

Pattern of Referral of Obstetric Patients at a Tertiary Care Hospital in Southern Nigeria

Osita Celestine John, Justina Omoikhefe Alegbeleye

Department of Obstetrics and Gynaecology, Faculty of Clinical Sciences, University of Port Harcourt, Port Harcourt, Nigeria
Email: celestine.john@uniport.edu.ng

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Abstract

Background: Health challenges that are difficult to manage at primary health centres should be referred to secondary health facilities, and if untreated, to the tertiary hospitals. A good referral should include the patient's biography, such as age, gender, tribe, religion, occupation, medical history, the reason for the referral, treatments received, and clinical diagnosis. **Objectives:** To evaluate the referral patterns, indications for referrals, and feto-maternal outcomes for obstetric patients who were referred to the University of Port Harcourt Teaching Hospital. **Materials and Methods:** A prospective study of patients admitted to the Obstetric unit from January 1, 2021, to December 31, 2022. Data was collected from patients while on admission or clinic visits and recorded in an excel spread sheet. Data was analyzed with the Statistical Package for Social Sciences (SPSS) version 25. **Results:** Of the 3469 patients were admitted to the obstetric unit, 1476 and 1993 were admitted in 2021 and 2022, respectively. Most (70.35%) of the patients were in the 20-34 years age group, parity 1-4 was the most frequent (66.49%), while 85.39% of patients were booked. 10.46% of the booked patients were referred from other facilities, whereas 89.54% of patients were booked at our facility from the onset. Most common indications of referrals were previous caesarean section (CS) at term (40.09%) and hypertensive disorders of pregnancy (17.59%). The outcome for 2021 indicated 17 maternal deaths, 132 fetal deaths and 1010 live births, giving maternal mortality ratio (MMR) as 1810.44 per 100,000 live births and perinatal mortality ratio (PMR) of 130.7 per 1000 births respectively. In 2022, there were 17 maternal deaths, 130 fetal deaths and 1297 deliveries, giving a MMR of 1399 per 100,000 live births and a PMR of 100.2 per 1000 births. **Conclusion:** The pattern of referral among obstetric patients in this study shows that a lot of the patients do not get adequate care at the lower cadre of the referral system, hence adequate facilities should be made available in primary and secondary health centres to tackle obstetric emergencies.

Keywords

Referral, Pattern, Obstetrics, Southern, Nigeria

1. Introduction

Referral of patients refers to the temporary or permanent transfer of partial or total responsibility for a patient's care to another health facility [1]. A country's healthcare system is typically made up of primary, secondary, and tertiary care facilities [2]. Health challenges that are difficult to manage at the level of primary health centres should be referred to secondary health facilities, and thereafter to the tertiary hospitals if the secondary health facility is unable to manage the health condition [3]. However, several secondary and tertiary hospitals in Nigeria are overcrowded due to an influx of patients with less severe illnesses that could have been treated at the primary levels, which serve as the patients' first point of contact [4].

A good referral should include the patient's biography, such as age, gender, tribe, religion, occupation, medical history, the reason for the referral, interventions or treatments received, and the clinical diagnosis [5] [6]. An effective referral system plays a critical role in achieving good and sustainable healthcare delivery in Nigeria. Efficient referral systems promote good communication among all levels of health care and overall cost-effectiveness in health care services [7]. Furthermore, good referral systems eliminate repeated investigations, which leads to faster diagnosis and treatment procedures and, as a result, increased patient, and health care provider satisfaction [8].

Various authors have studied the referral pattern of obstetric referrals in tertiary hospitals. According to Shikha *et al.*, [9] only 11.4% of obstetric patients were referred to SMGS Hospital, Jammu. Another report by Vandhana *et al.* [10] reported that of the 18,245 obstetric admissions during the study period, approximately 14,500 patients were referred, accounting for 80% of all admissions. Among the 700 study participants, 616 (88%) referrals were from nearby public sectors. A total of 147 (21%) experienced delay due to transportation. 644 (92%) had referral slips, but only 224 (32%) had proper documentation. A number of 322 (46%) were intrapartum referrals. A total of 350 (50%) were primigravida, while 344 (49%) were multigravida. Similarly, Prathiba *et al.* [11] observed that of the 505 obstetric patients who attended the facility, 286 (56%) were referred from other institutions, while 44% were self-referred. Among those referred, one-third were from tertiary level facility and 40% from primary care facility. More than half of the referral was through verbal communication to the patient (60%); only one-third had referral slips. Around 40.4% chose bus and private vehicles (37.6%) as their means of transport; only around 10% traveled in 108 ambulances.

