AFRICAN JOURNAL OF FETOMATERNAL MEDICINE

Original Article

Knowledge and Skills of Basic Emergency Obstetrics Care Among Healthcare Providers in Selected Primary Health Centres in Ibadan, Southwest Nigeria.

Esther Oluwatoyin Famutimi [1], Timothy A.O. Oluwasola[2], Funmilayo A. Okanlawon[3]

1. Department of Clinical Nursing, University College Hospital, Ibadan. Email – famutimiesther@yahoo.com; Telephone +2348032379954; 2. Department of Obstetrics and Gynaecology, University College Hospital, Ibadan and College of Medicine, University of Ibadan. Email – sesanoluwasola@gmail.com; Telephone +2348033384064; 3. Department of Nursing, College of Medicine, University of Ibadan. Email – funmilayookanlawon@yahoo.com; Telephone +2348167223644

Abstract

Introduction: Healthcare providers (HCPs) need to be adequately informed and experienced in Basic Emergency Obstetric Care (BEmOC) techniques to effectively manage obstetric and neonatal emergencies. This study evaluated the knowledge and skills of HCPs in selected Primary Health Centres (PHCs) in Ibadan Metropolis, Nigeria. **Method:** This was a cross-sectional study comprising 319 HCPs working in 6 Local Government Areas within the Ibadan metropolis. A structured, self-administered questionnaire was used to collect data on their knowledge and skills regarding BEmOC. Both self-reported as well as demonstrated knowledge and skills were considered while comparisons were made among various HCPs. The knowledge scores were categorized as good (≥85.0%) and poor (<85.0%), and Skills as good (≥ 75th percentile) and poor (<75th percentile). Statistical analysis was done using Statistical Package for Social Sciences (25.0) with a p-value set at <5%. **Results:** The mean age of participants was 47.0±6.5 years with more than four-fifths, 261(81.8%), being Community Health Workers. Of all the participants, 228(71.5%), have been practicing for over 10 years while only about one-quarter, 83(26.1%), had ever been trained on BEmOC. Among those ever trained, 45(54.2%) had the training within the last five years. Overall, only 1.3% and 1.8% of the participants demonstrated good knowledge and skills of BEmOC respectively. Both self-reported and standard scores were statistically similar regarding knowledge (p=0.54) and skills (p=0.08). There was no statistically significant difference between the level of education and knowledge of BEmOC, (aOR=0.52; 95% CI 0.26-1.05), but those in practice for more than 10 years were less likely to have good knowledge (aOR=0.54; 95% CI 0.45- 0.65). **Conclusion:** There is an urgent need for periodic training and re-training of HCPs especially at PHCs to improve their knowledge and skills of BEmOC to make a positive impact on improving maternal and neonatal outcomes.

Keywords: knowledge, skills, basic emergency obstetric care, primary health centres, healthcare providers.

Correspondence:

Famutimi, Esther Oluwatoyin PhD
Department of Clinical Nursing, University College Hospital, Ibadan
Email – famutimiesther@yahoo.com Telephone +2348032379954

Introduction

Nigeria remains one of the countries in sub-Saharan Africa with high maternal mortality ratios. An important strategy in minimizing avoidable complications from pregnancy and childbirth is the availability of Skilled Birth Attendants (SBA) [1]. Prompt management of most obstetric problems by Healthcare Providers (HCPs) can significantly reduce maternal and perinatal mortality. Emergency Obstetric Care (EmOC) is among the cru-

cial strategies for enhancing maternal health and achieving the Sustainable Development Goal (SDG) 3. Given the unpredictability of pregnancy outcomes, mothers and infants need to have access to EmOC throughout pregnancy and delivery to lower maternal and neonatal mortality /morbidity. HCPs need to be knowledgeable and proficient in in-service delivery to women during pregnancy and labour. Unfortunately, most women, especially those in remote areas in Nigeria, lacked access to obstetrics care [2]. World Health Organization and World Bank Group reported that both the quantity and quality of health personnel are grave issues in many nations [3]. The resultant burden of this preventable death among mothers continually remains high in developing nations and this can be tremendously reduced by utilising the two types of EmOC: basic (BEmOC) and comprehensive (CEmOC), the former is recommended at the grass root while the latter is often practiced at the secondary and tertiary facilities [4].

