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Emergency Obstetric Care Services in Primary Healthcare Facilities: Healthcare Workers' Experiences and Clients' Satisfaction in Ilorin, Nigeria

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ABSTRACT

Background: Maternal mortality remains a major public health concern in Nigeria, often resulting from complications during pregnancy, childbirth, and the postpartum period. Access to quality emergency obstetric care is vital to reducing these deaths. ***Purpose:*** This study explored healthcare providers' experiences and clients' satisfaction with emergency obstetric care services at primary healthcare centres in Ilorin Metropolis, Kwara State, Nigeria. ***Methods*****:** A phenomenological qualitative design was employed. Data was collected through in-depth interviews with 17 healthcare workers and 3 focus group discussions involving 24 clients. Data was analyzed thematically using the Donabedian framework. ***Results:*** Despite challenges, such as inadequate staffing, limited equipment, and irregular drug supplies, healthcare providers demonstrated resilience in delivering emergency obstetric care services and ensuring timely referrals. Process-related barriers; particularly poor communication and long waiting times negatively influenced satisfaction, especially among referred clients. Those who received direct care at primary healthcare centres reported higher satisfaction. ***Conclusion*****:** Addressing human resource shortages, infrastructural deficits, and training gaps is crucial to improving emergency obstetric care quality and client satisfaction. Strengthening ongoing professional development and resource allocation will optimize care delivery. ***Implications for Nursing*****:** Nurses play a central role in emergency obstetric care services. Enhancing their training, work environment, and institutional support is vital to reducing maternal mortality and improving care outcomes.

Keywords: Emergency obstetric care, Primary healthcare centres, Maternal health, Client satisfaction, Healthcare providers' experiences, Donabedian framwor.

What does this paper add?

1. It provides an in-depth assessment of emergency obstetric care in primary healthcare facilities from both healthcare providers' and clients' perspectives.
2. It identifies systemic barriers, such as inadequate staffing, infrastructure, and referral systems that

impede quality emergency obstetric care delivery.
3. It highlights healthcare providers' resilience despite limited resources and reveals disparities in client satisfaction, with higher satisfaction among direct-care clients and lower satisfaction among referred clients.

Introduction

Low-and middle-income countries (LMICs) are disproportionately affected by maternal mortality, which remains a major worldwide health issue. Approximately 95% of maternal deaths occur in LMICs (Cagayan et al., 2022; Ekwuazi et al., 2023; Okonji et al., 2023). More than 87% (253,000) of maternal deaths globally occur in Sub-Saharan Africa and Southern Asia, with 69% of these deaths occurring in Africa alone (World Health Organization, 2023). One of the most severely impacted nations is Nigeria, which has one of the worst maternal mortality rates (MMR) in the world, with 1,047 deaths per 100,000 live births in 2020 (WHO, 2023). To combat this concerning trend, Nigeria adopted Emergency Obstetric Care (EmOC) in 1997 as an evidence-based strategy to reduce maternal and neonatal mortality (Otolorin et al., 2015). Despite this proactive intervention, maternal mortality rates have remained unacceptable, indicating that the full potential of EmOC services has not yet been realized (Cagayan et al., 2022; Okonji et al., 2023).

A study found that 182 (4.4%) of the 4,181 pregnant women who visited with obstetric emergencies eventually died; many of these deaths were believed to have been preventable with timely and effective EmOC interventions (Avoka et al., 2022; Belay et al., 2022). These long-lasting findings indicate significant flaws in the efficacy and quality of EmOC services. Contributing issues include inadequate infrastructure, a shortage of trained personnel, and limited access to essential drugs and supplies (Komolafe et al., 2021). Addressing these disparities is necessary to improve outcomes for mothers and newborns. Improving the delivery of EmOC services can improve patient satisfaction, reduce preventable mortality rates, and rebuild public trust in the healthcare system, particularly at the primary care level. This study, therefore, aims to:

1. explore the experiences of healthcare workers in the provision of emergency obstetric care services; and
2. describe clients' satisfaction with the emergency obstetric care services received in selected primary healthcare facilities in Ilorin, Nigeria.

