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Provision of emergency obstetric care: Midwives' knowledge and involvement in rural health facilities of Cross River State, Nigeria

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Abstract:

BACKGROUND: Maternal Mortality (MM) in Nigeria is greatest in rural regions where access to emergency obstetric care (EmOC) services is hampered by a number of circumstances. Delay in obtaining prompt and proper care in obstetric emergency situations is a significant factor in poor mother outcomes. It is based on this premise that the researchers examined midwives' knowledge and involvement regarding provision of emergency obstetric care in rural health facilities of Cross River State.

MATERIALS AND METHODS: The study adopted a cross-sectional descriptive design; a total population study of all ninety-four midwives who worked in maternal health care facilities in rural areas of CRS was utilised. Cross River state is a state in the South-South geopolitical zone of Nigeria, named after the Cross River, which passes through the state, located in the Niger Delta and occupies 20,156 square kilometers. A self-developed and validated questionnaire was used for data collection. The instrument was pre-tested for reliability and result showed the reliability index ranging from 0.70 to 0.82. Quantitative data collected was analysed using Pearson product moment correlation test at 0.05 level of significance.

RESULTS: The research findings revealed midwives' level of knowledge on emergency obstetric care in rural health facilities of CRS was significantly high, majority of the participants had provided some aspects of essential emergency obstetric care. The result of hypotheses revealed a significant relationship between knowledge and provision of EmOC amongst the midwives ($P < .05$).

CONCLUSION: Based on this, it was recommended that appropriate strategies such as on the job training, supportive supervision, refresher training and mentorship should also be ensured to enhance midwives' capacity in emergency obstetric care. Finally, there is need for Community involvement/enlightenment, motivating traditional birth attendants and integrating them into maternal health care system.

Keywords:

Emergency obstetric care, midwives, provision, knowledge and involvement

Introduction

According to the United Nations Population Fund,^[1] maternal mortality is the world's biggest cause of death among women between the ages of 15 and 49. According to a report on trends in maternal

UNFPA mortality from 2000 to 2017 by the World Health Organization (WHO), United Nations Children's Fund (UNICEF), World Bank Group, and the United Nations Population Division, an estimated 295,000 women worldwide died in 2017 from conditions related to pregnancy and childbirth^[2] According to WHO,

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this is unacceptably high and concerning because the great majority of these deaths (94%) happened in low-resource settings despite the fact that most of them could have been avoided.^[3] At the sub-regional level, Sub-Saharan Africa and Southern Asia were responsible for over 86% (254,000) of the projected global maternal fatalities in 2017; Sub-Saharan Africa alone was responsible for almost 2/3 (196,000) of these deaths, while Southern Asia was responsible for 1/5 (58,000).^[4] South Sudan, Somalia, the Central African Republic, Yemen, Syria, Sudan, the Democratic Republic of the Congo, Chad, Afghanistan, Iraq, Haiti, Guinea, Zimbabwe, Nigeria, and Ethiopia were among the 15 countries listed on the Fragile States Index as being on “very high alert” or “high alert” as fragile States, and their MMRs in 2017 ranged from 31/100,000 (Syria) to 1150/100,000 (South Sudan). Maternal mortality rates is the number of maternal deaths during pregnancy, labour and puerperium during a given time period per 100,000 live births during the same time period.^[5] These differential rates demonstrate disparities in access to high-quality healthcare and emphasize the wealth disparity.^[6] According to UNICEF,^[6] Nigeria is one of the countries that contribute the most (14%) to the worldwide maternal mortality rate, with a woman’s probability of dying during pregnancy and delivery being 1 in 13. The mortality rate for Nigeria is 830 deaths per 100,000 live births, according to a joint report by UNICEF, WHO, United Nations Population, UNFPA, and the World Bank.^[7] With this period’s mortality rate being among the highest in the world, 58,000 women each year pass away from completely avoidable obstetric causes.^[3] Assessments metrics, such as the MMR of 2000/100,000 live births, show that Cross River State’s health condition and service delivery performance measures are not sufficient. Under-five mortality rate was 176/1,000 live births, and 41.3% of newborns had skilled attendance.^[5] Maternal mortality is a concern since some of these complications are very hard to foresee, although^[8] estimates that around 15% of all pregnancies will result in unexpected consequences. As stated in Sustainable Development Goal 3, a concerted effort must be made at every level of the health system to reduce MMR to a worldwide average of less than 70 maternal deaths per 100,000 live births by 2030.^[9] According to WHO,^[10] five direct causes, including hemorrhage, obstructed labor, eclampsia, sepsis, and botched abortion, account for two thirds of all maternal fatalities globally. Several of these problems will be deadly if immediate obstetric procedures are not made.

