Original Article

Audit of Childbirth Emergency Referrals by Trained Traditional Birth Attendants in Enugu, Southeast, Nigeria

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Abstract

Background: The essence of training traditional birth attendants (TBAs) is to attend to women in uncomplicated labor and to refer them immediately to hospitals when complications develop. **Aim:** The aim was to audit childbirth emergency referrals by trained TBAs to a specialist hospital in Enugu, Nigeria. **Subjects and Methods:** A retrospective study of 205 childbirth emergencies referred to Semino Hospital and Maternity (SHM), Enugu by trained TBAs from August 1, 2011 to January 31, 2014. Data analysis was descriptive and inferential at 95% confidence level. **Results:** Most of the patients (185/205, 90.2%) were married and (100/205, 48.8%) had earlier booked for antenatal care in formal health facilities. There were obstetric danger signs or previous bad obstetric histories (pregnancies with unfavorable outcome) in 110 (110/205, 53.7%) women on admission at SHM. One hundred and fifteen (115/205, 56.1%) women walked into the hospital by themselves while 50 (50/205, 24.39%) could not walk. The fetal heart sounds were normal in 94 (94/205, 45.6%), abnormal in 65 (65/205, 31.8%) and absent in 42 (42/205, 20.4%) of the women on admission. Five healthy babies were delivered by the TBAs before referring their mothers. Delays of more than 12 h had occurred in 155 (155/205, 76.6%) of the women before referrals. Prolonged labor (100/205, 48.8%), obstructed labor (40/205, 19.5%), attempted vaginal birth after previous cesarean delivery (40/205, 19.5%) and malpresentation (30/205, 14.6%) were the common indications for referrals. The maternal mortality and perinatal mortality ratios were 610/100,000 live births and 228/1000 total births respectively. **Conclusion:** Delays at TBA centers are common before referral and most patients are referred in poor clinical state. Further training and re-training of the TBAs with more emphasis on recognition of obstetric danger signs and bad obstetric histories may help in screening high-risk patients for prompt referral to hospitals before complications develop.

Keywords: Childbirth emergencies, Delay, Outcomes, Referrals, Trained traditional birth attendants

Introduction

About 15% of pregnant women worldwide will have life-threatening complications that will require emergency obstetric care services.[1] The risk of developing these emergencies is highest during childbirth and the first few hours after delivery. These emergencies are not always predictable and should be anticipated, recognized early and promptly referred to hospitals with comprehensive obstetric emergency facilities to prevent adverse fetomaternal outcomes. Early recognition of danger signs, previous pregnancies with unfavorable outcome (bad obstetric histories) and childbirth complications by the patients and their families, traditional birth attendants (TBAs), and skilled birth attendants (SBAs) may prompt early presentation of patients for life-saving interventions. The presence of an SBA at every delivery is one

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of the key interventions for reducing maternal and perinatal mortality and morbidity.[2] World Health Organization (WHO) defined a SBA as "an accredited health professional such as a midwife, doctor or nurse who has been educated and trained to proficiency in the skills needed to manage uncomplicated pregnancies, childbirths and the immediate post natal period and in the identification, management, and referral of complications in women or newborns."[3]

On the other hand, a TBA is a person who assists the mother during childbirth and who initially acquired her skills by delivering babies herself or through an apprenticeship to other TBAs.[4] The services of the TBAs ought to be limited to uncomplicated pregnancies and childbirths, however a large number of complicated deliveries have been reported.[5-10] Deliveries conducted by TBAs and other unskilled birth attendants have been shown to be associated with 4.67 times higher morbidity and mortality when compared with deliveries supervised by SBAs.[4] The high rate of utilization of TBA care in Nigeria may contribute to the very low rate (36%) of SBA utilization in Nigeria despite the 60.1% rate of antenatal care uptake[11] This may also contribute to the currently high maternal mortality rate of 576/100,1000 live births in Nigeria.[11]

This high level of TBA-services utilization prompted WHO to promote training of TBAs as a major public health strategy to reduce these tragic and preventable fetomaternal deaths and countless complications. The training usually involve; recognition of previous "bad obstetric histories" and "obstetric danger signs" of common causes of maternal and neonatal deaths during pregnancy, labor and puerperium, and the need for prompt referral of such cases. While some authors observed improvements in maternal and neonatal outcome following training,[12] others could not establish any potential benefits.[13]

