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Assessing the Completeness of Patient Medical Records of Obstetric Patients in the PUHMS Tertiary Care Center

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Abstract

Background: Quality maternal care, early risk identification and prevention of complications require accurate and complete obstetric documentation. In spite of the global advancements, documentation practices in low-resource settings are not consistent. **Objective:** To determine the fullness of the obstetric medical records in Peoples University of Medical and Health Sciences (PUHMS) and test the correlation between the under completeness of the documentation and the complications of either the mother or fetus, specifically, high-risk pregnancy. **Methods:** The study was a cross-sectional descriptive study carried out in the Department of Obstetrics and Gynecology, Unit-II, PUHMS, 24 May 2024 to 23 November 2024. A random sample of one hundred inpatient obstetric files was picked and reviewed with the help of a structured checklist of eight record sections. The SPSS v25 was used to compare data using descriptive statistics and Chi-square at $p<0.05$. **Results:** Section completeness was

also significantly different, with admission (28%), vital signs (48%), history (53%), examination and progress notes (66%), nursing (71%), procedure (59%), and pharmaceutical (68%). In 7 percent, maternal complications and 11 percent, fetal adverse events including mostly surgical-site infection and NICU admissions happened. Clinical association came with higher complication rates associated with incomplete documentation, but was not statistically significant due to the sample size. **Conclusion:** There are big documentation loopholes especially in admission and vital-sign sheets which can make it difficult to identify high-risk cases like placenta accreta spectrum. Standardized forms, staff training and electronic systems can strengthen record keeping to enhance maternal safety and inform health policy and educational interventions.

INTRODUCTION

Effective and safe obstetric care requires proper and comprehensive medical record-keeping. The medical records are a main communication means among clinicians and continuity of care, appropriate decision-making, and intervention in due time during pregnancy, labor, and postpartum. Ineffective documentation and incomplete documentation have been associated with delayed diagnosis, ineffective communication and greater risk of complications that can be avoided on both the mother and the fetus [1]. The importance of extensive documentation is also emphasized by the World Health Organization (WHO) as a component of its vision of quality maternal and newborn health, whereby the systematic maintenance of records enables detection of risks in time and an effective system of referral to services and services to be done on time and in a systematic manner without wastage of resources 2 3.

A number of international studies have established that adequate antenatal and intrapartum records increase the early identification of complications, as well as the maternal fetal outcomes. Full patient records were found to enhance preeclampsia and obstetric bleeding detection by lodge and colleagues in Tanzania 4. Equally, Jankowicz et al. reported the completeness of records to exceed 90 percent following the adoption of electronic maternity systems in the United Kingdom which translated into enhanced accountability and coordination of care 5. Ameh et al. in Nigeria discovered incomplete antenatal records to be robust predictors of adverse pregnancy outcomes 6, and a Malawian audit to the poor quality of partgraph documentation as predictors of late detection of obstructed labor and stillbirths 7. All these results prove that keeping a full registry is not only organizational but also life-saving.

Research in Pakistan is scanty but the evidence that exists points to the same direction. In an effort to improve documentation, Akhund et al. designed and piloted an antenatal care handbook, which showed that better record-keeping increased follow-up

and counseling follow-up rates 8. Institutional audits that have been conducted as recently as Islamic points in Pakistan and Sindh have shown that in many cases the important parameters, antenatal history and the summary of investigations were not followed and hence did not lead to early notice of high-risk pregnancies. Such lapses in documentation especially put women at risk of abnormal placenta-all of placenta accreta, placenta increta, and placenta percreta -at risk and demand close attention and planning of multidisciplinary delivery. The recent systematic reviews of the literature globally suggest that placenta accreta spectrum (PAS) disorders nowadays complicate up to 1 in 500 pregnancies, and that hemorrhage and peripartum hysterectomy are highly likely in the case of non-early diagnosis. The prompt identification of these cases with specific obstetric histories, imaging reports, and standardized documentation can thus improve reduction in the morbidity and mortality of such cases 13.