Background

Primary healthcare (PHC) facilities constitute the foundation for the provision of maternal healthcare, particularly in settings with constrained resources. They must provide Basic Emergency Obstetric and Newborn Care (BEmONC), a set of seven life-saving signal functions. These include the following: administration of parenteral antibiotics, uterotonics for PPH, anticonvulsants for eclampsia; manual removal placenta; removal of retained products of conception; assisted vaginal delivery using vacuum extractors or forceps; and neonatal resuscitation using a bag and mask (Kebede et al., 2024; Komolafe et al., 2022; Pandey et al., 2023).

According to international standards, a primary healthcare centre (PHC) is classified as a functional Basic Emergency Obstetric and Newborn Care (BEmONC) facility if it has performed all seven essential signal functions at least once within the preceding three months (Alegado-Bagaoisan et al., 2022; Komolafe et al., 2022). Despite this benchmark, numerous PHCs in Nigeria fail to meet these criteria, a situation that is notably prevalent in urban settings, such as Ilorin, the capital city of Kwara State (Sampson et al., 2024).

Ilorin exemplifies a typical Nigerian urban centre where PHCs serve as critical access points for maternity care to a substantial population. Nevertheless, the effectiveness of emergency obstetric care (EmOC) services remains suboptimal in these facilities. Key challenges contributing to this limited impact include inadequate staffing, insufficient infrastructure, inconsistent availability of essential medications, and weak referral mechanisms (Jibril et al., 2024; Sampson et al., 2024). It is imperative to comprehensively evaluate the delivery and assessment of EmOC services at the PHC level to enhance maternal and neonatal outcomes.

Methods

Research Design

A phenomenological qualitative approach was employed to explore healthcare providers' experiences and clients' satisfaction with emergency obstetric care (EmOC) services at selected primary healthcare centers (PHCs). The study was guided by the Donabedian

framework, which structured analysis around three key components: structure, process, and outcome.

Study Setting

The study was conducted in the Ilorin Metropolis, comprising three Local Government Areas (LGAs): Ilorin-West, Ilorin-East, and Ilorin-South. Collectively, these LGAs have 53 PHCs providing essential Basic Emergency Obstetric and Newborn Care services (Local Government Service Commission, 2024).

Study Population and Sampling

The study included healthcare workers (HCWs): medical doctors, nurses/midwives, CHEWs, and CHOs working in selected PHCs, and mothers who delivered within three months (April-June 2024) attending infant welfare or immunization clinics. A multistage sampling technique was used: all three LGAs were included; one-third of wards in each LGA were randomly selected (4 in Ilorin-West, 2 in Ilorin-East, and 3 in Ilorin-South); and from each selected ward, one PHC with high client patronage was purposively chosen, yielding a total of nine PHCs for the study.

HCWs were eligible if licensed, employed ≥3 months, and involved in EmOC delivery. Mothers were purposively recruited for FGDs to provide relevant insights; those with infants older than three months were excluded.

Sample Size Determination

Data collection continued until data saturation was reached and when no new themes or insights emerged (Johnson et al., 2020). Seventeen (17) HCWs participated in IDIs, and 24 mothers participated in three FGDs.

Data Collection Tools and Procedure

In-depth interviews (IDIs) explored healthcare providers' experiences, roles, and challenges in delivering Emergency Obstetric Care (EmOC), while focus group discussions (FGDs) assessed mothers' satisfaction, perceptions of care quality, and suggestions for improvement. All interviews were conducted in private rooms within the PHC facilities. The IDIs lasted 20-30 minutes, whereas the FGDs lasted 40-60 minutes and included eight participants per session. The FGDs were conducted in Yoruba by the researchers. All sessions were audio- and video-recorded, photographed, and supplemented with detailed handwritten notes.

The development and implementation of the data collection tools followed the COREQ (Consolidated Criteria for Reporting Qualitative Research) guidelines to ensure comprehensive, transparent, and standardized qualitative data collection.

Data Management and Analysis

Interviews were transcribed verbatim, and thematic analysis was conducted systematically. The researchers familiarized themselves with the data through repeated readings of transcripts. Both inductive coding and deductive coding were applied to capture emerging insights and align findings with the study objectives. Related codes were grouped into subthemes and overarching themes reflecting key patterns, which were cross-checked by the research team to ensure credibility and analytical rigor. ATLAS.ti (version 7.1) was used to support qualitative analysis, while descriptive statistics summarized participants' sociodemographic and professional characteristics.