Despite some concerns about the usefulness of TBA training,[5,14] the Enugu state Ministry of Health embarked on training of TBAs in the state with a view to improve the overall maternal and neonatal health indices of the state. This study, therefore, aims at auditing the childbirth emergency referrals to a specialist hospital in Enugu East Local Government Area (LGA) of Enugu state by trained TBAs in the LGA by assessing the conditions of the referred women at presentation, indications for their referrals, obstetric delays at the TBAs, and the fetomaternal outcome of such pregnancies.

Subjects and Methods

The ethical clearance of the study was obtained from the institutional review board of the Enugu state university teaching hospital (ESUTH), Parklane, Enugu. The study took place at Semino Hospital and Maternity (SHM), Enugu between August 1, 2011 and January 31, 2014. The SHM is located at Abakpa Nike, Enugu, the center of Enugu East LGA of Enugu state. It is a private health facility that provides comprehensive emergency obstetric care services 24 h of every day.

This study was a retrospective study that audited 208 consecutive cases of childbirth emergency referrals to SHM by trained TBAs in Enugu East LGA, Enugu state. The patients for the study were consecutively selected as already stated in the methodology. Pregnant women in labor referred to SHM from a trained TBA home and requiring emergency obstetric intervention were included in the study. Exclusion criteria included women referred to a teaching hospital from SHM because of medical or labor complications that required intensive care or multidisciplinary approach and women with incomplete data.

Prior to the study, the Enugu State Ministry of Health had trained 45 TBAs in the LGA. The training included; the recognition of "danger signs" or "bad obstetric history" of common causes of maternal and neonatal deaths during pregnancy, labor and puerperium, and the need for prompt referral of such cases. They were also trained on clean safe delivery, universal precautions, and avoidance of harmful traditional practices. The TBAs in the LGA have regular meetings in Abakpa health center every 3 months. During these quarterly meetings, they decide among other things the hospitals to refer their patients whenever indicated. The decision on the hospitals to refer cases is determined by a number of factors including availability of efficient maternal services, ability to provide emergency cesarean delivery and other operative deliveries, affordability of cost of care by the patients, and willingness of the health facility to reimburse the TBAs the transport fare and other costs already incurred in the management of the patient before the referral. Consequently, the TBAs in the LGA had an understanding with the management of SHM to refer their patients to the hospital whenever indicated. However, there are some other health facilities in the LGA where the TBAs sometimes refer their patients when indicated. Most of the TBAs in the LGA are domicile at Abakpa Nike in Enugu urban, and at Ugwuowo Nike, a rural community in Enugu East LGA. The TBAs usually phoned the hospital prior to accompanying the patient to such hospital via private or public vehicle. Those in Abakpa Nike urban occasionally accompanied their patients to SHM by trekking. Most of the referrals were at night. The roads in Abakpa Nike (urban community) and Ugwuogo Nike (rural community) are good. The major barrier to referral is patient's refusal to be referred to hospital usually because of an unaffordable cost of care.

During the study period, a total of 219 women were referred to SHM from the TBAs in the LGA. The case records (folders) of these women were retrieved and relevant data extracted using case record forms (data entry profoma) specifically designed for the study. Data sought included patients' sociodemographic characteristics, presence of danger signs (surgical scars on the abdomen, leg/facial swelling, vaginal bleeding, and drainage of liquor), bad obstetric history (previous pregnancies with unfavorable outcome), feto-maternal condition on admission, delays by TBAs before referral, and fetomaternal outcome following delivery.

Functional ability to walk, maternal vital signs, and fetal heart sounds were used to assess the feto-maternal condition of the

patients on admission at SHM. The maternal condition on admission was said to be good if she was able to walk into the hospital (SHM) unaided and/or if her vital signs including the blood pressure, pulse rate, and temperature were within normal limits. It was said to be poor if she was supported or carried into the hospital and/or if her vital signs including the blood pressure, pulse rate, and temperature were deranged. On the other hand, the fetal condition was said to be good if the fetal heart rate was within normal limits (120–160 beats/min), and regular. It was said to be poor if it was deranged and/or irregular. A woman is said to have developed a postpartum morbidity if she had wound infection, urinary tract infection or any other adverse conditions in the postpartum period.