Although the policy focuses on safe motherhood, the lack of structured assessments on the completeness of patient medical records and their effect on timely diagnosis of high-risk obstetric scenarios remains low in Pakistan. This paper seeks to fill that gap by evaluating the fullness of medical records of obstetric patients in the PUHMS tertiary care facility, and how inadequacies of documentation affect the identification and treatment of high-risk pregnancies, such as those ones inflicted with the presence of abnormally adherent placenta. It can be anticipated that the findings will inform the creation of context-related preventive guidelines and health system interventions that would support the improvement of record-keeping practices and enhance maternal safety.

METHODOLOGY

Study Design and Setting

It was a descriptive cross-sectional study which was carried out in the Department of Obstetrics and Gynecology, Unit-II, Peoples University of Medical and Health Sciences (PUMHS) which is a tertiary care teaching hospital at Shaheed Benazirabad. The objective of the study was to measure the completeness of medical record of obstetric patients and to analyze the contributory factors associated with the incomplete documentation and maternal or fetal complications.

Study Duration

The research was conducted during a period of six months, 6 th November 2023 to 5 th May 2024, which is identical as the period when the institutional audit on the completeness of medical records was carried out previously.

Study Population

The research involved medical documentation on obstetric patients who had been admitted to Unit-II within the given time. The records were chosen regardless of age, parity or gestational age so that low-risk and high-risk pregnancies (e.g., preeclampsia, placenta previa, placenta accreta spectrum, anemia, PROM) would be represented.

Sample Size and Sampling Technique

The non-probability consecutive sampling was used to review 100 obstetric patient files. The sample size was estimated with the help of the WHO software to calculate the sample size, where a margin of error was 5 percent, and the confidence level is 95 percent.

Inclusion Criteria

- Detailed or missing medical history of obstetric patients who have inpatient admission within the research period.
- Admission, history, examination and progress sheets of adequate identifying information.

Exclusion Criteria

- Admission number missing files or transferred files after partial admission.
- Duplicate or illegible files were not included in the process of verification.

Data Collection Procedure

The data were collected using the files of wards which were kept in the record room. A structured medical record assessment checklist was applied to each file and was developed based on the institutional documentation standards.

The subsequent sections were evaluated in terms of completeness and clinical description:

1. Admission and History Sheets demographic data, obstetric and medical history, risk assessment.
2. Examinations Sheets- antennal findings, vital signs and fetal parameters.
3. Progress and Nursing Notes- checking of fetal and maternal status.
4. Procedure and Operative Notes - information of interventions, blood loss and postoperative instructions.
5. Pharmaceutical and Investigation Records - drug administration, laboratory or imaging investigation.

The grades were scored as complete or incomplete according to predetermined criteria (presence of all the required fields). Other variables that were noted were age of the patient, parity, diagnosis, delivery type, complications (e.g. PPH, preeclampsia, sepsis) and a high-risk or normal case.

Data Analysis

Information was keyed into SPSS version 25 to analyse. Descriptive statistics were used to compute:

- Categorical variables (record completeness, risk category, type of delivery, complications) frequencies and percentages.
- Means and standard deviations on continuous variables (age, gestational age).

Cross-tabulation and Chi-square tests were applied in order to determine contributory factors to incomplete documentation and adverse outcomes. The relationships between incomplete documentation and complications like preeclampsia, postpartum bleeding or NICU hospitalization were examined at a 95 percent confidence level with a p-value of less than 0.05 being found as statistically significant.

Ethical Considerations

The Institutional Ethical Review Committee of PUMHS approved the study before collecting data. Anonymity of records ensured patient confidentiality. Data analysis and presentation were not done using identifiers.

RESULTS

The sample size (n) of the reviewed Obstetrics and Gynecology Unit-II, PUMHS, was 100 obstetric patient records between 6 November 2023 and 5 May 2024. The necessary departmental records included admission, history, examination, progress, nursing, vital sign, procedure, and clinical pharmaceutical sheets in all records.

Wholeness of Medical Records

The general level of document completeness of various record sections differed (Table 1). Only 28 percent of the results were complete admission sheets with the rest 72 percent missing one or more fields. There was improved documentation of 53% in history sheets. Examination and progress notes were the same with 66 percent of files being complete. The most consistently completed were the nursing notes (71 percent filled in) then the clinical pharmaceutical sheets (68 percent), procedure sheets (59 percent), and finally the vital-signs sheets (48 percent).

