

# Readmission for Morbidities among Postpartum Women in a Tertiary Hospital of Kathmandu

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## ABSTRACT

**Background:** Postpartum period is a critical stage where the majority of the maternal mortality occurs. Major obstetric morbidities during this period include postpartum haemorrhage, puerperal pyrexia, and sepsis, and pregnancy induced hypertension. The objective of this study was to find out the morbidities in postpartum women readmitted following discharge from the hospital after delivery.

**Methods:** It was conducted as a hospital-based descriptive study at Paropakar Maternity and Women's Hospital (PMWH), Thapathali, Kathmandu. Ethical clearance was obtained from Institutional Review Board (IRB) of National Academy of Medical Sciences (NAMS). The total population enumeration technique was used to collect the data for a period of three months. A Standard Performa containing socio demographic characteristics, causes of readmission, complications during pregnancy, time interval of readmission and outcome of readmission was prepared which include relevant points according to the objective of the study. Data analysis was done using the Statistical Package for Social Sciences 16. Descriptive statistics (frequency, percent, mean, standard deviation and range) were used to analyse the data.

**Results:** The incidence of postpartum readmission was 1.0% of total deliveries with 58 women being readmitted. More than two-fifth (29, 43.9%) were readmitted due to abdominal and perineal wound infections followed by urinary tract infections (8, 12.1%). Hypertension, puerperal pyrexia, secondary postpartum haemorrhage were other conditions requiring readmission in postpartum period.

**Conclusion:** The study concluded that the women were readmitted during their postpartum period for multiple causes, wound infection being the most common. The quality of postnatal care including proper examination before discharge is necessary to ensure reduction in the readmission rate.

**Keywords:** morbidities; postpartum; readmission, wound infection.

## INTRODUCTION

Maternal morbidity refers to physical or mental illness that can develop as a result of a pregnancy, delivery, or puerperium incident that was recognized after childbirth.<sup>1,2</sup> Maternal mortality in Nepal is found to be frequent in the postpartum period (72.2%) in comparison to the antenatal (21.6%) and intranatal period (6.2%). This emphasizes the need for focus in this crucial period.<sup>3</sup>

Postpartum readmission has a significant detrimental effect on both the quality of life and the health care system.<sup>4,5</sup> To adopt strategies for prevention and early management, it is essential to understand the prevalence of postpartum morbidities, their characteristics, and the timing of their emergence. The analysis therefore can improve the quality of initial approach to a postpartum woman that can prevent

future readmission. The objective of this study is to find postpartum morbidities requiring hospital readmission.

## METHODS

A descriptive study was conducted in Paropakar Maternity and Women's Hospital, Thapathali (PMWH), Kathmandu, Nepal for three months (15th June to 16th September 2020). Data collection was started after the ethical clearance from Institutional Review Board of National Academy of Medical Sciences. Postpartum women readmitted after delivery at PMWH and within puerperal period were included in the study. Women readmitted for non-maternal problems (accidents, trauma, baby's illness), and having morbidities during hospital stay before discharge were not included in the study.

The total population enumeration method was used to

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collect the data. A total of 58 women were readmitted for different postpartum morbidities during the study period. All the women readmitted through the emergency and outpatient department were followed in the in-patient wards. Those who met the inclusion criteria were recruited for the study and written informed consent was obtained from each of them.

A structured performa containing demographic and obstetric characteristics was used to collect the data. The provisional diagnosis at the time of readmission was obtained from the medical record. The women were followed till discharge. Data were coded for entry and analysis into Statistical Package for Social Sciences (SPSS) version 16. Descriptive statistics (frequency, percent, mean, standard deviation and range) were used to describe the quantitative study variables.

## RESULTS

Total 58 postpartum women were included in the study as per the criteria. Their mean age was 26.57±5.03 years. Most of them were of the age group 25-29 years 24 (41.4%). Three (5.2%) of them were teenagers whereas four (6.8%) were of advanced maternal age (≥35 years). The majority of the women were Janjati (43.1%) (**Table 1**).

**Table 1:** Socio-demographic characteristics of postpartum women.

Characteristics	Frequency	Percent
<b>Age</b> (Mean ± SD = 26.57±5.03)		
15-19	3	5.2
20-24	18	31.0
25-29	24	41.4
30-34	9	15.5
35-39	2	3.4
40-44	2	3.4
<b>Ethnicity</b>		
Dalit	7	12.1
Janjati	25	43.1
Madhesi	5	8.6
Brahmin/Chhetri	18	31.0
Muslim	3	5.2

Most of the postpartum women were multiparous (30, 51.7%) and were of term period (58, 93.2%). Twenty-one (36.2%) women had some complications during pregnancy. Hypertension (systolic blood pressure ≥ 140 mm Hg and/or diastolic blood pressure ≥ 90 mm Hg after 20 weeks of gestation till 12 weeks postpartum without proteinuria) was most common (8, 38.1%). Chorioamnionitis (diagnosed as presence of maternal fever, maternal leucocytosis, fetal tachycardia, uterine tenderness, purulent discharge from cervix) was present in 2 (9.5%) cases. Other complications included gestational hypertension, thyroid disorder and others (**Table 2**).