Eleven women out of the 219 women initially admitted were referred out from SHM to either University of Nigeria Hospital or Enugu State University Teaching Hospital (ESUTH) – Parklane due to certain complications at presentation. Three women's folders that were delivered at SHM had incomplete medical history and were also excluded. Thus, a total of 205 women's results were analyzed. The study was approved by the Ethics Committee of the ESUTH-Parklane, Enugu.

Data analysis was done by both descriptive and inferential statistics using the Statistical Package for Social Sciences (SPSS) Software version 16 (SPSS Inc., Chicago, IL, USA). Proportions were tested using the Pearson's Chi-square and relationship expressed using the odds ratio (OR) and confidence interval (CI). A $P < 0.05$ was considered to be statistically significant.

Results

During the 2½ years (30 months) study period, childbirth emergency referrals from the trained TBAs accounted for 208/358 (58.1%) of the deliveries. However, 205 case notes had complete data and were analyzed. One hundred and eighty six 186/205 (90.7%) of the patients were between 20 and 40 years of age, 185/205 (90.2%) were married, 120/205 (58.5%) were unemployed and 115/205 (56.1%) were primigravidae. Details of the sociodemographic characteristics of the women are as shown in Table 1.

One hundred 100/205 (48.8%) of the patients had booked for antenatal care in formal health facilities and were seen at least once by SBA in the index pregnancies before presentation to the TBAs in labor. However, 51.2% (105/205) did not receive any form of antenatal care in a formal health facility prior to presentation to the TBAs in labor.

There were obvious dangers signs or bad obstetric histories in 100/205 (48.8%) of the patients. One hundred and fifty-five 155/205 (75.6%) of the women were admitted walking unsupported while 50/205 (24.4%) could not walk at the time of admission. The maternal vital signs were normal in the 155 (75.6%) that could walk on admission, and deranged in the 50 (24.4%) that could not walk. The fetal heart sounds were normal in 94/205 (45.6%), abnormal in 65/205 (31.8%), and absent in 42/205 (20.4%) of the patients on admission. Five healthy babies had been delivered by the TBAs before referring their mothers due to certain postpartum complications. Delays of more than 12 h at the TBAs before referrals occurred in 155 (75.6%) of the patients. Details are as shown in Table 2.

Table 1: Socio-demographic characteristics of the women

Socio-demographic variables	Number	Percentage
Age (in years)		
<20	5	2.4
20-30	123	60.0
31-40	63	30.7
41-50	14	6.8
Residence		
Rural residence	85	41.5
Urban residence	120	58.5
Marital status		
Married	185	90.2
Unmarried	20	9.8
Employment status		
Employed	85	41.5
Unemployed	120	58.5
Parity		
Nullipara	115	56.1
Multipara	90	43.9

Prolonged labor (100/205, 48.8%), obstructed labor (40/205, 19.5%), attempted vaginal birth after cesarean delivery (40/205, 19.5%) and fetal mal-presentations (30/205, 14.6%) were the common indications for referrals during childbirth. Details of the indications for referral to SHM are as shown in Table 3. Oxytocin injections (65/205, 31.7%), native concoctions (45/205, 22.0%), fundal pressure (35/205, 17.1%), and rectal misoprostol insertion (10/205, 4.9%) were the common treatments given by the TBAs before referrals.

Following admission at SHM, most of the patients 171/205 (83.4%) had emergency cesarean section while 32/205 (15.6%) were delivered vaginally. Delays at SHM of more than 1 h prior to intervention occurred in 116/205 (56.6%) of the patients while 89/205 (43.4%) received appropriate treatment within 1 h of admission. Inability to pay the initial financial deposit (50/205, 24.4%), delay in giving consent for operations (20/205, 9.8%), nonavailability of anesthetist (20/205, 9.8%) nonavailability of obstetrician (15/205, 7.3%), nonavailability of blood (10/205, 4.9%) and nonavailability of power or light supply (1/205, 0.5%) were the identified causes of delays in SHM.