Ethical Considerations

Ethical approval was obtained from the University of Ilorin Ethical Review Committee (UERC/ASN/2024/2929). Administrative approval was granted by the authorities of the three LGAs. Written and verbal informed consents were secured from all participants. Participants were assured of confidentiality, voluntary participation, and their right to withdraw from the study at any point without any penalty. Facility names and identifiers were anonymized, and data access was restricted to the research team.

Rigor/Trustworthiness

The trustworthiness of this study was safeguarded through credibility, transferability, reliability, and confirmability. Credibility was sustained by accurately capturing the experiences of healthcare workers and clients, with transparency in data collection, informed consent, meticulous recording, triangulation of sources and methods, and member checking. Transferability was reinforced by purposively selecting diverse primary healthcare facilities and participants, collecting data until saturation to capture a wide range of experiences applicable to similar settings. Reliability was ensured through detailed documentation of procedures and inter-

coder checks to maintain consistency. Confirmability was achieved through transparent documentation, reflexivity to minimize bias, and participant validation of findings, ensuring that conclusions remained grounded in the participants' perspectives.

Results

A total of 17 healthcare workers (HCWs) participated in in-depth interviews (IDIs), and 24 mothers participated in three focus group discussions (FGDs). The HCWs included one medical doctor, five nurses/midwives, nine Community Health Extension Workers (CHEWs), and two Community Health Officers (CHOs), aged 22-57 years (mean = 43.6 years). Their professional experience ranged from 4 months to 33 years, and all of them were actively involved in emergency obstetric care (EmOC) within the three months preceding the study (April-June 2024). The mothers were aged 20-42 years, with parity ranging from one to five children.

Data was analyzed thematically using both inductive coding and deductive coding in ATLAS.ti v7.1. The findings are organised into four major themes reflecting the structural conditions of the facilities, care processes, and perceived outcomes, consistent with the Donabedian framework.

Table 1. Sociodemographic and professional characteristics of HCWs and FGD participants

Characteristic	IDI Participants (n=17)	FGD Participants (n=24)
Age (years)	22-57 (mean 43.6)	20-42
Sex	11 female, 6 male	24 female
Profession	1 Doctor, 5 Nurses, 9 CHEWs, 2 CHOs	
Years of Experience	4months - 33 years	-
Facility Role	Provide direct EmOC	Received EmOC services

Table 2. Themes and subthemes for IDIs and FGDs

S/N	Themes	Subthemes
1	Preparedness and Competence in Providing EmOC	1. Knowledge and Understanding of EmOC 2. Roles and Teamwork across Cadres
2	Experiences of HCWs with Managing Obstetric Emergencies	1. Nature and Frequency of Obstetric Emergencies 2. Managing beyond Facility Limitations
3	Barriers to Effective EmOC Delivery by HCWs	1.Resource Constraints and Systemic Gaps 2. Training and Support 3. Coping Strategies Adopted by HCWs
4	Perceived Quality and Satisfaction with EmOC Services by Clients	1. Clients' Satisfaction with EmOC Services 2. Clients' Dissatisfaction with EmOC Services

Theme 1: Preparedness and Competence of HCWs in Providing EmOC

Healthcare workers described a generally strong level of preparedness and competence in managing obstetric emergencies, based on a combination of formal training, hands-on experience, and frequent exposure to emergency cases. They consistently confirmed the ability to stabilize patients, initiate first-line interventions, and refer, when necessary, despite structural limitations within their facilities.

Subtheme 1.1: Knowledge and Understanding of EmOC

HCWs expressed a common understanding of EmOC as the urgent, life-saving treatment needed in the event of obstetric complications informed by both training and practical experience. Participants described that EmOC involves managing conditions, such as postpartum hemorrhage, retained placenta, preeclampsia, and fetal distress. One participant explained:

"Emergency obstetric care is the first aid given to pregnant women during antenatal, labour, and postnatal emergencies, such as PPH, APH, preeclampsia." (IDI 7)

Other participants echoed this understanding in their descriptions (IDI 11).

Subtheme 1.2: Roles and Teamwork across Cadres of HCWs

Teamwork was highly valued, and tasks were delegated according to cadre, availability, and skill. Nurses/midwives stabilized patients and initiated treatment; doctors handled complex cases and made referral decisions, whereas CHEWs and CHOs provided crucial support. One participant captured this:

"I supervise and administer EmOC… we conduct EmOC based on available manpower and equipment, and refer when necessary." (IDI 14)

Other participants echoed similar responsibilities, noting that *they assisted with setting lines, providing first aid, using ice packs, and escorting clients during referrals* (IDI 2, 4).

