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Original Research Article

Management of childbirth complications: personal and professional experiences of healthcare workers in Ibadan, Nigeria

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ABSTRACT

Background: Maternal and perinatal mortality continue to pose significant public health challenges globally, despite decades of targeted interventions and initiatives aimed at improving their outcomes, the figures are still high in the sub-Saharan Africa. The study aimed to investigate personal and professional experiences of healthcare workers in Ibadan regarding childbirth complications and ways to mitigate them.

Methods: The study population comprises of healthcare workers from both public and private health facilities in Ibadan, Oyo State. A multistage random sampling technique was employed to select respondents who were healthcare workers from health facilities across Ibadan. A questionnaire was administered to them to obtain information on their biodata, the common childbirth complications they know, how they managed such and their suggestions for future mitigation of such complications. Analysis was done using Statistical Package for Social Sciences (SPSS) version 28 both descriptive and inferential statistical analyses were done.

Results: One hundred and thirty-nine (36.9%) of the respondents worked in secondary healthcare facilities, 126 (33.4%) in primary healthcare centres, 75 (19.9%) in tertiary hospitals, and 37 (9.8%) in private clinics. 273 respondents (72.4%) of which 72.4% reported receiving specialized training on postnatal care while 27.6% were not trained. Infections were the most frequently identified complication in both mothers and babies (25%). Respondents' suggestions for improving postpartum care practices included institutional, systemic, and community-level interventions.

Conclusions: Targeted investment in infrastructure, personnel, continuous professional training, and the implementation of evidence-based preventive care strategies at the primary and secondary levels would help mitigate postnatal complications.

Keywords: Child birth, Complications, Ibadan, Management

INTRODUCTION

Maternal and perinatal mortality have continually been on the front burner as they pose significant public health challenges globally, despite decades of targeted interventions and initiatives aimed at improving the outcomes. The sustainable development goal (SDG) 3.1 seeks to reduce the global maternal mortality ratio (MMR) to fewer than 70 deaths per 100,000 live births by 2030 and that of neonatal mortality to less than 12 per 1000. However, maternal and perinatal deaths remain alarmingly high, particularly in sub-Saharan Africa, where approximately 70% of global maternal and 38% - 43% of neonatal deaths occur, with Nigeria accounting for a substantial proportion where between 262,000 to 700,000 babies die daily or annually.[1,2]

The major causes of maternal mortality are largely preventable, which include postpartum hemorrhage, infections, hypertensive disorders, pre-eclampsia, eclampsis and obstructed labour while causes of perinatal mortalities which are majorly preventable include preterm

birth, Asphyxia, neonatal sepsis, congenital malformations.[3,4] These complications are often aggravated by systemic healthcare challenges such as limited access to skilled birth attendants, poor referral systems and inadequate emergency obstetric services.[2]

Effective postpartum care defined as the comprehensive medical, social, and emotional support provided to women and her newborn after childbirth, plays a pivotal role in preventing perinatal and maternal deaths. Healthcare workers play a critical role in the prevention, detection, and management of these postpartum complications. The knowledge, attitudes, and practices of health care providers regarding postpartum care directly influence the outcomes. The study therefore set out to investigate personal and professional experiences of healthcare workers in Ibadan regarding childbirth complications, how these experiences affect their clinical practices and modalities to improving patient outcomes during postpartum care.

METHODS

Study area

Ibadan is the capital and most populous city of Oyo State, Nigeria. It is the third-largest city by population in Nigeria after Lagos and Kano, with an estimated population of 4,290,000 as at early 2026, and nearly 4 million within its metropolitan area. Ibadan is also one of the country's largest cities by landmass. Historically, at the time of Nigeria's independence in 1960, Ibadan was the largest and most populous city in the country and the second most populous in Africa after Cairo. Ibadan consists of 11 local government areas (5 urban and 6 semi-urban) covering a vast metropolitan area of 3,850 square kilometers. Ibadan is blessed with approximately 606 healthcare facilities in total.[5]

Study design

This study adopted a cross-sectional survey design, which enables the collection of data from a defined population at a single point in time. This allows for the identification of associations between variables without manipulating the study environment, thus providing a snapshot of existing practices and perceptions within the study population.

Study population

The study population comprises of healthcare workers from both public and private health facilities in Ibadan, Oyo State. This includes professionals directly involved in providing obstetrics and neonatal care, such as nurses, midwives, and medical doctors.

Ethical consideration

Ethical approval for this study was obtained from the health research and ethics committee of Lead City University, Ibadan. In addition, approval was also sought from the Oyo State Ministry of Health Ethical Review Committee before data collection commences. Protocol /Approval number was NHREC/OYOSHRIEC/10/11/22.