In 2020, Daniels and Abuosi documented that prompt access to BEmOC is crucial to preventing fatalities associated with unpredictable pregnancy outcomes, although such prompt access to care has proven difficult in Sub-Saharan Africa, particularly Nigeria [5]. The bulk of HCPs at the Primary Health Centres (PHCs) are Community Health Workers (CHWs), thus they must be extremely knowledgeable and skillful in the prevention, and/or stabilisation of complex cases as well as coordinating the transfer of care to functional higher referral levels [6]. Regrettably, healthcare professionals in Nigeria, particularly those in PHCs, continue to exhibit poor knowledge and skills in the management of obstetric emergencies [2,7]. Comprehensive evaluations of the accessibility and distribution of EmOC have revealed that, in many situations, there are modalities in place, as well as equipment and consumables, but personnel are unable to deliver all the signal functions of EmOC because of inadequate knowledge and skills [8]. Unfortunately, most of the previous studies on EmOC focused on secondary & tertiary levels of care which necessitated the design of this study to evaluate the knowledge and skills of healthcare providers at PHCs on BEmOC in the Ibadan metropolis.

Methodology

This was a descriptive cross-sectional study comprising 319 consenting HCPs working in PHCs in 6 purposefully selected Local Government Areas (LGAs) within the Ibadan metropolis, Oyo state, Nigeria and it lasted for 12 weeks. Ibadan is made up of 11 LGAs; 5 urban and 6 semi-urban, out of which 3 LGAs were purposively selected from each region. Overall, the 6 LGAs utilised for this study were Lagelu, Oluyole, Ibadan North, Ibadan Northeast, Ibadan Southeast, and Egbeda. All HCPs from PHCs under each of the selected LGAs were considered eligible for the study except for those who were unavailable for official reasons. Ethical approval was obtained from the Ethical Review Committee of the Oyo State Ministry of Health, Ibadan. Permission to conduct research was also sought from the Oyo State Primary Health Care Board and all the coordinators of each of the PHCs used for this study.

The targeted HCPs were the Nurses, Midwives, Community Health Officers (CHOs), and Community Health Extension Workers (CHEWs). Six research assistants were recruited for this study and using a structured, self–administered questionnaire, information on respondents' socio-demographic characteristics, whether ever received training on EmOC, availability of EmOC signal function and various sources of information, self-reported knowledge and skills, actual knowledge of BEmOC were obtained. Meanwhile, the demonstrated skills were assessed through an Objective Structure Clinical Examination (OSCE).

The information obtained was cleaned, processed, and verified for accuracy, completeness, and consistency. Normality tests done using Kolmogorov Smirnov and Shapiro Wilk test showed that both knowledge and skills of BEmOC scores were not normally distributed, hence non-parametric tests were utilized for analysis. Statistical analysis was done using the Statistical Package of Socio Sciences Version 25.0 and the p-value was set at <5%. The knowledge scores were categorised as good (≥85.0%) or poor (<85.0%) while skills were described as either good (if ≥75th percentile) or poor (if < 75th percentile).

Results

The socio-demographic characteristics of 319 participants used for this study are shown in Table 1. The mean age of the participants was 47.0 ±6.5years, and about two-thirds 228(71.5%), have been practicing for over 10 years with a little above one-quarter 83(26.1%) of all the participants being previously trained on BEmOC. Although only 45(54.2%) of participants previously trained had it within the last five years.

Overall, four-fifths, 257 (80.6%), of the participants reported non-availability of partographs in their respective facilities and 258 (80.9%) expressed their inability to even use partographs correctly. Only 37 (11.6%) of the participants reported that they usually perform the BEmOC signal function in their facilities. Considering various sources of information on EmOC in this study (Table 2), a little above half 162 (50.8%) reported professional training, followed by workshops/conferences 55 (17.2%).

The self-reported knowledge of EmOC among the HCPs, highlighted in Table 3, showed that almost three-fifths of the respondents, 59.6%, indicated a need for improvement in their knowledge of the management of obstetric hemorrhage while 56.4% required an update in the treatment of Preeclampsia/eclampsia. Overall, 53.6% reported the need for improvement in the management of EmOC signal functions. The highest-rated self-reported knowledge with excellent performance among participants was in the active management of the third stage of labour (AMTSL) – 21.6%. Concerning the self-

reported skills of respondents, preeclampsia/eclampsia was noted to be the leading area in which participants need improvement among the signal functions, (45.5%), followed by sepsis (41.7%). However, the highest-rated self-reported skill of participants with excellent performance was neonatal resuscitation though very low (8.2%).