In order to do this, it is widely agreed that part of making pregnancy and delivery safer is ensuring that women who have obstetric difficulties receive prompt emergency obstetric treatment when necessary. According to Ebuehi, Chinda, Sotunde and Oyetoyan,^[11]

fighting maternal mortality and morbidity necessitates policies and political commitments, strategy design and execution, and enhanced health care service delivery and administration. A mother dies from a pregnancy or childbirth-related issue globally every two minutes, despite the fact that the international community pledged in Nairobi, Kenya, to undertake the Safe Motherhood Initiative, over 25 years ago.^[12]

All participating nations reportedly agreed to include emergency obstetric care (EmOC) services within their national healthcare systems, according to.^[13] The term “emergency obstetric care” refers to procedures that target the main causes of maternal fatalities in order to provide life-saving services. Parenteral antibiotics, uterotonic medicines, parenteral anti convulsants, manual placenta removal, removal of retained fetuse products, aided vaginal birth using vacuum or forceps, blood transfusion, and caesarean section are examples of EmOC procedures or signal functions.^[12-14] WHO, UNICEF^[15] said that many women in underdeveloped countries do not have access to vital health care services including emergency obstetric care. Maternal fatalities and impairments can be dramatically decreased with basic emergency obstetric care provided by trained birth attendants and prompt referral for further comprehensive emergency obstetric treatment. Evidence suggests that if all women had access to therapies for addressing difficulties that emerge during pregnancy, delivery, and postpartum, the majority of maternal fatalities that occur in underdeveloped countries may be decreased. The importance of emergency obstetric care (EmOC) in lowering maternal mortality is further supported by this research.^[14-16]

According to research, there is a chance that a kid will die for every mother death, as well as an increase in child labor, disease, starvation, social isolation, and poor cleanliness.^[8,9] The family unit might break apart and reassemble, and there can be decreased output and productivity. In addition, “an estimated 15 to 30 women suffer from chronic diseases or injuries as a result of their pregnancies for every woman who dies”.^[11] As almost all of these lives could be saved if cheap, high-quality maternity care was provided around-the-clock, every day of the week, all of these fatalities could have been avoided. In light of this, the researcher concludes that offering emergency obstetric care is a crucial component of preventing maternal death. Although emergency obstetric care services may not be sufficient in Cross River State, those that are offered are likely under used as a result of the social, cultural, economic, political, and other obstacles that women with obstetric difficulties must overcome. The study used the Donabedian Model of Quality and the Three Delay Model. The “three delays” model, which

Maine developed in 1993, illustrates the responsibilities played by communities and the healthcare system in the utilization of emergency obstetric care. The model contends that decisions like seeking assistance, getting to a facility for treatment, and obtaining appropriate care all have an impact on how an obstetric emergency turns out. But, “Delay Three,” or “getting proper treatment once in a health facility,” is where this research places the bulk of its attention. The treatment a lady receives once she enters a medical facility is the subject of delay number three.^[17] Similar to this, the Donabedian model is a conceptual framework for analyzing health services and assessing the caliber of medical care. The model proposes that data on care quality may be derived from three categories: “structure,” “process,” and “outcomes.” A facility’s capacity to offer high-quality EmOC services is investigated in this study through an analysis of midwives’ performance on signal functions related to health resources, personnel, equipment, supplies, and critical medications. Consequently,^[11,16] contend that the standard of care will be compromised if the midwife at a facility cannot identify a condition that calls for an emergency response. The tragedy is made worse if these problems are known about but no one has the expertise and skills to act. The referral hospitals need to be reinforced to offer supplies, equipment, necessary medications, and blood transfusions supplied by competent personnel at all hours in order to provide Emergency Obstetric Care (EmOC). Its goal is for all pregnant women, regardless of poverty, to have access to woman-centered obstetric care that serves as a safety net in the event of an obstetric emergency; as a result, it is critical to mobilize resources to fight maternal mortality. To accomplish SDG 3.1, which aims to lower the global maternal death ratio to less than 70 per 100,000 live births by 2030, the health facilities and systems must be enhanced. Conscientious efforts have been made globally by International Agencies to reduce the unacceptably high maternal mortality over decades by putting in place appropriate strategies/interventions to curb this menace. In Cross River State, these efforts have been intensified by both Government and Partners; capacities of healthcare providers have been built on EmOC services. National standards and guidelines on the management of women with emergency obstetric complications have been published and widely disseminated throughout the Government hospitals and other health facilities across the State. However, one of the major contributors to poor maternal outcome which is the “third delay” that is, delay in receiving timely and appropriate care during obstetric emergency condition has been a relatively neglected area of study^[16] Not much has been done on assessing quality of care by systematically comparing set of criteria against performance. Such information is necessary because it will identify critical functions that are not performed and could inform quality improvement efforts. Furthermore,

there is paucity of information from the providers’ perspectives regarding the care they render in obstetric emergency and the challenges experienced in the course of providing this care. Therefore, this study is imperative to explore the experiences and involvement of midwives in the care rendered to women who suffer emergency obstetric complications in comparison to the National management guidelines, considering the fact that these are the major causes of maternal deaths worldwide. The information generated from this study is expected to help strengthen weak areas and performance gaps in the provision of emergency obstetric care by midwives. This knowledge might also help to improve planning, organization and implementation of obstetric care in health facilities in Cross River State. By identifying and examining the type of treatment given to women with urgent obstetric difficulties in the rural health facilities of Cross River State, this study therefore is an attempt to contribute to knowledge in the reduction of MMR through identifying and exploring the nature of care rendered to women with emergency obstetric complications in the rural health facilities of Cross River State. There is little or no documentation of how midwives in Cross River State recognize and manage obstetric emergencies when these occur; hence the main focus of the study is to explore the experience and involvement of midwives in the provision of EmOC.