Furthermore, a study by Awoyesuku and MacPepple [12] on the pattern of

referral cases to the obstetric unit of the Rivers State University Teaching Hospital observed that 77.8% of pregnant women were referred from other primary and secondary health facilities, as well as private clinics, with only 22.2% primarily registered in the tertiary health facility. Although informal referrals exist in tertiary hospitals, they are less common than formal ones. In contrast, Khade *et al* reported that of the 7751 delivered patients, 2233 (28.8%) cases were referred. [13]

In this study, we evaluated the referral patterns, indications for referrals, and fetomaternal outcomes for obstetric patients who were referred to the University of Port Harcourt Teaching Hospital.

2. Materials AND METHODS

2.1. Study Area

The study was carried out at the obstetric unit of the University of Port Harcourt Teaching Hospital (UPTH). The University of Port Harcourt Teaching Hospital is a 988-bed hospital in Alakahia, in Obio-Akpor Local Government Area of Rivers state. It is a tertiary hospital that serves as a referral centre for all levels of healthcare in Rivers state and other neighboring states including Bayelsa, Imo and Abia. Every week. The antenatal clinic is open from Monday to Friday, and each clinic session is led by a team of consultants. Patients are evaluated in the clinic before they are admitted into the labour ward or antenatal ward for delivery.

2.2. Study Design

This was a prospective cross-sectional study of all patients that were admitted into the Obstetric unit of University of Port Harcourt Teaching Hospital from January 1, 2021, to December 31, 2022.

2.3. Methods

Data was collected from patients during admission or clinic visits and recorded in a proforma developed specifically for this study. We included all women referred with pregnancy related complications while pregnant (antenatal complications needing urgent delivery), during labour or within immediate postpartum. It was a convenient sampling of all women referred to the center during the period of study. Additional data were obtained from the patients' case notes. Demographic information, referral patterns, referral indications, diagnosis, interventions, and outcomes were all recorded. Statistical analyses were performed using SPSS version 22.

2.4. Data Analysis

The data was analyzed with the Statistical Package for Social Sciences version 25. The frequency of all histopathologic diagnoses was reviewed, and clinicopathologic correlation was performed for uterine and cervix lesions. For categorical

variables, frequency and percentages were computed. The descriptive statistics were summarized using frequency tables.

3. Results

During the period under review, 3469 patients were admitted to the obstetric unit, with 1476 and 1993 admitted in 2021 and 2022, respectively. **Table 1** shows the demographic characteristics of obstetrics patients. The most common age group was 20 - 34 years (70.35%), followed by ≥ 35 years (28.44%) and ≤ 19 years (1.21%). Women Parity 1 - 4 had the highest frequency (66.49%), followed by nulliparity (30.95%). With regards to the booking status, 85.39% of patients were booked at our facility, while 14.61% were not. In contrast, the facility had more obstetrics patients in 2022.

Figure 1 depicts the referral pattern for the booked patients, 10.46% of the booked patients were referred from other facilities, primarily private clinics, and primary health centres, whereas 89.54% of patients were booked at our facility from the onset.

Table 2 displays the clinical indications for which patients were referred to our facility. The most common indication for referral was previous caesarean section (CS) at term accounting for 40.09%, followed by hypertensive disorders of pregnancy (17.59%) which comprises of pregnancy-induced hypertension, preeclampsia/eclampsia, chronic hypertension, and chronic hypertension with superimposed preeclampsia, with the least common diagnosis being “other medical conditions,” which included anaemia in pregnancy and sickle cell anaemia and accounted for only 1.59%.

Table 3 displays the maternal mortality ratio (MMR) and fetal outcomes for obstetric patients who delivered at our facility between 2021 and 2022. In 2021, 17 maternal deaths were reported after 1010 childbirths, giving a MMR of 1810.44 per 100,000 live births. In 2021, there were 132 fetal deaths and 1010

Table 1. Demographic characteristics of the obstetric patients (n = 2307).