Theme 2: Experiences of HCWs in Managing Obstetric Emergencies

HCWs reported dealing with obstetric emergencies on a regular basis, which reflects the ongoing need for EmOC in PHCs. In spite of limited facility resources, their experiences demonstrated clinical competence, versatility, and a reliance on referral pathways.

Subtheme 2.1: Nature and Frequency of Obstetric Emergencies

Preeclampsia, neonatal asphyxia, retained placenta and postpartum haemorrhage were frequently handled emergencies, many of which were effectively treated at the PHC level:

"I managed an asphyxiated baby. We resuscitated and the baby survived." (IDI 10)

"We removed a retained placenta and sutured a lacerated cervix." (IDI 14)

Subtheme 2.2: Managing beyond Facility Limitations

Although HCWs demonstrated competence in managing obstetric complications, limited resources sometimes constrained their ability to provide full emergency care. Shortages of essential drugs, lack of blood transfusion services, and inadequate equipment often necessitated referrals. One participant described managing a bleeding patient:

"She returned bleeding… we gave misoprostol and oxytocin to stop the bleeding." (IDI 12)

Another explained that some complications required immediate referral due to facility limitations:

"We give first aid for PPH, but cases like cord around the neck or placenta previa are referred immediately." (IDI 8)

Theme 3: Barriers to Effective EmOC Delivery and Coping Strategies Adopted by HCWs

Numerous systemic obstacles, such as a lack of staff, inadequate equipment, unstable electricity, and restricted transportation for referrals, were mentioned by HCWs as having an impact on the provision of EmOC. Service delivery was further impacted by unequal access to formal training. Despite these difficulties, HCWs used coping mechanisms to show resilience.

Subtheme 3.1: Resource Constraints and Systemic Gaps

Participants highlighted shortages of human resources, essential drugs, emergency supplies, and ambulances across the facilities. One participant summarized the challenges:

"Inadequate manpower, most especially the lack of doctors and paucity

of registered nurses and midwives, inadequate drugs and injections, lack of power supply and lack of equipment". (IDI 6)

Other participants echoed similar concerns, noting insufficient staffing, intermittent electricity, lack of oxygen, and limited availability of ambulances. (IDI 10, 13).

Subtheme 3.2: Training and Support

Formal EmOC training was largely limited to doctors and senior nurses, while CHOs and CHEWs relied on informal "step-down" training from colleagues, because they were not nominated for formal workshops. Unequal training opportunities represent a capacity gap that affects consistent service quality across cadres.

One participant shared:

"*We were not directly sent for training, but received step-down training from the nurses, especially the Nursing Officer in Charge (OIC)."* (IDI 9)

Other HCWs echoed this, noting that they also missed formal training due to lack of nomination or information and had to rely on step-down sessions from colleagues (IDI 4, 10, 15).

Subtheme 3.3: Coping Strategies Adopted by HCWs

HCWs adopted various coping mechanisms to

ensure continuity of EmOC services despite persistent resource constraints. They improvised with rechargeable lamps, sought remote guidance from doctors, and arranged alternative means of transportation for referrals. Structural and logistic deficiencies significantly hinder EmOC delivery, reflecting gaps in the "Sstructure" component of the Donabedian model.

One participant noted:

"We use rechargeable lamps when there is no light… and call doctors for guidance when cases are beyond us." (IDI 11)

Another participant described the ingenuity required to manage referrals under difficult conditions:

"We use to refer to the General Hospital which is about some kilometers away and we don't have fuel in the ambulance… patients' relations usually make arrangements for transportation, such as use of Tricycle (Keke NAPEP). Some health personnel make use of their personal cars to assist them in taking their patient to the referred hospital." (IDI 7)

Theme 4: Perceived Quality and Satisfaction with EmOC Services by Clients

Clients' experiences with EmOC services varied, shaped by responsiveness of HCWs, communication during emergencies, and the physical environment. While some mothers appreciated timely interventions and supportive healthcare workers, others described delays, inadequate resources, and poor communication. These accounts demonstrate the uneven quality of EmOC services across facilities.