Table 1: Socio-Demographic Characteristics of Respondents

Variable	Frequency (319)	Percentage (%)
Age (years)		
<30	20	6.2
30-39	47	14.7
40-49	140	44.0
□ ▣□	112	35.1
Mean age (±SD) = 47.0± 6.5 years		
Sex		
Female	294	92.2
Male	25	7.8
Religion		
Christianity	224	70.2
Islam	94	29.5
Traditional Worshiper	1	0.3
Tribe		
Yoruba	293	91.8
Igbo	20	6.3
Hausa	4	1.3
Others	2	0.6
Marital Status		
Single	29	9.1
Married	284	89
Divorced/Separated	6	1.9
Category of health worker		
Nurse/midwife	58	18.2
CHO	106	33.2
CHEW	155	48.6
Ever had training of EmOC		
Yes	83	26.0
No	236	74.0
Years of Training on EmOC		
1-5	45	54.2
6-10`	20	24.1
11-15	3	3.6
>15years	15	18.1

Table 2: Availability of EmOC signal functions and various sources of information

Variable	Yes	No
EmOC signal functions	N (%)	N (%)
Availability of partograph in facility	62(19.4)	257(80.6)
Can use partograph effectively	61(19.1)	258(80.9)
Availability of WHO guidebook in facilities	37(11.6)	282(88.4)
Performance of basic EmOC signal function	37(11.6)	282(88.4)
Various sources of information		
Professional training	162(50.8)	157(49.2)
Colleagues/ friends	38 (11.9)	281(88.1)
Media	25(7.8)	294(92.2)
Literature search	39(12.2)	280(87.7)
Workshop and conferences	55(17.2)	264(82.8)

Table 3: Self-Reported Knowledge and Skills of BEmOC among Healthcare Workers on Selected Variables

Variable	Weak	NI	Adequate	Excellent
Knowledge				
Haemorrhage	17(5.3)	190(59.6)	95(29.8)	17(5.3)
Preeclampsia and Eclampsia	67(21.0)	171(53.6)	66(20.7)	15(4.7)
Puerperal Infection	55(17.2)	177(55.5)	67(21.0)	20(6.3)
AMTSL	11(3.4)	134(42.1)	105(32.9)	69(21.6)
Partograph and routine labour	77(24.1)	164(51.4)	43(13.5)	35(11.0)
Skills				
Haemorrhage	171(53.6)	110(34.5)	20(6.3)	18(5.6)
Pre-eclampsia/eclampsia	139(43.6)	145(45.5)	14(4.3)	21(6.6)
Sepsis	134(42.0)	133(41.7)	44(13.8)	8(2.5)
Shoulder Dystocia	142(44.5)	120(37.6)	42(13.2)	15(4.7)
Neonatal resuscitation	112(35.1)	131(41.1)	50(15.6)	26(8.2)

NI = Need Improvement

Overall, a larger percentage, 98.7% and 98.2%, of health workers had poor knowledge and skills of EmOC respectively. Self-reported/standard scores were compared in terms of knowledge and skills of EmOC. Both self-reported and standard scores were statistically similar regarding knowledge (p=0.54) and skills (p=0.08). There was no statistically significant difference between the level of education and knowledge of BEmOC, (aOR=0.52; 95% CI 0.26-1.05), but years of experience were statistically significant; those in practice for more than 10 years were less likely to have good knowledge of BEmOC but those in practice for more than 10 years were less likely to have good knowledge ((aOR=0.54; 95% CI 0.45- 0.65) and (aOR= 0.64; 95% CI 0.45-0.90) for 11 to 20 and ≥ 21 years respectively.

Table 4: Logistic Regression on Independent Variables and Knowledge of EmOC

Variables	Adjusted OR	(95% CI)
Education		
OND and HND (reference)	1	
RN/RM and B.Sc	0.52	(0.26, 1.05)
Years of Experience		
0-10 (Reference)	1	
11-20	0.54	0.45, 0.65
> 21	0.64	0.45, 0.90

Discussion

Pregnancy and labour are natural processes but are associated with potential complications that necessitate the provision of lifesaving treatments for women during labour and delivery. This study assessed the knowledge and skills of EmOC among HCPs in six LGAs in Ibadan Metropolis, South-West Nigeria. The study compared both self-reported with demonstrated knowledge and skills and found that both were generally low among participants. The percentage of HCPs with poor knowledge and skills was disturbingly low for both self-reported and demonstrated knowledge and skills of EmOC. Although EmOC has been proven to be instrumental in rescuing women at risk of experiencing complications from labour, yet, demonstrated knowledge and skills of HCPs within Ibadan metropolis remain abysmally low as reflected in this study; only one-fifth of the study participants demonstrated good scores despite several awareness campaigns on EmOC. This is a likely contributory factor to the poor obstetric indices being recorded in most PHCs across Nigeria. This corroborates several assertions in the literature on the inadequacy of knowledge and skills of HCPs in the provision of EmOC.