Demographic factors	Frequency (n)	Percentage (%)
Age (years)		
≤ 19	28	1.21
20 - 34	1623	70.35
≥ 35	656	28.44
Parity		
0	714	30.95
1 - 4	1534	66.49
≥ 5	59	2.56
Booking status		
Booked	1970	85.39
Unbooked	337	14.61

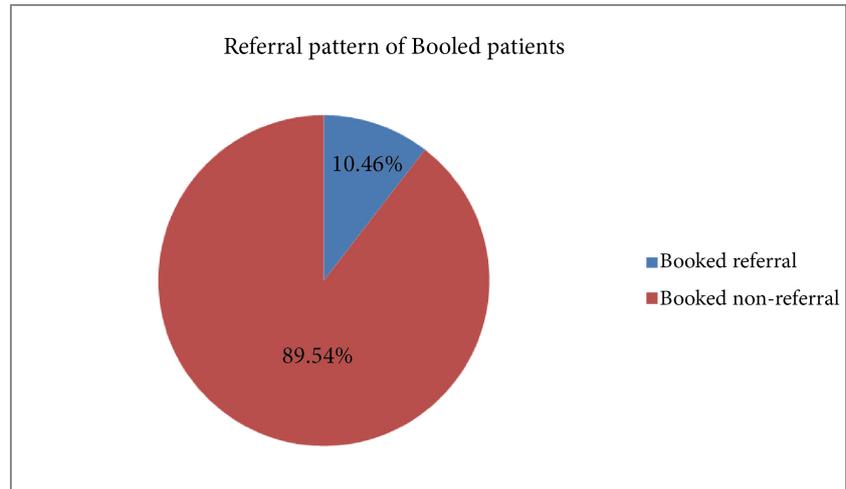


Figure 1. Referral profile of booked obstetric patients.

Table 2. Indications for referrals (n = 878).

Clinical diagnosis	Frequency (n)	Percentage (%)
Previous CS at term	352	40.09
Hypertensive disorders of pregnancy	154	17.59
Prolonged pregnancy	79	9.00
Febrile illness	72	8.20
Multiple pregnancy	53	6.04
Abnormal lies and presentation	41	4.67
Prelabour rupture of membranes	35	3.99
Major degree placenta praevia	29	3.30
False labour	28	3.19
Gestational diabetes mellitus	21	2.39
Other medical diseases	14	1.59

*CS: Caesarean section.

Table 3. Feto-Maternal outcome of obstetric patients.

Parameter	Number of deliveries	Number of deaths	Mortality ratio
2021 Feto-Maternal outcomes (n = 1010)			
Maternal	1010	17	1810.44 ^a
Fetal	1010	132	130.7 ^b
2022 Feto-Maternal outcomes (n = 1297)			
Maternal	1297	17	1399 ^a
Fetal	1297	130	100.2 ^b

*a (ratio value per 100,000 births); b (ratio value per 1000 births).

deliveries, thereby giving a perinatal mortality ratio (PMR) of 130.7 per 1000 births.

In 2022, there were 17 maternal deaths, 130 fetal deaths and 1297 deliveries, giving a MMR of 1399 per 100,000 live births and a PMR of 100.2 per 1000 births. The mortality ratios were higher than in 2021 due to the lower number of deliveries and higher death rate recorded for the year.

4. Discussion

Generally, in the absence of emergencies the two-way referral pattern is always advised for all patients starting from the primary health centre, to the secondary and then the tertiary health facilities [4]. As a foremost tertiary facility in River state, the University of Port Harcourt Teaching Hospital receives a lot of obstetrics patients from the nook and crannies of Southern Nigeria, with a total 3469 patients admitted to the Obstetrics department in two years. The demographic factors associated with patients, alongside their confirmed diagnosis play a major role in determining their referral pattern.

In this study, although the mean age of the obstetrics patients was about 27 years signifying how young the sample population was and it was further observed that women whose parity ranged from 1 - 4 were most frequent with 66% and had the highest number of referrals from other facilities which were chiefly primary and secondary health centres. However, similar study by Awoyesuku and MacPepple showed that nulliparous women constituted 55% of the referred obstetrics patients to the Rivers state University Teaching Hospital [12].

Furthermore, the booking status indicated that 85% of the obstetrics patients were booked at our facility for delivery. However, of this booked patients about 10.46% were referrals from other health facilities, predominantly private clinics, and primary health centres. The booking status reflects the level of care that had been received by these pregnant women, as unbooked is associated with poor prenatal and antenatal services. Unbooked patients report to health facilities late with pregnancy complications which mostly result in surgical procedure due to prolonged labour and fetal distress, consequently leading to high perinatal mortality [14]. Therefore, the 85% booking status recorded in this study, which is even higher than the 77% shown by Awoyesuku and MacPepple in their 2019 study in River state, further affirms the adherence of pregnant women to the enlightenment and counseling campaigns of health centres, in encouraging proper prenatal and antenatal care during gestation [12].