Subtheme 4.1: Clients' Satisfaction with EmOC Services

Positive experiences were reported when healthcare workers responded promptly and managed complications effectively:

"My blood pressure was high, and I was referred to the General Hospital where I was successfully operated on." (FGD 2, P3)

"The nurses were jovial to me." (FGD 1, P4)

Subtheme 4.2: Clients' Dissatisfaction with EmOC Services

Clients expressed dissatisfaction from delays, limited staffing, inadequate resources, and poor communication. One participant described the impact of shortage:

"I was left bleeding for about 8 hours, because there was only one nurse on duty." (FGD 3, P1)

Another participant associated dissatisfaction with poor communication:

"I couldn't fathom why I was referred… staff only told my relatives." (FGD 2, P3)

Others highlighted challenges with communication and referrals, and shortages of equipment and supplies (FGD 1, P7; FGD 2, P7).

To address these issues, clients recommended increasing staff, improving equipment availability, and enhancing referral logistics. One participant suggested:

"The nurses should be more on duty to ease their shifts" **(**FGD1, P5)

Another emphasized the need for facility upgrades:

"This facility needs an ICU, ultrasound machine, oxygen tanks and other equipment." (FGD 2, P6)

A summary of themes, subthemes, and illustrative quotes is presented in Appendix III.

Discussion

This study explored emergency obstetric care (EmOC) services in primary healthcare facilities within Ilorin Metropolis, Kwara State, describing the lived experiences of healthcare workers (HCWs) and the perceptions of women who received care. The Donabedian model was applied to aid a structured interpretation of how facility "structures" shape care "processes," and how these, in turn, influence maternal "outcomes." Findings reveal both strengths and challenges in service delivery and suggest solutions to raise the standard of care.

Preparedness and Competence of HCWs in Providing EmOC

A major finding of this study is the solid practical competence exhibited by HCWs across all cadres. Their capacity to manage obstetric emergencies ranging from postpartum haemorrhage and retained placenta to pre-eclampsia and neonatal asphyxia-reflects the cumulative effect of formal EmOC training, frequent clinical exposure, and recurrent engagement with emergencies. This finding is consistent with the evidence that structured training and repeated hands-on experience improve providers' emergency readiness (Ade-Ojo et al., 2024; Ameh et al., 2022; Okonofua et al., 2022).

Equally crucial is the significance of teamwork. Collaboration between doctors, nurses/midwives,

CHEWs, and CHOs emerged as a critical process enabler, particularly in situations requiring immediate role allocation, joint decision-making, and coordinated stabilization of patients. This corroborates the assumptions of Nabulo et al. (2023) and Komolafe et al. (2021), who argued that teamwork and task-shifting are crucial for maintaining quality obstetric care in resource-constrained PHCs. Within this study, such teamwork contributed to efficient workflow processes and possibly shaped the positive perceptions expressed by clients whose emergencies were managed on time and proficiently.

Experiences of HCWs with Managing Obstetric Emergencies

HCWs described frequent encounters with obstetric emergencies, demonstrating clinical versatility and a strong capability to stabilize patients before referral when required. Their routine management of life-threatening conditions, such as postpartum haemorrhage, preeclampsia, retained placenta, and neonatal asphyxia, emphasizes the significance of PHCs as the first point of contact for most obstetric emergencies in the Nigerian health system.

In spite of their proved capability, the descriptions also highlight how emergency management is often constrained by the wide-ranging structural deficiencies of their facilities. As a result, efficient referral pathways become essential, particularly when complications exceed the facility's capacity. This finding aligns with studies indicating that PHC-level providers in low-resource settings frequently manage emergencies beyond their structural limits, emphasizing resilience and adaptability (Ameh et al., 2022; Sampson et al., 2024).

Barriers to Effective EmOC Delivery by HCWs

Persistent structural barriers significantly hinder the effective delivery of EmOC services despite notable strengths in competence and teamwork. Inadequate trained personnel, frequent lack of essential drugs, unstable power supply, and non-functional ambulances were persistent across facilities. These challenges reflect structural deficiencies recognized widely in Nigerian and other low- and middle-income countries (Famutimi et al., 2024; Jibril et al., 2024; Sampson et al., 2024).