Following intervention at SHM, 204 (204/205, 99.5%) of the mothers survived while one (1/205, 0.5%) died of uncontrollable postpartum hemorrhage. Forty-eight (48/205, 23.4%) mothers developed some postpartum

Table 2: Clinical history/signs observed in the referred women on admission at SHM and the duration of obstetric delays at the TBA homes before referral to SHM

Clinical history/signs	Number	Percentage
Presence of danger signs or bad obstetric history		
Previous one or two cesarean delivery	40	19.5
Defaulted cesarean delivery	40	19.5
Previous history of obstructed labor	10	4.9
Previous history of birth asphyxia	5	2.4
Fetal macrosomia	15	7.3
Absence of any danger signs or bad obstetric history	95	46.4
Total	205	100
Maternal conditions on admission		
Mother walking unsupported	155	75.6
Mother not walking	50	24.4
Normal vital signs	105	51.2
Abnormal vital signs	100	48.8
Shock	20	9.8
Severe anemia	15	7.3
Fetal conditions on admission		
Delivered before arrival to SHM	5	2.4
Normal heart rate (including one set of twin)	94	45.6
Abnormal fetal heart rate	65	31.6
Fetal heart sound absent	42	20.4
Total	206	100
Duration of obstetric delays at the TBA homes before referral to SHM		
<12 h	50	24.4
12-24 h	80	39.0
>24 h	75	36.6
Total	205	100

SHM: Semino Hospital and Maternity, TBAs: Traditional birth attendants

Table 3: Indications for referrals of childbirth emergencies to SHM by the trained TBAs

Indications	Number	Percentage
Prolonged labor	100	48.8
Obstructed labor	40	19.5
Attempted vaginal birth after cesarean delivery	40	19.5
Retained placenta	5	4.9
Chorioamnionitis	25	12.2
Hemorrhage	10	4.9
Big baby	15	7.3
Abnormal fetal heart rate	10	4.9
Shoulder dystocia	2	0.98
Trapped after coming head of the breech	3	1.46
Multiple pregnancy	1	0.49
Abnormal lie/mal-position/presentation		
Breech presentation	15	7.3
Transverse lie	15	7.3
Persistent occipto posterior	5	2.4
Hand prolapse	4	1.9

SHM: Semino Hospital and Maternity, TBAs: Traditional birth attendants

Table 4: Association between certain variables and development of postpartum morbidities in the women

Variable	Postpartum morbidity (%)		OR	95% CI	*P*
	Yes	No			
Age (in years)					
<35	37 (23.3)	122 (76.7)	0.97	0.45-2.09	0.93
≥35	11 (24.0)	35 (76.1)			
Employment status					
Employed	15 (17.6)	70 (82.4)	0.90	0.44-1.86	0.78
Unemployed	23 (19.2)	97 (80.8)			
Parity					
Nullipara	29 (25.2)	86 (74.8)	1.26	0.65-2.43	0.49
Multipara	19 (21.1)	71 (78.9)			
Maternal condition on admission					
Good	11 (7.1)	148 (92.9)	0.03	0.01-0.06	<0.001
Poor	37 (74.0)	13 (26.0)			
Delay at SHM before intervention					
≤1 h	18 (20.2)	71 (79.8)	0.73	0.37-1.41	0.35
>1 h	30 (25.9)	86 (74.1)			

SHM: Semino Hospital and Maternity, CI: Confidence interval, OR: Odds ratio

morbidities including wound infections (43/205, 21.0%) and urinary tract infection (5/205, 2.4%). Maternal condition on admission (good or poor) was strongly associated with development of postpartum morbidities (OR: 0.03; 95% CI: 0.01–0.06; $P < 0.001$). Other factors including maternal age, parity, employment status, and delay at SHM had no significant association with the development of postpartum morbidities ($P > 0.05$). Details are as shown in Table 4.