Materials and Methods

Study design and setting

This study extended to all midwives providing Maternal Newborn and Child Services in rural health facilities in Cross River State, analyzing their proportion trained on EmOC and their current knowledge regarding EmOC, A cross – sectional descriptive design was adopted using quantitative methods and a purposive sampling technique was used to select the sample.^[18]

Study participation and sampling

The target population consisted of all Midwives working in rural health facilities of Cross River State totaling –94. Given that the total population of midwives working at the time of this study in only maternity units of Secondary health facilities in Akamkpa (12), Akpabuyo (6), Biase (6), Yakurr (10), Abi (6), Obubra (8), Ikom (10), Ogoja (15), Obudu (6), Obanliku (6) and Yala (9), Cross River State, known as rural health facilities in the present study was only ninetyfour (94) the total population of the midwives was used in the quantitative study.

The inclusion criteria include; Midwives who were licensed to practice, midwives that have worked in the unit for more than six (6) months. Midwives who are involved in the provision of care to obstetric patients (both who worked on full time basis and those

who went on a 24hour call for management of patients with obstetric complications). While the exclusion criteria were midwives working in other departments other than the maternity unit, midwives that were less than six (6) months in the unit. Those without current practicing licenses and Midwives who did not consent to participate in the study.

Data collection tool and technique

Questionnaire: Quantitatively, questionnaire was the main instrument for data collection. A questionnaire is a set of systematically structured questions used by a researcher to get needed information from respondents. According to Polits and Becks (2010) questionnaires are any written instruments that presents respondents with a series of questions or statements to which they are to react, either by writing out their answers or selecting from among existing answers. The questionnaire may be self-administered, posted or presented in an interview format. It is the main data collection in surveys and yield to quantitative data. In this study, a self-structured questionnaire was utilized and comprised three (3) sections. Sections A, B and C that was administered face-to-face to the respondents. Section A – provided information on the socio-demographic characteristics of midwives. Section B – consisted of 19 yes/no questions on midwives' knowledge regarding Emergency Obstetric Care. Section C- consisted of 10 Likert type questions on always/sometimes/never information on provision of EmOC by midwives. Content validity was ascertained by experts in psychometrics who were proficient in quantitative research to ensure it was in line with the research objectives and questions. The instrument was pre-tested for reliability and result showed the reliability index ranging from 0.70 to 0.82. Data was organized and analyzed using the Statistical Package for Social Sciences (SPSS) version 21.0; while Pearson product moment correlation coefficient was used to ascertain the relationship between knowledge and provision of Emergency Obstetric Care among midwives.

Ethical declaration

A letter of introduction was obtained from the Department of Nursing Science, University of Calabar. Ethical approval obtained from the Cross River State Research and Ethical Board, domiciled in Ministry of Health Headquarters, Calabar. The research process was strictly adhered to the ethical guidelines and protocols from these institutions and following the Declaration of Helsinki. Informed consent was also sought for and obtained from the Heads of Nursing services in the secondary health facilities and the midwives working in the facilities before the initial data collection. Participation was voluntary. The information obtained from the respondents was kept confidential. The research questions were developed in such a way

as would be easily understood by the respondents, no invasive questions were asked and participation was not mandatory, respondents who declined were not coaxed. Midwives from tertiary health facilities were used during pretesting of the instrument. The result of the findings was duly disseminated to the midwives so as to improve the quality of EmOC provision and the midwives level on knowledge on EmOC.

Results

Table 1 showed that among 94 participants in the study, 23 (24.5%) were between the age range of 25 and 34 years and 28 (29.8%) were between the age categories of 35 and 44 years, while the majority (43,45.7%) were between the age category of 45 years and above. The majority (87,92.6%) of the study participants were female midwives, while only (7,7.4%) were male midwives. Educational qualification of study participants revealed 10 (10.6%) participants obtained an RN certificate, only one (1) participant representing 1.1% obtained RM certificate, 74 (78.7%) participants had obtained RN/RM certificate, while 9 (9.6%) participants obtained the B.N.Sc certificate. Additionally, data revealed that 36 (38.3%) participants had 0–10 years of working experience, whereas 20 (21.3%) participants had worked between 11 and 20 years; the majority (28,29.8%) participants had worked between 21 and 30 years, while only 10 (10.6%) had worked between 31 years and above. Data on