Mostly concerning were the inadequate numbers of registered nurses/midwives and the absence of permanent medical officers—issues consistent with national workforce shortages and migration trends (Daniel & Abuosi, 2020; Ebong et al., 2023). In the Donabedian framework, such structural deficits severely constrain care processes and diminish the likelihood of favourable maternal outcomes. Weak infrastructure, unreliable electricity, and poor emergency transport systems inevitably lead to delays, avoidable referrals, and compromised EmOC quality, even when HCWs possess the clinical skill to deliver EmOC services.

The study identified significant disparities in access to formal EmOC training. While doctors and senior nurses often benefited from structured capacity-building programmes, CHEWs and CHOs relied largely on informal step-down training from their colleagues. This inequity, previously documented in Nigerian PHC settings, has substantial implications for quality and consistency of care (Ameh et al., 2022; Komolafe et al., 2021).

Certain that CHEWs and CHOs form a large proportion of the PHC workforce involved in obstetric care, excluding them from formal training weakens workforce capability and introduces variability in care processes. Closing these training gaps through comprehensive and equitable training strategies is therefore crucial to improving EmOC preparedness.

HCWs used a variety of coping strategies to maintain continuous care in response to systemic deficiencies. These included using rechargeable lamps in the event of a power outage, making use of equipment available, consulting doctors remotely when cases surpassed their area of expertise, and even transporting patients during referrals in personal vehicles. These adaptive behaviours are similar to resilience patterns seen in healthcare workers in other settings with limited resources (Ameh et al., 2022; Ebong et al., 2023).

Although such improvisation is commendable, it is intrinsically fragile and results in inconsistent quality of care. The findings show that systemic investments, such as dependable power supply, sufficient staffing, and operational ambulances, are necessary for long-term improvements rather than depending solely on individual resilience.

Perceived Quality and Satisfaction with EmOC Services by Clients

Perceptions from clients showed a mixture of satisfaction and dissatisfaction. Positive experiences

were linked to supportive interactions with HCWs, efficient problem-solving, and timely response. These findings are consistent with research demonstrating that timely and professional service has a significant impact on maternal satisfaction (Deji-Dada et al., 2021; Sadiku et al., 2024).

However, clients who experienced lengthy wait times, insufficient staff presence, poor communication, and delayed referrals expressed discontent. Communication breakdown, such as providing insufficient justification for referral, has been linked to mistrust, anxiety, negative perceptions in health systems, and anxiety has been documented in related healthcare settings (Tunisia et al., 2021). Similarly, shortages of equipment, essential medicines, and adequate facilities have been widely identified as hindrances to high-quality EmOC (Kanyesigye et al., 2022; Sampson et al., 2024).

Overall, structural flaws—especially those that jeopardize patient-centeredness remain significant drivers of dissatisfaction even if clinical competence and collaborative effort greatly improved the care experience for many women.

Comparison with Other Studies

This study aligns with previous research indicating that PHCs are often the first point of contact for most obstetric emergencies, yet remain under-resourced. The findings regarding workforce shortages, limited training for CHEWs, and infrastructural constraints are consistent with earlier studies in Nigeria and other low-resource settings (Ebong et al., 2023; Famutimi et al., 2024; Nabulo et al., 2023). However, the current study makes a unique contribution by integrating both healthcare providers' and clients' perspectives, offering a more comprehensive understanding of EmOC service delivery and highlighting areas for practical intervention.

Limitations of the Study

The study's reliance on self-reported data from healthcare providers and clients raises the possibility of response bias; additionally, the research was conducted in a subset of PHCs in Ilorin Metropolis, which may not be representative of all PHCs in Kwara State or Nigeria. Nevertheless, the triangulation of perspectives from both providers and clients strengthens the findings' credibility and provides crucial insights for practice and policy.

Implications for Nursing

Nurses play a vital role in the delivery of EmOC services. To improve patient outcomes and support the quality of care, constant professional development, organized training programs, supportive workplace policies, and adequate resource allocation are required. Having a profound understanding of their clients' experiences can help nurses advocate for systemic changes, promote patient-centered care, and support evidence-based policy reforms more effectively. Additionally, ongoing research and advanced certification programs can enhance nursing proficiencies and support long-term improvements in EmOC service delivery.

Conclusion

Although healthcare providers in Ilorin Metropolis proved proficiency and real-world experience in EmOC service delivery, systemic and human resource limitations restrict the efficacy and quality of delivered services. Improving service delivery, client satisfaction, and maternal health outcomes in basic healthcare centres requires addressing these issues through workforce strengthening, frequent training for all cadres, reliable supplies, operational ambulances, and patient-centered communication.