There were 206 babies (including a set of twin) out of whom 42 were stillbirths and 164 live births giving a maternal mortality ratio (1/164 live births ×100,000) of 610/100,000 live birth. Fetal asphyxia with 5 min Apgar score of <7 occurred in 104/206 (50.7%) babies out of whom 65/206 (31.6%) were admitted for newborn care and 5 (2.4%) died within 7 days of newborn admission. The perinatal mortality ratio was (47 × 1000/206 total births) 228/1000 total birth.

Discussion

An audit of the referred cases revealed the presence of obstetric danger signs or bad obstetric histories in 53.7% of the patients that were ignored or not noticed by the trained TBAs. Forty (40/100, 40%) of such patients had one or two previous cesarean deliveries but defaulted from planned cesarean delivery in formal health facilities where they were receiving antenatal care to risk vaginal delivery in TBA centers. These patients should have been referred by the trained TBAs before the complications developed. Previous report from the study area observed that "pregnant women abhor cesarean delivery, regard it as social calamity, a slur on their reproductive integrity and would do everything possible to resist further cesarean delivery including defaulting hospital delivery, taking native concoctions, and starving in order to reduce the fetal size so as

to achieve vaginal delivery".[15] This observation was evident in this study as 17.2% (20/116) of the facility delays were due to patients' refusal to give consent for cesarean delivery. Similar to previous reports from Nigeria,[16,17] many women in labor referred by TBAs had multiple antenatal booking in formal health facility but elected to deliver outside the modern facility.

Prolonged delays of more than 24 h in TBA homes occurred in 36.6% of the patients in this study with 48.8% of the patients presenting in poor clinical conditions. This observation though not very impressive is a lot better than the reports from Ebonyi state, Southeast Nigeria[5] where 74.1% of the referrals presented in poor clinical conditions. This could be attributed to earlier referrals by the trained TBAs in the present study compared to the above previous study where the TBAs were not trained on the importance of prompt referral. The feasibility of improving timely referral of emergency obstetric cases via training of TBAs has been documented by previous African authors.[18] Mal-presentations, previous cesarean delivery, and scarred uterus are complicated and high-risk labors that should be managed in comprehensive emergency obstetric facilities and not at TBA centers.[19] Any labor that lasts for more than 12 h in the active phase in a TBA center should be referred without further delay.

Financial constraints and refusal to give consent (which could be due to lack of funds) accounted for 29.3% and 12.2% of facility delays, respectively, in our study. Okafor *et al*. in 2001[20] documented a tremendous uptake of facility-based delivery under SBAs and marked reduction in mortality and morbidity when maternity services were made free in Enugu state. Childbirth services should, therefore, be provided free of charge in government hospitals in developing countries in order to enable women have access to SBAs. The maternal mortality ratio of 610/100,000 live births in this study is remarkably lower than 3385/100,000 live births reported in a similar study from Ebony state in 2010.[5] This could be attributed to the improvement in early referrals by the trained TBAs, and a better enabling environment such as availability of comprehensive obstetric emergency services in the study population, good access roads, and telecommunication services.

Lack of universal access to SBAs and emergency obstetric care services as seen in this study is particularly challenging to most developing countries because of poor infrastructure, acute shortage of SBAs, nonavailability of blood, drugs, and equipment.[21,22] It has been estimated that an additional 180,000 midwives are needed in the next 10 years in Africa to overcome the current shortage.[23] This requires substantial funding, staff motivation, and further professional development. The availability of high quality maternal and newborn services that are free has been documented to increase tremendously the utilization of SBA services.[20] The major challenge in Nigeria is the provision and decentralization of such high-quality services to the communities.

The limitation of this study includes the utilization of the referrals by the TBAs to only one center (SHM) thereby limiting the generalization of the findings to the entire population. However, the study has commenced the process of filling the gap in the performance of the trained TBAs in our environment. This study being a retrospective one is also limited to the extent to which records about the patients were previously collected and kept.

Conclusion

Delays at trained TBA centers are common before referral and many patients are referred in poor clinical state. There was a failure of the TBAs to recognize and promptly refer cases with obvious "obstetric danger signs" and "bad obstetric histories." Further training and re-training of the TBAs with more emphasis on recognition of obstetric danger signs and bad obstetric histories may help in screening high-risk patients for prompt referral before complications develop.

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