Table 1: Showing demographic characteristic

| Characteristics | Response option | Frequency | Percentage |
|-----------------------------|--------------------|-----------|------------|
| Age | 25–34 years | 23 | 24.5 |
| | 35–44 years | 28 | 29.8 |
| | 45 years and above | 43 | 45.7 |
| | Total | 94 | 100.0 |
| Sex | Males | 7 | 7.4 |
| | Females | 87 | 92.6 |
| | Total | 94 | 100.0 |
| Educational Qualification | RN | 10 | 10.6 |
| | RM | 1 | 1.1 |
| | RN/RM | 74 | 78.7 |
| | B.N.Sc. | 9 | 9.6 |
| | Total | 94 | 100.0 |
| Years of working experience | <10 years | 36 | 38.3 |
| | 11–20 years | 20 | 21.3 |
| | 21–30 years | 28 | 29.8 |
| | 31 years and above | 10 | 10.6 |
| | Total | 94 | 100.0 |
| Current unit of practice | ANC | 24 | 25.5 |
| | Labor ward | 52 | 55.3 |
| | Postnatal ward | 13 | 13.8 |
| | Theatre | 5 | 5.3 |
| | Total | 94 | 100.0 |
| Training in EMOC | Yes | 39 | 41.5 |
| | No | 55 | 58.5 |
| | Total | 94 | 100.0 |

practicing current unit revealed 24 (25.5%) participants were in the ANC section, 52 (5.35%) participants were in the labor ward, 13 (13.8%) participants were in the postnatal ward, while only 5 (5.3%) participants were in the theater. Data further revealed that only 39 (41.5%) participants had been trained on EmOC, while the majority 55 (58.5%) participants had not been trained on EmOC.

Research question one

What proportions of midwives have received training on emergency Obstetric care in rural health facilities of Cross River State?

Figure 1 showed that among the 94 midwives who participated in the study, 39 (41.5%) participants had received training in EmOC, while 55 (59.5%) had no training in EmOC.

Research question two

What is the level of knowledge regarding Emergency Obstetric care among midwives in rural health facilities of Cross River State?

Table 2 revealed that among the 94 participants in the study, the majority (81,86.2%) agreed that rapid initial assessment should be carried out on all women of childbearing age who present with a problem, while 13 (13.8%) disagreed to the statement. In a similar vein, 56 (59.6%) participants agreed to the statement that a woman who suffers shock as a result of an obstetric emergency may have a fast and weak pulse, while only 38 (40.4%) disagreed to the above statement. The majority (59,62.8%) agreed that a woman who has a ruptured ectopic pregnancy usually presents with collapse and weakness, while 35 (37.2%) disagreed with the statement. The majority (65,69.1%) agreed that pregnant woman who has severe anemia typically presents with difficulty in breathing and wheezing, while 29 (30.9%) disagreed to the above statement. In managing bleeding during pregnancy and labor,

60 (63.8%) participants agreed that management of inevitable abortion when the pregnancy is greater than 16 weeks usually involves the administration of ergometrine or misoprostol, while 34 (36.2%) participants disagreed to the above statement. The majority (61,64.9%) affirmed the use of manual vacuum aspiration (MVA) as an effective method for treatment of incomplete abortion if the uterine size is not greater than eight weeks, while only 33 (35.1%) disagreed to the above statement. In response to the assessment of vaginal bleeding, 52 (55.3%) participants agreed that the assessment of a woman who presents with vaginal bleeding after 22 weeks of pregnancy should be limited to abdominal examination, while 42 (44.7%) said no. The majority (76,80.9%) participants agreed that postpartum hemorrhage is defined as sudden bleeding after childbirth, while only 18 (19.1%) participants disagreed to the above statement. In a similar way, 55 (58.5%) participants agreed that if bleeding is heavy in the case of abruptio placentae and the cervix is fully dilated, delivery should be assisted by vacuum extraction, while 39 (42.5%) participants thought otherwise. Seventy-one (75.5%) participants agreed that continuous slow bleeding or sudden bleeding after childbirth requires early and aggressive intervention, while only 23 (24.5%) participants disagreed to the above statement. The rest of the participants responses are as reflected in Table 2 above. However, transformed data reveal that 63 (67.0%) participants had good knowledge, while 31 (33.0%) had poor knowledge Figure 2: Bar chart showing the level of knowledge.

Among the 94 midwives who participated in the study, as shown in Figure 2, the majority (63,67.0%) had a good level of knowledge of EmOC, while 31 (33.0%) had poor knowledge.