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Author's Contributions

Study Design: **ALA**. Data Collection: **ALA, ZMA**. Data Analysis: **AOI**. Study Supervision: **OAO**. Manuscript Writing: **ALA**. Critical Revisions for Important Intellectual Content: **OAO, KEI**.

Conflict of Interests

There is no conflict of interests to be disclosed by the authors.

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APPENDIX I

Interview guide (IDI) to explore the experiences of healthcare providers in providing EmOC services in selected primary health care facilities within Ilorin metropolis

Introduction

Section A: Socio-demographic Characteristics

1. Name of the facility:
2. Profession: a) Medical Doctor b) Nurse/midwife c. CHEW. d. CHO
3. Rank:
4. Age:
5. Years of experience:
6. **Open -ended questions**

Knowledge of EmOC

3. What do you understand by EmOC?
4. What are your role and your responsibilities in providing EmOC?

Experience in Providing Emergency Obstetric Care:

5.What are some of the most common obstetric emergencies that you encounter in your work?
6. Describe a recent experience where you had to provide Emergency Obstetric Care?
8.What were the circumstances?
9.Describe how you typically handle obstetric emergencies in [name of the facility]?

Challenges Faced:

10.What are the main challenges that you encountered while providing Emergency Obstetric Care?
11. What are the resource constraints or limitations that affect your ability to provide effective EmOC?
12. How do you handle these challenges in providing EmOC in your day-to-day work?

Training and Support:

13.Have you received any specialized training in handling obstetric emergencies?
14.If yes, explain the adequacy of the training towards providing EmOC in the facility.
15. What are the areas where you feel that additional training is needed?
16. If no, why not? How does it affect how you provide the care?

Successes and Rewards:

17. Describe any rewarding experience that you've had while providing Emergency Obstetric Care?
18. What are some successful strategies or practices that you have implemented in the provision of EmOC?

Suggestions for Improvement:

19. Based on your experience, what do you think could be done to enhance the provision of satisfactoryEmOC in your facility?
20. What are the changes or improvements that you would recommend for provision of quality EmOC?
21. What else would you like to share about your experiences in providing EmOC?

Thank the participants for their time and contributions to the interview.
Offer the opportunity for the participants to ask any questions or seek clarification.

APPENDIX II

Guide on Focused Group Discussion (FGD) - Assessment of Clients' Satisfaction with the Provision of EmOC

Section A: Socio-demographic Characteristics

1. Name of the facility:
2. Age:
3. Parity:

Section B: Open-ended Questions

A. **Access to Emergency Obstetric Care:**

1. Describe your experiences with accessing emergency obstetric care services in this community
2. What factors have facilitated or hindered your ability to access these services when needed?

B. **Quality of Care Received:**

1 Describe the quality of care that you received during your emergency obstetric care visits?
2. What aspects of care were particularly satisfactory or unsatisfactory for you?
3. Provide examples of positive or negative interactions with healthcare providers during your visits?

C. **Communication and Information:**

1. How satisfied were you with the communication and information provided by healthcare providers during your emergency obstetric care visits2. Did you feel adequately informed about your condition, treatment options, and potential risks?

3. Were there any instances where you felt that your concerns or preferences were not taken into account by healthcare providers?

D. **Facility Environment and Amenities:**

1. What are your impressions of the facility environment and amenities available during your emergency obstetric care visits?
2. Did you feel comfortable and safe in the facility? Why or why not?
3. Were there any specific facilities or equipment that you found lacking or inadequate?

E. **Suggestions for Improvement:**

1. Based on your experiences, what changes or improvements would you like to see in emergency obstetric care services in this community?
2. What are your recommendations for healthcare providers, facility administrators, or policymakers to enhance the quality of care and client satisfaction?