Okonofua et al. in their study on the assessment of knowledge and skills of EmOC among HCPs in secondary healthcare centres in Nigeria reported that both the reported knowledge and skills were below average[2]. Moreover, Du et al., (2019) in a multinational cross-sectional study on EmOC among HCPs in PHCs in SEANERN countries reported that the knowledge and skills seemed low and imbalanced [9]. It is quite sad that HCPs in Nigeria still demonstrate inadequate knowledge and skills of EmOC despite several initiatives put in place to combat maternal mortality in the country [2]. These findings therefore call for urgent interventions in order to ensure full achievement of the SDG 3. Hence, providing short training for HCPs in the tertiary, secondary, and primary health centres in Nigeria will be of great significance at crucial times like this. Kabo et al. reported that intervention documented and implemented after their baseline study yielded positive results as most HCPs utilised for their study could provide necessary and adequate care during labour and delivery [4].

Moreover, it is of paramount importance to note that more than three-quarters of the HCPs in this study were CHWs who have a limited scope of training and are thus unable to provide EmOC services as would be expected of trained nurses and midwives. This is in tandem with similar studies whose findings show that the vast majority of HCPs in Nigeria's PHCs were CHWs and were unable to demonstrate good knowledge and skills in maternal health service [10,11]. Meanwhile, Olaniran et al., (2019) in their study asserted that CHWs are strategically and geographically located in Nigeria's PHCs to render maternal and neonatal health services and as such they need necessary help and assistance to provide such care [6]. However, Ajisegiri et al., (2022) also asserted that CHWs are the bulk of HCWs in the PHCs in Nigeria and that these CHWs need motivation as well as necessary interventions that will boost their capacity to provide quality health services in their respective facilities [12]. Our study therefore recommends that necessary interventions are needed to improve the knowledge and skills of these categories of HCPs to improve service delivery at PHCs. Policy implementation on the need for further training of the CHWs will also go a long way to improve the status quo in Nigeria's health system.

The overall knowledge of EmOC among HCPs in this study was poor irrespective of cadre. This may reflect the small number of certified nurses and midwives that were available to function at the PHCs as most of the centres in Nigeria PHCs are currently being manned by CHWs. Notwithstanding, this is an important issue for consideration at the PHC levels because, according to the World Health Organization, nurses and midwives are expected to coordinate and practice more independently [13]. Therefore, it is imperative to improve the quality and quantity of HCPs working at the PHCs especially as regards the number of certified nurses and midwives such that achievement of SDG 3 becomes less herculean.

In this study, the Chi-square analysis showed lack of statistical difference between self-reported/standard knowledge and skills of EmOC. This is at variance with the report by Esan et al., (2019) whose study affirmed that most of their HCPs perceived confidence in most of the skills assessed for maternal and newborn health [14]. Yet, a larger percentage of their participants performed exceptionally low when faced with such tasks realistically. Hence, these categories of health workers need to be properly informed that what they assume might not be what they know in the real sense of it. They must be well equipped such that they will be able to identify potential complications in any woman during pregnancy and childbirth. Studies have shown that such HCPs will benefit from practical sessions, hands-on seminars, and workshops to be able to reduce the effects of such deficits [2,15].

Professional training was found in this study to be the most mentioned source of information on EmOC among HCPs. Although, this is highly commendable, still, concerted

efforts should still be made to raise more awareness of the need for EmOC in preventing and managing potential complications from pregnancy and childbirth [4]. It is of paramount importance to note that adequate training on EmOC should be conscientiously included in the curriculum of all health workers to minimize most complications from Obstetric care. Apart from this, the introduction and enforcement of necessary regulations to guide the conduct of HCPs at different levels will further reduce preventable complications and curtail excesses of some notorious health facilities. Replicating this study concurrently in the three tiers of health institutions in Nigeria could also provide useful insight into the way forward on this bottleneck.

Conflict of interest

The authors declared that there was no conflict of interest.