The indications of referrals for the obstetric patients in this study were chiefly dominated by Previous Caesarean section at term with 40%, while hypertensive disorder in pregnancy had 17 % and prolonged pregnancy had 9%. Since the probability of an obstetric patient having a new caesarean section during delivery is higher, having had same surgical intervention in previous deliveries, therefore the high referrals for such cases at our tertiary facility is not surprising. Thus, it is simply a reflection of the poor health services owing to the incapacity of the primary and secondary health centres to handle such surgical intervention successfully. This result of high cases previous caesarean section at term po-

sitively correlates with the previous study in Rivers state that documented caesarean section as the most used surgical intervention in about 54% of the referred obstetric patients at the tertiary facility in their study [12].

In this study, hypertensive disorders in pregnancy as an indication of referral had the following diagnosis: pregnancy induced hypertension, preeclampsia/eclampsia, chronic hypertension and chronic hypertension with superimposed preeclampsia. The 17% recorded in our study is like the 14% for pre-eclampsia/eclampsia reported by previous authors [12], as well as the 19% and 14% for unbooked and booked mothers respectively as reported in south-west Nigeria [14]. However, a higher rate of 26% had been indicated for hypertensive disorder in pregnancy in tertiary hospital in India as reported by Charu *et al.*, [15] while 26.8% of severe pre-eclampsia and eclampsia had been documented as the highest indication of referrals in obstetric patients by Akaba and Ekele in their study at the University of Abuja Teaching Hospital [16]. Furthermore, a study by Banke-Thomas *et al.* [17] on obstetric patients in emergency obstetric care (EmOC) facilities in Lagos state, reported 30% indication of pre-eclampsia/eclampsia in the referred obstetric patients. Therefore, as shown in our study and other previous studies, it is evident that hypertensive disorders in pregnancy remain a major indication for obstetric referrals to tertiary healthcare facilities.

Prolonged pregnancy was the third highest indication of referral for the patients in this study. However, a higher indication of 12% for prolonged pregnancy was reported by Awoyesuku and MacPepple [12]. Although, it occurred in lower frequencies among the referred patients, other indications of referral in this study included febrile illness, multiple pregnancy, abnormal lies and presentation, prelabour rupture of fetal membranes, major degree placenta praevia, false labour, gestational diabetes mellitus, and other medical conditions.

The maternal outcome of the patients in this study was 17 deaths in 1010 admissions for the year 2021 which signified a maternal mortality ratio of 1810.44 per 100,000 births, while same number of deaths in 1297 admissions was recorded for year 2022 which indicated a mortality ratio of 1399 per 100,000 births. Cumulatively, the overall mortality rate in this study was 34 deaths in 2307 patients, which signified 1.47% mortality rate. This is quite higher than the 0.2% and 0.8% observed by other researchers [12] [18].

However, the maternal mortality ratio in this study is lower than the 8.9% reported by Akaba and Ekele, while studying the maternal and fetal outcomes of emergency obstetric referrals at the University of Abuja Teaching Hospital [16]. The highest indication of maternal mortality in this study was eclampsia, with puerperal sepsis and post-partum haemorrhage occurring as the second highest. Eclampsia being the main cause of mortality in this study agreed with the findings of a similar study [16].

The fetal outcome in this study was 132 deaths in 1010 admissions for the year 2021 which signified a mortality ratio of 130.7 per 1000 births, while 130 deaths in 1297 admissions was recorded for year 2022 which indicated a mortality ratio

of 100.2 per 1000 births. Cumulatively, the overall mortality rate in this study was 262 perinatal deaths in 2307 deliveries, which signified 11.36% perinatal death rate. The highest indications for perinatal mortality were prematurity, followed by birth asphyxia and then neonatal sepsis. However, the perinatal mortality rate in this study was quite higher when compared to the 5% reported previously by Sabale and Patankar in a similar study [18].

5. Conclusions

The pattern of referral among obstetric patients in this study shows that a lot of the patients do not get adequate care at the lower cadre of the referral system especially the primary health centres, which further stretches the personnel and physical resources at the tertiary facilities. However, the awareness of getting proper prenatal and antenatal care is gaining traction among pregnant women as most of them were booked. Hypertensive disorder during pregnancy still remains a major indication of referrals while also accounting for greater percentage of maternal mortality. Therefore, adequate facilities should be instituted in primary and secondary health centres to tackle obstetric emergencies, thus saving maternal and neonate lives during and after deliveries.

The limitations of the study were the lack of proper and adequate documentation on the referral slips. In addition, the authors did not investigate the reasons for referral such as human resources, infrastructure limitations, and equipment constraints.

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None.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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