All participants were provided with detailed information about the study's purpose, procedures, potential benefits, and risks. Informed consent was obtained from each participant before administering the questionnaire, and participation was entirely voluntary. Participants were informed of their right to withdraw at any stage of the study without any penalty or loss of benefits.

Inclusion criteria

Healthcare workers (nurses, midwives, and doctors) who are directly involved in obstetrics and neonatal care within healthcare facilities in Ibadan. Health care providers with a minimum of six months of experience on the job.

Exclusion criteria

Healthcare workers who were on leave during the period of data collection and those hospital workers who were not directly involved in patient care, such as nurses and doctors on administrative assignments.

Sample size determination

The sample size for this study was determined using Cochran's formula for sample size estimation in large populations.[6]

$$n = (Z^2 pq)/d^2$$

Where: n = minimum sample size

z = confidence interval at 95% = 1.96

p = estimated prevalence of perinatal mortality from a similar facility-based study in Nigeria =0.337,

$q = 1 – p = (1 - 0.337) = 0.663$

d = standard error at 5% = 0.05

$n = (1.96)^2 \times 0.337 \times (0.663) / (0.05)^2 = 343.33 \approx 343$

An additional 10% non-response rate was calculated, which increased the sample size by 10%

10/100 * 343=34.3

Therefore, $n = 343+34.3 = 377.3 \approx 377$

Therefore, a total of 377 healthcare workers were recruited for this study to ensure adequate representation and statistical reliability.

Sampling technique

A multistage random sampling technique was employed to select respondents (healthcare workers) from healthcare facilities across Ibadan. Ibadan consists of 11 local government areas (LGAs) and approximately 606 healthcare facilities; in both public and private sectors.[5]

Stage 1: selection of local government areas (LGAs)

All LGAs within Ibadan were represented, as each contains healthcare facilities eligible for inclusion in the study. These LGAs include: Ibadan North, Ibadan North-East, Ibadan North-West, Ibadan South-East, Ibadan South-West, Egbeda, Ido, Lagelu, Oluyole, Ona-Ara, and Akinyele.

Stage 2: selection of healthcare facilities

With a total of 606 healthcare facilities and a required sample size of 377 respondents, approximately 10% of the healthcare facilities (i.e., 60 health facilities) were selected for participation. A systematic random sampling method was used to select eligible facilities proportionally across the 11 LGAs, ensuring representation from both public and private sectors.

Stage 3: selection of healthcare workers

Within each selected facility, a list of healthcare workers involved in obstetric and neonatal care were obtained from the facility's management. Using systematic random sampling, eight (8) healthcare workers were selected from each facility to achieve the total sample size of 377 respondents. This multistage design ensures diversity and representativeness across facility types and LGAs, thereby improving the reliability of the study's findings.[7]

Data collection instrument

A structured, self-administered, and pre-tested questionnaire served as the primary instrument for data collection. The questionnaire consisted sections designed to capture demographic data, knowledge, experiences, type of training received by the workers and factors influencing postpartum care among healthcare workers in Ibadan.

The questionnaire assessed participants' knowledge of postpartum care practices, including breastfeeding, postnatal care, identification of danger signs in mothers and babies, complications frequently observed by healthcare workers, such as postpartum hemorrhage, infections, eclampsia, depression, and thromboembolic disorders were specifically asked. The questions included multiple-choice, true/false, and Likert-scale items to gauge depth of understanding.

Data analysis

The data collected from the questionnaires underwent both quantitative and qualitative analysis to address the research objectives. Quantitative data were analyzed using descriptive and inferential statistics, while qualitative responses were analyzed thematically.

Prior to analysis, the data were systematically coded and entered into the Statistical Package for the Social Sciences (SPSS) version 28. Rigorous checks for completeness and accuracy were conducted to minimize data entry errors and ensure reliability. The cleaned data set was then subjected to both descriptive and inferential statistical analyses.

Descriptive statistics such as frequencies, percentages, means, and standard deviations were employed to summarize categorical and continuous variables, while results were presented using tables and charts for clarity. Inferential statistics, including the Chi-square test and logistic regression, were applied where appropriate to test relationships between variables and to identify significant predictors.

RESULTS

Socio-demographic characteristics of respondents

A total of 377 questionnaires were administered and successfully retrieved, yielding a response rate of 100%.