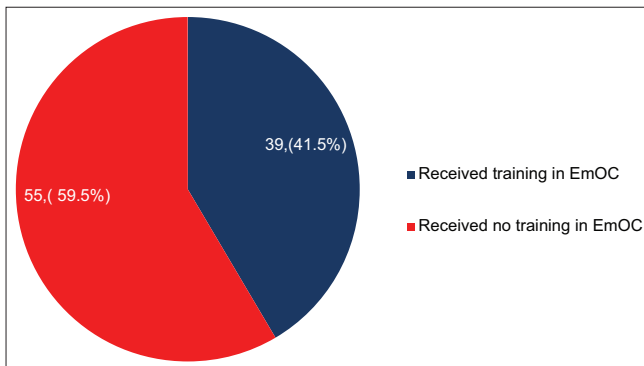


Figure 1: Pie chart showing a summary of the number of midwives who received training in EmOC

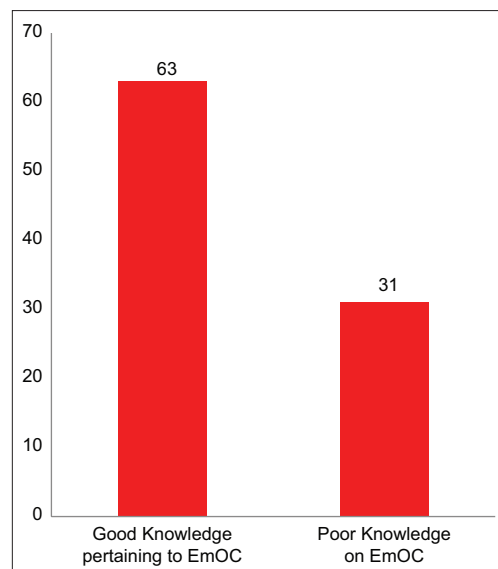


Figure 2: Bar chart showing a summary of level of knowledge

Table 2: Showing the level of knowledge regarding EmOC amongst midwives

| S/N | Items | Yes | % | No | % | Grand Total |
|---|---|-----|------|----|------|-------------|
| General knowledge of midwives regarding pregnancy complications | | | | | | |
| 1. | Rapid initial assessment should be carried out on all women of childbearing age who present with a problem. | 81 | 86.2 | 13 | 13.8 | |
| 2. | A woman who suffers shock as a result of an obstetric emergency may have a fast, weak pulse. | 56 | 59.6 | 38 | 40.4 | |
| 3. | A woman who has a ruptured ectopic pregnancy usually presents with collapse and weakness. | 59 | 62.8 | 35 | 37.2 | |
| 4. | A pregnant woman who has severe anemia typically presents with difficulty in breathing and wheezing. | 65 | 69.1 | 29 | 30.9 | |
| Bleeding during pregnancy and labor | | | | | | |
| 5. | Management of inevitable abortion when the pregnancy is greater than 16 weeks usually involves the administration of ergometrine or misoprostol. | 60 | 63.8 | 34 | 36.2 | |
| 6. | Manual vacuum aspiration (MVA) is an effective method for the treatment of incomplete abortion if the uterine size is not greater than eight weeks. | 61 | 64.9 | 33 | 35.1 | |
| 7. | Assessment of a woman who presents with vaginal bleeding after 22 weeks of pregnancy should be limited to an abdominal examination. | 52 | 55.3 | 42 | 44.7 | |
| Bleeding after childbirth | | | | | | |
| 8. | Postpartum hemorrhage is defined as sudden bleeding after childbirth. | 76 | 80.9 | 18 | 19.1 | |
| 9. | If bleeding is heavy in the case of abruptio placentae and the cervix is fully dilated, delivery should be assisted by vacuum extraction. | 55 | 58.5 | 39 | 42.5 | |
| 10. | Continuous slow bleeding or sudden bleeding after childbirth requires early and aggressive intervention. | 71 | 75.5 | 23 | 24.5 | |
| 11. | Absent fetal movements and fetal heart sounds, together with intra-abdominal and/or vaginal bleeding and severe abdominal pain, suggest a ruptured uterus. | 60 | 63.8 | 34 | 36.2 | |
| Management of the third stage of labor | | | | | | |
| 12. | Active management of the third stage of labor should be practiced not only on women who have a history of postpartum hemorrhage. | 70 | 74.5 | 24 | 25.5 | |
| 13. | If a retained placenta is undelivered after 30 minutes of oxytocin administration and controlled cord traction and the uterus is contracted, controlled cord traction, and fundal pressure should be attempted. | 44 | 46.8 | 50 | 53.2 | |
| 14. | If the cervix is dilated in the case of delayed (secondary) postpartum hemorrhage, dilatation and curettage should be performed to evacuate the uterus. | 70 | 74.5 | 24 | 25.5 | |
| 15. | Hypertension in pregnancy can be associated with protein in the urine, diastolic blood pressure of 90mm Hg or more after 20 weeks gestation and proteinuria of 2+or more. | 78 | 83.0 | 16 | 17.0 | |
| 16. | The presenting signs and symptoms of eclampsia include convulsions, Headaches, blurred vision, convulsions, loss of consciousness, or elevated blood pressure | 76 | 80.9 | 18 | 19.1 | |
| 17. | A pregnant woman who is convulsing should be protected from injury by moving objects away from her. | 79 | 84 | 15 | 16 | |
| 18. | The management of mild pre-eclampsia should include sedatives and tranquilizers. | 55 | 58.5 | 39 | 42.5 | |
| 19. | The drug of choice for preventing and treating convulsions in severe pre-eclampsia and eclampsia is diazepam. | 43 | 45.7 | 51 | 54.3 | |

Research question three: To what extent do midwives in rural health facilities of Cross River State provide emergency obstetric care?