References

1. Zegeye, B., Ahinkorah, B. O., Ameyaw, E. K., et al. 2022. Disparities in use of skilled birth attendants and neonatal mortality rate in Guinea over two decades. *BMC Pregnancy and Childbirth 22*.1:1–13. https://doi.org/10.1186/s12884-021-04370-8
2. Okonofua, F, Favour, L., Ntoimo, C., Ogu, R., et al. 2019. Assessing the knowledge and skills on emergency obstetric care among health providers: Implications for health systems strengthening in Nigeria. https://doi.org/10.1371_/ journal.pone.0213719
3. World Health Organization, World Bank Group, O. 2018. *Delivering quality health services. World Health Organization, World Bank Group, OECD*. Retrieved from http://apps.who.int/bookorders. Last cited 10 May, 2024.
4. Kabo, I., Orobaton, N., Abdulkarim, M., et al. 2019. Strengthening and monitoring the health system's capacity to improve availability, utilization, and quality of emergency obstetric care in northern Nigeria. *PLOS ONE 14*.2:e0211858. https://doi.org/10.1371/JOURNAL.PONE.0211858
5. Daniels, A. A., and Abuosi, A. 2020. Improving emergency obstetric referral systems in low and middle-income countries: A qualitative study in a tertiary health facility in Ghana. *BMC Health Services Research 20*.1:1–11. https://doi.org/10.1186/s12913-020-4886-3
6. Olaniran, A., Madaj, B., Bar-Zev, S., and Van Den Broek, N. 2019. The roles of community health workers who provide maternal and newborn health services: Case studies from Africa and Asia. *BMJ Global Health*. https://doi.org/10.1136/bmjgh-2019-001388
7. Banke-Thomas, A., Wright, K., Sonoiki, O., et al. 2017. Multi-stakeholder perspectives on access, availability, and utilization of emergency obstetric care services in Lagos, Nigeria: A mixed-methods study. *Journal of Public Health in Africa 8*:717. https://doi.org/10.4081/jphia.2017.717
8. Ameh, C. A., Kerr, R., Madaj, B., et al. 2016. Knowledge and skills of healthcare providers in sub-Saharan Africa and Asia before and after competency-based training in emergency obstetric and early Newborn Care. *PLoS ONE 11*.12:. https://doi.org/10.1371/journal.pone.0167270
9. Du, S., Cao, Y., Zhou, T., Setiawan, A., Thandar, M., Koy, V., … Hu, Y. 2019. The knowledge, ability, and skills of primary health care providers in SEANERN countries: A multi-national cross-sectional study. *BMC Health Services Research 19*.1:1–8. https://doi.org/10.1186/s12913-019-4402-9
10. Aluko, J. O., Anthea, R., and Marie Modeste, R. R. 2019. Manpower capacity and reasons for staff shortage in primary health care maternity centres in Nigeria: A mixed-methods study 11 Medical and Health Sciences 1117 Public Health and Health Services. *BMC Health Services Research 19*.1:1–16. https://doi.org/10.1186/s12913-018-3819-x
11. Njelita, A.I., Ikani, A.P., Eyisi, G.I., et al. 2023. Ward Health System in Nigeria: Are Health Workers in the Local Government Areas Well Informed? *American Journal of Public Health Research*. https://doi.org/10.12691/ajphr-11-2-1
12. Ajisegiri, W. S., Peiris, D., Abimbola, S., et al. 2022. It is not all about salary: A discrete-choice experiment to determine community health workers' motivation for work in Nigeria. *BMJ Global Health 7*.10:. https://doi.org/10.1136/bmjgh-2022-009718
13. Tallam, E. C., Kaura, D., and Mash, R. 2022. Self-perceived competency of midwives in Kenya: A descriptive cross-sectional study. *African Journal of Primary Health Care and Family Medicine 14*.1:1–9. https://doi.org/10.4102/PHCFM.V14I1.3477
14. Esan, O., Fatusi, A., and Ojo, T. 2019. The knowledge versus self-rated confidence of facility birth attendants concerning maternal and newborn health skills: The experience of Nigerian primary healthcare facilities. *Malawi Medical Journal 31*.3:214–222. https://doi.org/10.4314/mmj.v31i3.8
15. Banke-Thomas, A., Wong, K. L. M., Collins, L., et al. 2021. An assessment of geographical access and factors influencing travel time to emergency obstetric care in the urban state ofLagos, Nigeria. Health Policy Plan, 36(9): 1384–1396.