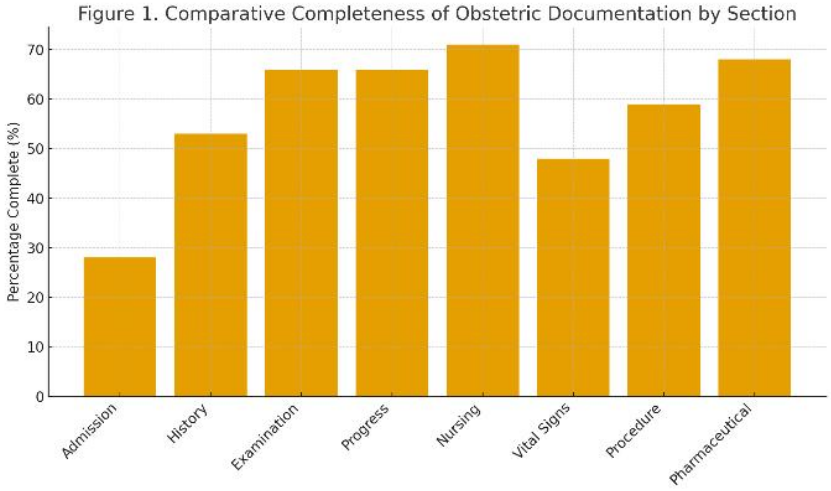

Table 1: *Completeness of Documentation by Record Section (N = 100)*

Record Section	Complete n (%)	Incomplete n (%)
Admission sheet	28 (28.0)	72 (72.0)
History sheet	53 (53.0)	47 (47.0)
Examination sheet	66 (66.0)	34 (34.0)
Progress notes	66 (66.0)	34 (34.0)
Nursing sheet	71 (71.0)	29 (29.0)
Vital-signs sheet	48 (48.0)	52 (52.0)
Procedure sheet	59 (59.0)	41 (41.0)
Clinical pharmaceutical sheet	68 (68.0)	32 (32.0)

Figure 1 shows the relative levels of completeness in each of the sections with a clear indication of the consistently inadequate documentation in the admission and vital-signs sheets.

Maternal Outcomes

Among 100 obstetric patients, 93 percent of them were discharged in healthy, whereas 7 percent had a maternal complication (Table 2).

The incidence of surgical-site infection (SSSI) was 5%, 1% of them developed sepsis, and 1% mortality in the post-partum period.

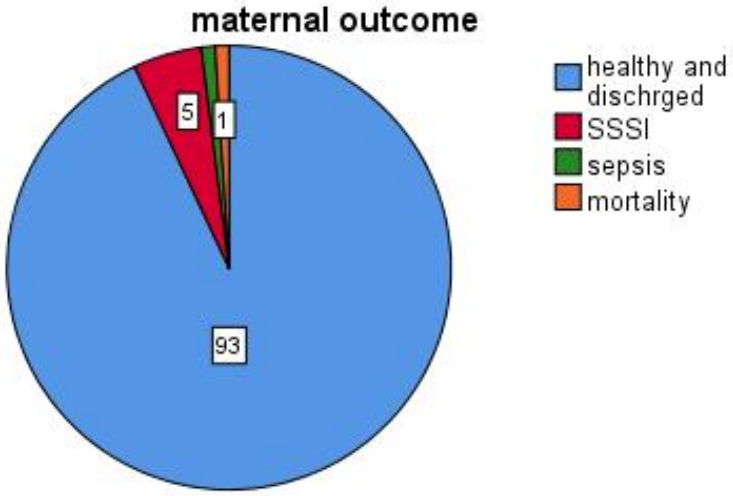

Table 2: *Maternal Outcomes (N = 100)*

Outcome	Frequency	Percentage
Healthy and discharged	93	93.0 %
Surgical-site infection (SSSI)	5	5.0 %
Sepsis	1	1.0 %
Mortality	1	1.0 %