Table 1 presents the distribution of healthcare providers by age, gender, marital status, profession, years of experience. The mean age of the respondents was 36.1 years (SD=9.4). Two hundred and four health workers were female (54.1%), while males constituted 45.9%, 209 (55.4%) were married, 92 (24.4%) were single, 48 (12.7%) divorced, and 28 (7.4%) were widowed. In terms of profession, 150 (39.8%) were midwives, 127 (33.7%) were general nurses, 86 (22.8%) were doctors, and 14 (3.7%) were community health extension workers. The years of experience in postpartum care showed that 27.3% had 4-6 years of experience, 24.7% had 1-3 years, and 18.6% had less than one year, while only a few had more than 10 years of experience.

Table 2 showed the facility types; 139 (36.9%) of respondents worked in secondary healthcare facilities, 126 (33.4%) in primary healthcare centres, 75 (19.9%) in tertiary hospitals, and 37 (9.8%) in private clinics. Regarding specialized training in postpartum care, 273 (72.4%) reported receiving such training, while 27.6% did not. Among those trained, the main areas of specialization were emergency obstetrics care (59.4%), mental health and counselling (54.9%), lactation and nutrition support for the babies (52.3%), community-based postpartum care (50.4%), and basic life-saving skills for both mothers and babies (49.1%).

Table 1: Socio-demographic characteristics of the study participants.

Variable	Frequency (n=377)	Percentage
Age (years)		
20-29	128	34.0
30-39	113	30.0
40-49	90	24.0
50-59	38	10.0
60-69	8	2.0
Gender		
Female	204	54.1
Male	173	45.9
Marital Status		
Single	92	24.4
Married	209	55.4
Divorced	48	12.7
Widowed	28	7.5
Profession		
Nurse	127	33.7
Midwife	150	39.8
Doctor	86	22.8
Community extension worker	14	3.7
Years of experience in postpartum care		
Less than 1 year	70	18.6
1-3 years	93	24.7
4-6 years	103	27.3
7-10 years	88	23.3
>10 years	23	6.1
Type of health care facility		
Primary	126	33.4
Secondary	139	36.9
Tertiary	75	19.9
Private	37	9.8

Table 2: Types of health facility and specialized training in postpartum care received by the health care providers.

	Frequency (n=377)	Percentage
Have you received any specialized training in postpartum care		
Yes	273	72.4
No	104	27.6
If yes, type of training		
Lactation/nutrition support for the newborn	197	52.3
Basic life saving skill for mother and baby	185	49.1
Mental health and counselling	207	54.9
Community based postpartum care	190	50.4
Emergency obstetrics care	224	59.4

NB: There was overlap because many of the health care providers received more than one training.

Table 3 showed the distribution of common childbirth complications as reported by respondents. Infections were the most frequently identified complication (25.1%). Depression was the second most frequently reported complication among the mothers, identified by 82 respondents (21.9%) while postpartum hemorrhage (PPH) was reported by 73 respondents (19.4%), thromboembolic disorders were identified by 71 respondents (19.0%) in mothers, 3 (0.1%) asphyxia and eclampsia 54 (14.5%).

Table 4 showed the results of a cross-tabulation comparing the occurrence of common postpartum complications across different types of health-care facilities. The complications considered included postpartum hemorrhage, infections, eclampsia, depression, and thromboembolic disorders. Postpartum hemorrhage (PPH) was most frequently reported, 205/377 (54.4%) health care providers (HCPs) reported having managed PPH. In secondary health-care facilities, PPH was (40.5%),

followed by primary health centers (32.0%), tertiary hospitals (18.0%), and private clinics (8.3%). Infections were most reported in secondary health-care facilities (38.9%) and primary health centers (32.1%), while tertiary hospitals (20.0%) and private clinics (9.1%) reported lower proportions. Of the 377 health care providers, 265 (70.3%) reported that they had managed infections in mothers and the newborn. Eclampsia was reported equally in primary and secondary health-care facilities (34.0% each), followed by tertiary hospitals (20.9%) and private clinics (11.1%). Of the 377 HCPs, 153 (40.6%) had seen and managed eclampsia. Depression was managed by 231/377 (61.3%) HCPs, it was most reported in secondary health-care facilities (38.5%) and primary health centers (32.0%), while tertiary hospitals (20.8%) and private clinics (8.7%) had lower proportions. Thromboembolic disorders were managed by 200/377 (53.1%) of the HCPs, it was most frequent in secondary health-care facilities (39.0%) and primary health centers (32.5%), followed by tertiary hospitals (19.0%) and private clinics (9.5%).

Table 3: Common childbirth complications.