Closing:

Thank participants for their valuable insights and contributions to the discussion

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APPEDIX III

The Selected PHCs

Name of LGA	Selected Wards (TOTAL NO OF WARDS =9)	Selected PHCs (TOTAL NO OF PHCs =9)
Ilorin East	Ibagun	Okelele PHC
	Zango	Okesuna
Ilorin West	Adewole	Adewole
	Mogaji- Ngeri	Mogaji- Ngeri
	Alannamu	Alanamu
	Ubadawak	Pakata
Ilorin-South	Oke- Ogun Akanbi 5 Akanbi 3	Olufadi Kulende Eroomo

Socio-demographic Characteristics of IDI Respondents (n= 17)

S/N	Participants	Age in years	Gender	Profession	Rank	Years of experience
1	Participant 1	52	Female	Nursing	DNS	29
2	Participant 2	57	Male	Nursing	DNS	32
3	Participant 3	32	Female	CHEW	J.CHEW	5
4	Participant 4	36	Female	CHO	ACCHO	20
5	Participant 5	24	Female	CHEW	J.CHEW	4
6	Participant 6	50	Female	Nursing	DDNS	25
7	Participant 7	52	Female	CHO	ADCHO	25
8	Participant 8	25	Female	CHEW	J.CHEW	4 months
9	Participant 9	45	Female	CHEW	Chief.CHEW	26
10	Participant 10	55	Male	Nursing	DDNS	28
11	Participant 11	48	Female	CHEW	Principal CHEW	20
12	Participant 12	56	Female	Nursing	DNS	32
13	Participant1 3	50	Female	CHEW	Principal CHEW	33
14	Participant 14	40	Male	Medical Doctor	Consultant	14
15	Participant 15	42	Female	CHEW	Senior CHEW	12
16	Participant 16	34	Female	CHEW	J. CHEW	5
17	Participant 17	22	Female	CHEW	J.CHEW	1

Summary of Themes, Subthemes, and Illustrative Quotes

Theme	Subtheme	Illustrative Quotes
1. Preparedness and Competence of HCWs in Providing EmOC	Knowledge and Understanding of EmOC	"Emergency obstetric care is the first aid given to pregnant women during antenatal, labour, and postnatal emergencies, such as PPH, APH, preeclampsia." (IDI 7) "Immediate care to emergency pregnant women, such as fitting, PPH, retained placenta, or fetal distress." (IDI 11)
	Roles and Teamwork across Cadres	"I supervise and administer EmOC… we conduct EmOC based on available manpower and equipment, and refer when necessary." (IDI 14) "We set lines, give first aid, use ice packs, and escort patients to referral centres." (IDI 4) "We treat based on the complication. We give first aid and refer if it is beyond our capacity." (IDI 2)
2. Experiences of HCWs in Managing Obstetric Emergencies	Nature and Frequency of Obstetric Emergencies	"I managed an asphyxiated baby. We resuscitated and the baby survived." (IDI 10) "We removed a retained placenta and sutured a lacerated cervix." (IDI 14)
	Managing Beyond Facility Limitations	"She returned bleeding… we gave misoprostol and oxytocin to stop the bleeding." (IDI 12) "We give first aid for PPH, but cases like cord around the neck or placenta previa are referred immediately." (IDI 8) "We treat based on complication… we administer first aid and refer if beyond our capacity." (IDI 2)
3. Barriers to Effective EmOC Delivery by HCWs	Resource Constraints and Systemic Gaps	"No adequate manpower, no training, and electricity is poor." (IDI 10) "Sometimes there is no fuel for the ambulance. Relatives use tricycles or we use our personal cars." (IDI 7) "There is no oxygen, no light to check the vagina, and sometimes no ambulance." (IDI 13)
	Training and Support	"I didn't attend because there was no nomination and no information, but we gain through step-downs from colleagues." (IDI 4)
	Coping Strategies Adopted by HCWs	"We use rechargeable lamps when there is no light… and call doctors for guidance when cases are beyond us." (IDI 11)
4. Perceived Quality and Satisfaction with EmOC Services by Clients	Clients' Satisfaction with EmOC Services	"My blood pressure was high, and I was referred to the General Hospital where I was successfully operated on." (FGD 2, P3) "The nurses were jovial to me." (FGD 1, P4)
	Clients' Dissatisfaction with EmOC Services	"I was left bleeding for about 8 hours because there was only one nurse on duty." (FGD 3, P1) "I didn't understand why I was referred. They only told my relatives." (FGD 2, P3) "The facility lacked equipment and drugs… there was even a case of snake intrusion and poor lighting." (FGD 1, P7) "I was disappointed… if the facility had adequate resources, I wouldn't have needed referral." (FGD 2, P7) "This facility needs an ICU, ultrasound machine, oxygen tanks and other equipment." (FGD 2, P6)

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