Fetal Outcomes

Of the 89 percent of newborns, 89 percent of them were alive and healthy at discharge, and 11 percent had adverse outcomes (Table 3). In 6, 1, 2, and 2 percent of the total deliveries, there were admissions to NICU, early neonatal deaths (ENND), intra-uterine deaths (IUD), and stillbirths, respectively

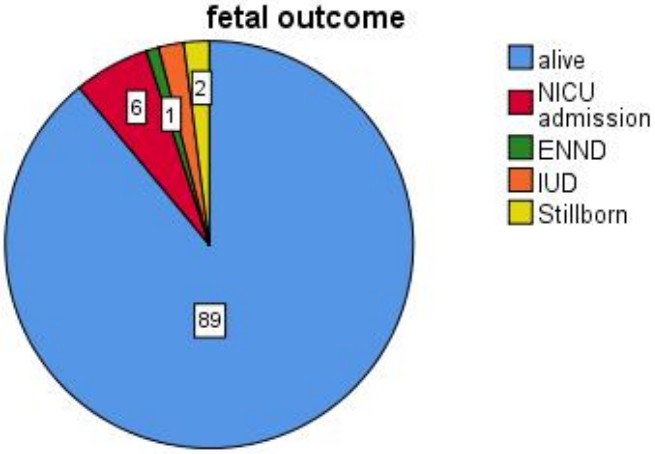

Table 3: *Fetal Outcomes (N = 100)*

Outcome	Frequency	Percentage
Alive	89	89.0 %
NICU admission	6	6.0 %
Early neonatal death (ENND)	1	1.0 %
Intra-uterine death (IUD)	2	2.0 %
Stillborn	2	2.0 %

Correlation of Documentation Completeness and Adverse Outcomes

Incomplete records were more often related to adverse maternal and neonatal outcomes when stratified by documentation quality, but small subgroup sizes could not easily be statistically tested.

Cases where the admission or vital-shed were incomplete had a greater percentage of SSSI and NICU admissions than the cases where such sections had been filled. Poor documentation of the procedure was also associated with increased maternal morbidity (infection/sepsis) and poor fetal outcomes (NICU admission, IUD).

The Chi-square testing was not statistically significant when performed formally because of the small number of cases, but the clinical pattern indicated that missing data in the records might be a contributor to late diagnosis and treatment of the complications.

Summary of Key Findings

This was minimum in admission (28%) and vital-side (48) sheets.

- The greatest documentation rates were seen in the nursing (71 %) and pharmaceutical (68 %) sheets.
- Maternal complication rate: 7 %.
- Fetal adverse outcome rate: 11 %.
- Tendency to increase maternal/fetal morbidity in files with unfinished documentation, which proves the hypothesis of the study that the effective maintenance of records helps to identify high-risk cases at an earlier stage.

Discussion

This paper rated the thoroughness of obstetric medical records in one of the tertiary teaching hospitals in Sindh and investigated the linkage of documentation quality with maternal and fetal outcomes. The results showed a significant difference in documentation practices on different parts of the record. The maximal completeness of admission and vital-sign sheets was the lowest (28 percent and 48 percent, respectively), whereas the nursing and clinical-pharmaceutical records were the most complete (71 percent and 68 percent). Maternal complications were detected in 7% of cases and

adverse fetal outcomes were registered in 11% with predominant cases being NICU admission and stillbirths. Even though this could not be proved statistically because of the size of the sample, the trend has been that of poorer results in cases where the documentation was incomplete.

Comparison to Existing Literature

The variability that was observed in the documentation quality reflects the trends that are taken throughout the world and in Pakistan as well. It was also discovered by Lodge et al. (2020) that achievement of completeness in admission and vital-sign catheters in Tanzanian hospitals was low, with the researchers associating it to a shortage of resources and poor oversight of staff [4]. These shortcomings were also found by Ashraf et al. (2023) in another federal tertiary hospital in Islamabad where admission records were available in just 25 percent of cases. Malawi audit revealed that partographs were only completed half-way and therefore delayed the observation of obstructed labor [7]. Taken together, these findings suggest that a weak area of low- and middle-income health systems is the provision of early admission data and vital-sign documentation which, in many cases, is due to junior staff being overworked or midwives being responsible.