Complications often encountered in postpartum care	Frequency n=377	Percentage
Postpartum hemorrhage	73	19.4
Infections	94	25.1
Severe birth asphyxia	3	0.1
Eclampsia	54	14.5
Depression	82	21.9
Thromboembolic disorders	71	19
Total		100

Table 4: Cross-tabulation to compare common complications across different health-care facilities.

Variables	Frequency	Overall percentage
Postpartum hemorrhage		
Primary Health-care Center	68	33.2
Secondary Health-care Facility	83	40.5
Tertiary Hospital	37	18.0
Private Clinic	17	8.3
Total (%)	205 (54.4)	100.0
Infections		
Primary health-care center	85	32.1
Secondary health-care facility	103	38.9
Tertiary hospital	53	20.0
Private clinic	24	9.1
Total (%)	265 (70.3)	100.0
Eclampsia		
Primary health-care center	52	34.0
Secondary health-care facility	52	34.0
Tertiary hospital	32	20.9
Private clinic	17	11.1
Total (%)	153 (40.6)	100.0
Depression		
Primary health-care center	74	32.0
Secondary health-care facility	89	38.5
Tertiary hospital	48	20.8
Private clinic	20	8.7
Total (%)	231 (61.3)	100.0
Thromboembolic disorders		
Primary health-care center	65	32.5
Secondary health-care facility	78	39.0
Tertiary hospital	38	19.0
Private clinic	19	9.5
Total (%)	200 (53.1)	100.0

Table 5: Suggested methods of improving postpartum care practices.

Characteristics	Frequency	Percentage	Mean	Std. deviation
Need for stronger institutional policies	65	17.2	1.25	0.436
Strengthening collaboration	63	16.7	1.28	0.449
Mental health support	62	16.4	1.28	0.450
Community sensitization	60	16.0	1.31	0.463
Allocation of resources	64	17.0	1.27	0.443
Staffing	63	16.7	1.28	0.449
Total	377	100.0		

Table 5 showed respondents' suggestions for improving postpartum care practices, focusing on institutional, systemic, and community-level interventions. Stronger institutional policies were suggested by 65 respondents (17.2%), with a mean score of 1.25 (SD=0.436). Allocation of resources was suggested by 64 respondents (17%), with a mean score of 1.27 (SD=0.443).

Staffing was cited by 63 respondents (16.7%), with a mean score of 1.28 (SD=0.449).

Strengthening collaboration was also reported by 63 respondents (16.7%), with a mean score of 1.28 (SD=0.449). Mental health support was suggested by 62 respondents (16.6%), with a mean score of 1.28 (SD=0.450). Community sensitization was reported by 60 respondents (16%), with a mean score of 1.31 (SD=0.463).

DISCUSSION

The study population was a relatively young and active health workforce. This suggests that most respondents are likely to be actively engaged in clinical service delivery, particularly in emergency Obstetrics and newborn care. Most respondents were in the employment of the public primary and secondary health facilities, which reflected the critical role of these service levels in the delivery of postpartum care within the health system. This is also in keeping with the World Health Organization (WHO) classification of levels of newborn care in Nigeria.[8,9] Level 1 basically involves care which are available at primary health care facilities, such as immediate newborn care (involving delayed cord clamp, skin-to-skin contact of the baby with the mother in the first 90 minutes of life).[9] These postpartum care of the newborn ensures reduced morbidity and mortality of the newborn. The delayed cord clamping ensures babies get enough blood and also have enough serum iron to sustain them up to the sixth month of life. The skin-to-skin contact prevents hypothermia in the babies, as well as help initiate breastfeeding within one hour of life with all the attending benefits of the breast milk. Prevention of infection to the eyes is achieved by applying 0.5% Erythromycin eye ointment to the eyes, while application of the 4% chlorhexidine gel prevents infection through the cord. Level II: specialty care available at secondary health care facilities (general hospitals, some faith-based mission hospitals, and some private health facilities) and at level II, they offer all the above services and some specialized care such as safe administration of oxygen, detection and management of neonatal jaundice and infections. Level III on the other hand, offer all the above services plus subspecialty intensive care available at tertiary health care facilities/ university teaching hospitals.[9]

The current study revealed that postpartum complications are multifactorial, encompassing physical, psychological, and systemic dimensions. These complexities underscore the need for a holistic approach to postpartum care that integrates infection prevention and control in both babies and mothers, mental health support, and postpartum monitoring for exclusive breastfeeding and jaundice in the babies, alongside timely emergency obstetric interventions for the mothers. Through this comprehensive lens, the study contributes to strengthening maternal and newborn health outcomes and improving the overall quality of postpartum care in the Nigerian healthcare context.

