included as part of the activities carried out by TBAs in the intervention site of the current study. The findings of the current study, along with the previous works cited above, confirm the positive role TBAs play in increasing referrals of mothers for skilled birth care. They suggest that TBAs play an important role in maternity in rural and remote areas of low and middle-income countries to improve maternal and child health. However, findings of the current study were inconsistent with those of a study in Western Kenya, which reported out-dated practices mong TBAs with regard to maternal and child health services, although they had high rates of referrals of mothers with obstetric complications.[19] Similarly, Gitonga et al. examined efforts aimed at improving skilled birthing, focusing on the determinants and role of maternal and

neonatal health intervention programmes in Migori County.[20] The findings revealed the programme improved skilled birth attendance, but having contact with TBAs reduced the likelihood of SBC, which was inconsistent with the findings of the current study. The other reason for the reduced likelihood of uptake of skilled birth care in the Migori study could be due to the fact that TBAs were not trained on the significance of SBC services. In the current study, however, TBAs were inducted on the benefits of SBC services.

The services of traditional birth attendants, though temporarily indispensable, are regarded as merely stopgap measures until they could be replaced by professionals.[21]They add that the WHO, UNICEF and UNFPA neither value nor perceive traditional birth attendants' skills necessary. Graham and Davis-Floyd further aver that these health-related organizations' attitude suggests a lack of understanding of the holism of TBAs' roles as culturally and socially specific to their contexts. They also contend that such devaluation of traditional birth attendants has led to loss of their own self confidence and loss of confidence by those who used to value and utilize their services. These scholars propose the need for a model of collaboration to be developed in conjunction with TBAs and the conventional medical staff, in what they call a "partnership paradigm", characterised by mutual respect and accommodation between the formally opposed formal medical practitioners and traditional birth attendants. The current study concurs with the above assertion that TBAs are not fully understood or recognized. Current study findings also support the need for partnership between the conventional medical practitioners and the TBAs in their respective communities.

Limitations

The study was not without limitations. Being a community-based study, it was impossible to control individuals' movements from and to the two study sites, this included movements of traditional birth attendants. This could have brought about contamination or some effect of the practice of maternal and child health practices especially in the control site. However, this possibility was overcome by the distance between the intervention site (Pokot South sub-County) and control site (Pokot North sub-County). This was further enhanced by the location of West Pokot sub-County (another sub-Couty) in-between the two study sites. Presence of another sub-County separating the two study sites made leakage of the intervention to the control site difficult.

CONCLUSION

A higher proportion of mothers utilized SBC by having childbirth in the health facility in the intervention site (Pokot South Sub-County). Therefore, TBAs-led intervention increased utilization of skilled birth care among mothers in the intervention group compared to mothers in the control arm (Pokot North Sub-County) who utilized standard care. In addition to SBC, majority of the mothers in the intervention arm had a birth plan compared to those in the control arm of the study. Further, poor terrain, long distance to health care facility, and lack of finances are major obstacles to SBC utilization in West Pokot County.

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