The completeness of the nursing and pharmaceutical records in this study is higher compared with the results of the study done in Nigeria, where inconsistency in medication records and under-reporting of adverse drug events were reported by Ameh et al. (2016) [6]. This comparative advantage could be manifested at PUHMS in more regular documentation policies and rigorous nursing audit measures. Midwives documented history and progress were moderately complete (53 percent and 66 percent) consistent with Mandiwa and Zamawe (2017), who found progress measurements more reliable than baseline measurements.

Determinants and Potential Reasons

Admission Sheet (28 %) Low completeness is probably caused by time constraints when making emergency admissions, inadequate clerical assistance, and the lack of standardized checklists. Kenyan and Pakistani research points out that compliance with detailed documentation is lower in unstructured formats and a high number of patients [14,15].

Vital-Signs Sheet (48 %) - Just like in the hospitals of Basrah and Dhaka where the recording of vital-sign was still under 50 percent, the problem is mostly tied to equipment shortages, unskilled paramedics, and disjointed nursing shifts [16]. Poor follow-up is a factor that results in the loss of early signs of preeclampsia or postpartum haemorrhage [1] thirteen.

Nursing Sheet (71 %) and Pharmaceutical Record (68 %) — Better completeness here is associated with regular hospital audits and pharmacy verification procedures that are in line with WHO guidelines on medication reconciliation and nursing documentation [1].
Procedure and Operative Notes (59 %) — Incomplete may be associated with rushed intraoperative record-keeping and the lack of specially trained theatre clerks, which also happened in the case of Rathi et al. (2019) in India [19].

Maternal and Fetal Complications -Maternal morbidity (71) and fetal adverse outcomes (111) in this case are similar to other South-Asian tertiary centers 20. The most common maternal complication was surgical-site infection (5 percent), which matched WHO standards of 5-10 percent post-cesarean wound infection in low-resource environments [1]-9. The NICU admission rate reported at 6 percent matches the one reported by the Aga Khan University (7 percent) 2. The evident pattern of increasing complications in the incomplete records shows how the gaps in documentation can affect the clinical outcomes. The records are not well kept to identify the risks during the antenatal period and the management towards placenta accreta spectrum and other high-risk complications is not prepared.

Practical and Population Health Implications

The results highlight that record completeness is not only an administrative requirement but a fundamental patient safety determinant. The adoption of standardized obstetric checklists, implementation of daily documentation audit, and implementation of electronic medical record systems (EMRs) have the potential of significantly enhancing quality. By minimizing free-text entry, electronic or semi-electronic templates improve completeness as illustrated by Jankowicz et al. (2017) [5]. Regular training and supervision of in-service is also important, which is emphasized by the quality-of-care framework developed by WHO [18].

By enhancing record-keeping, better at the public-health level, maternal-death surveillance and early detection of high-risk pregnancies can be achieved, and national SDG 3.1 goals achieved. The preventive interventions should be related to capacity building, simplified record format, and periodical completeness audit at primary and tertiary level.

Future Research Directions

This paper reveals some of the gaps that would be worth investigating:

1. Multicenter research incorporating more subjects to make inferences in other provinces.
2. To investigate provider-level obstacles to documentation (workload, motivation, supervision), the qualitative research will be conducted.

3. Deposits of intervention investigating an electronic or checklist-based system and its effects on maternal and neonatal outcomes.
4. Dedicated research on the impact of unfinished documentation on the early diagnosis of placenta accreta spectrum and other high-risk disorders.

Limitations

Since it is a single center, cross-sectional study, causality between poor outcome and incompleteness in documentation cannot be established. The research was based on the retrospective file review, which has the possibility of under-reporting the undocumented events. Nevertheless, systematic grading of completeness and inclusion of various elements of records enhance its internal validity.

Conclusion

This research shows that there are some vacuous gaps in obstetric documentation within a tertiary facility in Sindh especially on admission and vital-sign sheets. The tendencies of increasing maternal and fetal complications in terms of incomplete records underline the necessity to resort to standardized documentation and the training of staff. The enhancement of record keeping systems is part of the early risk detection and enhanced feto-maternal outcome in the obstetric care environment in Pakistan.

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