The result in Table 3 on the extent to which midwives provide emergency obstetric care revealed that 5558.5% participants affirmed the presence of obstetric protocol in the facilities always, 34 (36.2%) participants do not have an obstetric protocol at all times, while 5 (5.3%) never had an obstetric protocol in their facilities. Similarly, the majority (53,56.4%) affirmed the use of partograph routinely in the monitoring of labor, 33 (35.1%) participants sometimes monitor labor using partograph, whereas 8 (8.5%) do not monitor labor with partograph. The majority 85 (90.4%) agreed to the administration of IM/IV oxytocics in the management of 6 (6.4%) said they sometimes did, but 3 (3.2%) never did. Postpartum hemorrhage is a blood loss of more than 500ml, following

vaginal delivery or more than 1000ml, following cesarean delivery, it can be primary and secondary and it is one of the leading causes of maternal mortality in Nigeria. The most common causes of postpartum hemorrhage include: loss of tone in the uterine muscles, uterine trauma, blood clotting condition (thrombin) and retained placental tissue. Symptoms include vaginal bleeding that does not slow or stop. This can lead to a drop in blood pressure. The treatment often includes uterine massage and medication or repairing of vaginal, cervical or uterine tears or lacerations. In rare cases, blood transfusion, removal of retained placental tissue from the uterus or a hysterectomy may be required. In reference to the administration of IM/IV anticonvulsant in the management of pre-eclampsia and eclampsia, 56 (59.6%) participants agreed to the above statement at all times, 30 (31.9%) sparingly administered, while

Table 3: Provision of emergency obstetric care by midwives in rural health facilities of Cross River State

| S/N | Provision of EmOC services in the last six months prior to study | Provision of EmOC by midwives | | | | | |
|-----|--|-------------------------------|------|------------|------|-------|-----|
| | | Always | % | Some times | % | Never | % |
| 21. | Have an obstetric protocol in the facility | 55 | 58.5 | 34 | 36.2 | 5 | 5.3 |
| 22. | Use partograph routine? | 53 | 56.4 | 33 | 35.1 | 8 | 8.5 |
| 23. | Administration of IM/IV oxytocics | 85 | 90.4 | 6 | 9.4 | 3 | 3.2 |
| 24. | Administration of IM/IV anticonvulsant | 56 | 59.6 | 30 | 31.9 | 8 | 8.5 |
| 25. | Manual removal of retained products of conception | 49 | 52.1 | 36 | 38.3 | 9 | 9.6 |
| 26. | Assisted vaginal delivery | 68 | 72.3 | 20 | 21.3 | 6 | 6.4 |
| 27. | Post-abortion care | 58 | 61.7 | 29 | 30.9 | 7 | 7.4 |
| 28. | Administration of IM/IV antibiotics | 66 | 70.2 | 22 | 23.4 | 6 | 6.4 |
| 29. | Use of anti-shock garment | 61 | 64.9 | 28 | 29.8 | 5 | 5.3 |

8 (8.5%) never. The majority 49 (52.1%) agreed to have provided care on manual removal of retained products of conception at all times the need arises, 36 (38.3%) said they tried the provision of this care a few times, whereas 9 (9.6%) of the study participants have never attempted manual removal of retained products of conception. Similarly, 68 (72.3%) participants had provided care on assisted vaginal delivery for prolonged labor, 20 (21.3%) said they did provide such care only a few times in the last six months and 6 (6.4%) have never provided such care. The majority 58 (61.7%) affirmed always providing care in respect of post-abortion care, 29 (30.9%) said they attempted this procedure sometimes on a few patients, whereas 7 (7.4%) never attempted this lifesaving procedure on patients with incomplete abortion. The majority 66 (70.2%) attested to having administered IM/IV antibiotics on all patients with infection within the last six months before this study, 22 (23.4%) said sometimes they did, while 6 (6.4%) have not. Similarly, the majority 61 (64.9%) affirmed the use of anti-shock garments for all women with PPH to prevent hypovolemic shock within the last six months, 28 (29.8%) sparingly had provided this care, whereas 5 (5.3%) never did.

Conclusively, the majority 61 (64.9%) participants had always provided signal functions to all women with any form of an obstetric emergency, 28 (29.8%) sometimes provided some signal functions to a few women with an obstetric emergency, while 5 (5.3%) participants had never provided EmOC [Figure 3].

Hypothesis testing

There is no significant relationship between knowledge and provision of emergency obstetric care among midwives in rural health facilities of Cross River State.

The result in Figure 4 showed that the calculated *r*-value of 0.50 representing the observed relationship between knowledge and provision of emergency obstetric care among midwives in rural health facilities was significant at $P < .05$ level of significance. With this result, the null hypothesis was rejected. This, therefore, implies that

there is a significant positive relationship between knowledge and provision of emergency obstetric care among midwives in rural health facilities in Cross River State.