Majority of respondents (72.4%) received specialized training in areas such as emergency obstetric care, mental health counselling, lactation management, newborn nutrition and basic life-saving skills for both mothers and the newborn. This finding aligns with earlier researchers in Osun State, Nigeria, who reported that structured training significantly improved healthcare workers' knowledge and delivery of postnatal care services.[10]

Postpartum hemorrhage emerged as the leading complication in this study, this is in agreement with earlier researchers in Africa and all over the world.[11-14] It reflects the limited emergency preparedness of lower-tier health facilities. Evidence from earlier researchers demonstrates that consistent application of preventive measures such as active management of the third stage of labor and availability of skilled personnel significantly reduces maternal deaths due to hemorrhage.[13,14]

Postpartum hemorrhage as the leading cause of postpartum complications has both clinical and systemic components. It is largely attributable to gaps in birth preparedness, resource allocation, lack of use of protocols in our health facilities, refusal to adhere to evidence-based practices, lack efficient blood banks, lack of personnel. Addressing these gaps through integrated preventive strategies and

strengthened health systems remains central to reducing maternal deaths from this cause globally. Solutions would therefore include: a) preventive clinical interventions such as active management of the third stage of labor (AMTSL), use of uterotonics b) health system strengthening by being emergency- prepared at all times (efficient blood banks, up-to-date equipment, strong and well organized referral systems), c) human resource capacity development (use of skilled birth attendants and continuous professional development, training, re-training and adequate supervision).[12-17]

The concentration of PPH complications in lower-level facilities therefore highlights the urgent need for capacity-building and improved emergency obstetric readiness at the frontline of maternal healthcare.

Maternal and neonatal infections also featured prominently in the study area. Maternal infections during child birth and after have direct dire consequences for the neonates. Infections such as chorioamnionitis, maternal sepsis, and prolonged rupture of membranes increase the risk of neonatal sepsis especially in the preterm baby, low birth weight babies and when they also sustain perinatal asphyxia leading to extensive resuscitation.[18] Maternal and neonatal infections represent a critical form of postpartum complications, contributing significantly to global maternal and neonatal morbidity and mortality. The sad thing there is that these are largely preventable conditions, yet they occur; Strict aseptic techniques during labor and delivery, hand hygiene, use of sterilization protocols and scrupulously clean surfaces for delivery and newborn resuscitation cannot be over emphasized.[19] The respondents also suggested community sensitization, evenly distribution of allocated resources and quality staffing to mitigate this postpartum complication.

High reportage of eclampsia in health facilities in this region also reflects weaknesses in antenatal surveillance, risk identification, and timely referral of high-risk pregnancies to higher tiers of health facility for prompt management. Postpartum eclampsia is an increasingly recognized complication, accounting for about 16-18% of all eclamptic seizures, and is associated with significant maternal morbidity and mortality, severe consequences of postpartum eclampsia including encephalopathy and intracranial hemorrhage have been widely documented. This has also been confirmed by earlier researchers. [20,21]

Beyond physical complications, psychological morbidity, particularly postpartum depression, was also more frequently observed in primary and secondary facilities. This likely reflects the limited integration of mental health services into routine maternal care, compounded by the prevalent socioeconomic and cultural stressors faced by women in under-resourced communities. Evidence showing that cultural pressures and systemic neglect of maternal mental health which significantly exacerbate poor outcomes for both mothers and their newborn abounds.[22-24] Closely related problems which were not mentioned by the respondents include issues relating to difficulty in breastfeeding such as breast engorgement, mastitis, retracted or inverted nipples, cracked nipples which could hamper proper latching of baby to the breasts and hence poor feeding in the babies. This underscores the importance of continuous professional development in strengthening healthcare workers' competence in enhancing better maternal and neonatal outcomes.

The respondents suggested that there is need for enabling institutional policies, collaborations among the tiers of health facilities, proper two-way referral, mental health support for the patients, community sensitization and equitable resource allocation in supporting the health care providers in better management of their clients.

CONCLUSION

The findings in this study revealed a consistent structural gradient in maternal outcomes, where women receiving care in lower-level facilities which serve the majority of the population bear the highest burden of preventable complications. Addressing these inequities requires targeted investment in infrastructure, continuous professional training, and the implementation of evidence-based preventive care strategies at the primary and secondary levels. Without such measures, preventable maternal and neonatal morbidity/mortality will continue to abound and this will in turn undermine maternal and neonatal health outcomes and hence difficulty achieving the sustainable development goal 3.

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