Discussion

Reducing maternal morbidity and death continues to be the only surefire way to improve health outcomes in poor nations, including Nigeria as a whole. Yet in order to achieve this aim of bettering health outcomes, all medical experts, including midwives, who may be the only medical practitioners that pregnant women ever see, must work together.

Midwives' level of knowledge on emergency obstetric care in rural health facilities of Cross River State

While the majority of respondents, 63 (67.0%), had a strong level of understanding of emergency obstetric care, the findings in Table 2 and Figure 2 showed that midwives' level of knowledge on EmOC in rural health care was considerably high. In a similar vein, the qualitative component showed that participants had a strong awareness of EmOC. The knowledge of midwives may be subordinate to that learned in training programs and from practical experience. This concurs with research,^[11] which claimed that midwives in Rivers State, Nigeria's Rural Health system, had high awareness of obstetric problems and had a good understanding of obstetric issues in general. The standard and success of obstetric treatment are also significantly influenced by one's understanding of EmOC. A startling 91% of primary and secondary level obstetric care providers in Osun and Ekiti States of Nigeria, in contrast to,^[19] had inadequate knowledge of the concept of EmOC and continued to place more importance on the expansion of routine antenatal care services than EmOC despite a current paradigm shift occurring globally. In addition, this study's quantitative and qualitative components show participants' understanding of common obstetric issues such as protracted labor, postpartum hemorrhage,

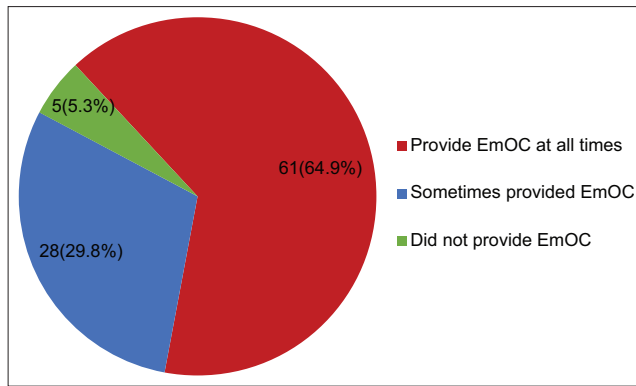


Figure 3: Pie chart showing a summary on provision of EmOC

and pregnancy-induced hypertension. This was comparable to^[11] who said that postpartum hemorrhage, pregnancy-induced hypertension, and prolonged labor are common obstetric problems in River State.

The extent to which midwives in rural health facilities in Cross River State provide emergency obstetric care

The majority of study participants, 61 (64.9%), had provided necessary emergency obstetric care in their respective settings of healthcare, according to study findings in Table 3 and Figure 3. This finding may be attributable to EmOC training that some study participants received as well as work experiences gained while participating in the study. This finding is consistent with,^[11] which shows that providing emergency obstetric care (EmOC) can significantly lower MM by providing lifesaving interventions for potentially fatal obstetric complications. This finding emphasizes the need to make sure that the full range of signal functions is available in health facilities designated to provide EmOC in rural health facilities and improve the quality of services offered so that maternal morbidity and mortality are reduced. This result contrasted with that of^[20] Zimbabwe, which claimed that just 26.1% of the hospitals met the requirements for EmOC.

In addition, some midwives were unable to perform certain essential EmOC care in the six months before this research, including physical removal of retained products of conception.

This result was consistent with a national study^[21] on basic emergency obstetric care and prenatal care offered at primary healthcare institutions in rural Nigeria, where midwives were not performing the majority of the key tasks. In a similar vein,^[22] found that an estimated 15% of pregnant women who experience pregnancy difficulties lack access to high-quality emergency obstetric treatment, which increases the rate of preventable MM.

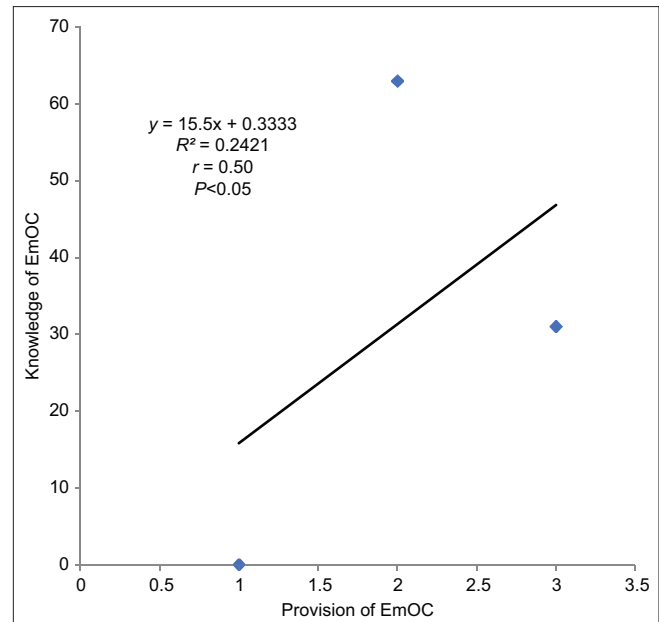


Figure 4: Showing correlation analysis between knowledge and provision of EmOC

Relationship between knowledge and provision of emergency obstetric care among midwives in rural health facilities in Cross River State

Research findings in Figure 4 demonstrated a strong association between knowledge and supply of EmOC. This is accurate in that people in professions like midwives frequently put their training into practice. The results showed that the calculated r -value of 0.50 representing the observed relationship between knowledge and the provision of emergency obstetric care among midwives in rural health facilities was significant at P . 05 level of significance. However, transformed data revealed that 63 (67.0%) participants had good knowledge. Research suggests that knowledge and the provision of emergency obstetric care among midwives in rural health institutions in Cross River State are significantly positively correlated.

This finding contrasts with that of,^[23-25] who claimed that women who experienced major obstetric complications were not managed in accordance with established National management guidelines, and that this is secondary to midwives' lack of knowledge affecting the quality of care provided. Ebuehi *et al.*^[11] similarly asserted that knowledge of EmOC is an important determinant of the quality and outcome of obstetric care. Ijadunola *et al.*,^[19] also confirmed that midwives' expertise in emergency obstetric care is required to treat potentially life-threatening, direct obstetric issues for the best performance in handling pregnancy-related complications.

Limitations and suggestions

The study was limited to only rural health facilities in

Cross River State; the findings cannot be generalized to other health facilities in the area. Also, the sampling technique could also limit the generalization of the study findings since the researchers draw the sample based on convenience and not equal probability, and this could lead to sampling bias. The researchers suggest a similar study to be conducted in secondary and tertiary health facilities in the state for comparison.

Implications of this study to midwifery practice

Ensuring that the 15% of women who encounter severe obstetric difficulties receive adequate and prompt emergency obstetric treatment is one way to make pregnancy and delivery safer. Also, the assessment of reproductive health and its promotion in women can reduce injuries and mortality and promote the level of health in a society.^[26,27] The results of this study suggest that, particularly in Cross River State, progress toward lowering maternal death may fall short of the goals set by SDG 3.1, which calls for a reduction in the worldwide MM ratio to fewer than 70 per 100,000 live births by 2030. Due to structural constraints in delivering emergency obstetric care, there are unmet needs at the site of service delivery that prevent women who encountered serious obstetric problems from receiving the proper care. They include, but are not limited to, a lack of human resources, which is acknowledged as a significant impediment to achieving desired objectives in relation to providing effective and prompt emergency obstetric treatment. As there are so few midwives and they are frequently overworked, they are less able to provide high-quality emergency obstetric care.

Comparable institutional constraints that limit midwives' capacity to provide emergency obstetric care include a lack of training, encouraging supervision, mentorship, and the absence of needed emergency obstetric medications, supplies, and equipment. In order to achieve the intended effects in MM reduction through the supply of EMOC, these disparities among EmOC drivers should be addressed.

It is crucial to inform the government of the study's results, particularly with regard to the recruitment, education, and retention of qualified midwives in rural health facilities and the enhancement of health sector financing. This is crucial in resolving the infrastructural problems that plague the maternal health system and improving the services provided to mothers. These and other healthcare changes cannot be put into effect without enough money.

Conclusion

Although midwives' knowledge of emergency obstetric care in CRS's rural health institutions was considerably high, the study indicated that not all participants

participated in or delivered all components of emergency obstetric care that were necessary. On-the-job training, supportive supervision, refresher training, and mentorship are all empowerment strategies to improve midwives' abilities in providing emergency obstetric care in the rural health facilities of CRS. Whereas years of working experience had no significant relationship with the provision of EmOC among midwives, training of midwives on EmOC had a positive relationship with the provision of all aspects of EmOC.

Recommendations

Based on the findings, the following recommendations were made.

To guarantee adequate and effective treatment, it is important to deploy and educate the appropriate number and mix of available midwives in emergency obstetric care, as advised by the WHO.

The provision of timely and effective emergency obstetric care requires the use of appropriate tactics, such as on-the-job training, supportive supervision, refresher training, and mentorship.

Make sure that supplies, drugs, and equipment for the EmOC are available.

Data availability

The corresponding author will make any data produced during this investigation reasonably available upon request and will also include it in this journal.

Authors contribution

- Idang Neji Ojong: Introduction, methodology, data collection, and analysis
- Ruth Ita Ebong: Literature review and data collection
- Ekpoanwan Esienmoh: Methodology, data collection, and analysis
- Alberta David Nsemo: Review, data collection, and summary
- Victoria Kalu Uka: Data collection and recommendation
- All the authors read the manuscript.

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Conflicts of interest

The authors declare that they have no conflicts of interest

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