Out of 5,794 women delivered in PMWH, 58 women were readmitted with various postpartum morbidities with an incidence of maternal readmission of 1.0%. The most common cause for readmission was wound infection 29 (43.9%) followed by urinary tract infection 8 (12.1%) (**Table 3**).

**Table 2:** Obstetric characteristics of postpartum women.

Characteristics	Frequency	Percent	
<b>Parity</b>	Primi	28	48.3
	Multi	30	51.7
<b>Period of gestation</b>	< 37 weeks	4	6.8
	≥37 weeks	54	93.1
<b>Complications during pregnancy (n=21)*</b>	Hypertension	8	38.9
	Chorioamnionitis	2	9.5
	Anaemia	1	4.8
	Others	11	52.4

\*Multiple response

**Table 3:** Postpartum morbidities requiring readmission among postpartum women.

Causes of readmission*	Frequency	Percent
Wound infection	29	43.9
Urinary tract infection	8	12.1
Puerperal pyrexia	7	10.6
Urinary retention	5	7.6
Hypertensive disorder	4	6.1
Secondary PPH	4	6.1
Puerperal sepsis	3	4.5
Eclampsia	2	3.0
Others	4	6.1

\*Multiple response

Among 58 readmitted cases, 25 (43.10%) had normal delivery whereas 33 (56.89%) had caesarean delivery. Among the women with wound infection, 23(79.3%) were delivered by caesarean section whereas 20.7% of them had normal delivery. Similarly, urinary tract infection which was the second most common cause of readmission, six (75%) of them were delivered normally and only two (25%) had caesarean delivery. (**Table 4**).

Most of the women 35 (60.30%) were readmitted between 4-7 days of discharge after delivery. The range of intervals from discharge to readmission was 2 to 13 days (**Figure 1**).

The readmitted women were followed till discharge. Majority (56, 96.6%) of the women condition was improved at the time of discharged whereas only 2 (3.4%) were referred for multidisciplinary management (**Table 5**)

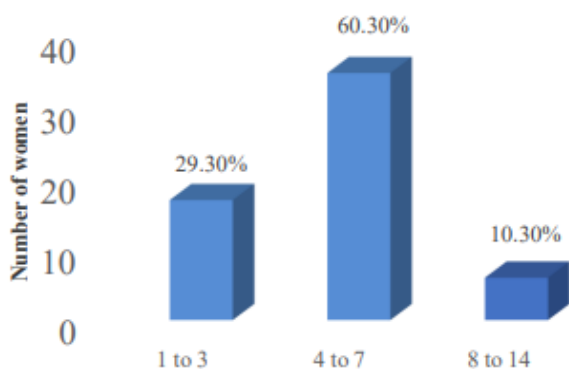
## DISCUSSION

A total of 58 women were readmitted with various postpartum morbidities which gives an incidence of readmission as 1.0%. Most of the study findings were similar to other studies in comparing the incidence of postpartum readmission. A study conducted in the same setting in 2007 by Raut B showed an incidence of 1.25% of hospital readmission related to postpartum morbidities.<sup>6</sup>

**Table 4:** Distribution of postpartum morbidities in relation to mode of delivery.

Causes of readmission	Mode of delivery			
	Normal Vaginal (n=25)		Caesarean Section (n=33)	
	Frequency	Percent	Frequency	Percent
Secondary PPH	2	50.0	2	50.0
Puerperal pyrexia	5	71.4	2	28.6
Puerperal sepsis	2	66.7	1	33.3
Hypertension	3	75.0	1	25.0
Urinary tract infection	6	75.0	2	25.0
Wound infection	6	20.7	23	79.3
Eclampsia	2	100	0	0
Urinary retention	2	40.0	3	60.0
Others	4	100	0	0

\*Multiple response



**Figure 1:** Time interval (days) from discharge to readmission (N=58)

**Table 5:** Outcome of readmitted postpartum women.

Outcome	Frequency	Percent
Improved	56	96.6
Referred	2	3.4

Higher than the present study finding, a study done by Elkhoudri N et.al and Rosa ML et al revealed postpartum readmission prevalence as 13.1% and 10.2% respectively.<sup>7,8</sup>

In this study, the most common cause for readmission was wound infection which accounts for 43.9% followed by urinary tract infection (12.1%). Puerperal pyrexia (10.6%), puerperal sepsis (4.5%) hypertensive disorders (6.1%), and

secondary PPH (6.1%) were other causes for readmission among postpartum women. Many literature reported conflicting results regarding postpartum morbidities. A similar study done Raut B by found puerperal sepsis (37.5%) as the most common diagnosis for readmission which was higher compared to the present study. However, surgical wound infection was not reported which contradicts the findings of the present study. This may be due to increased number of readmission among women with caesarean mode of delivery (17.50% vs 56.89%).<sup>6</sup> On the other hand, the findings of this study is comparable to study by Malla R et al which showed surgical wound infection and puerperal sepsis as the most common causes of readmission.<sup>9</sup> Another descriptive cross-sectional study done in Nepal revealed puerperal sepsis (22.11%) as the most common cause for postpartum readmission. Eclampsia was reported four times higher than in the present study. Mother were also readmitted with postpartum cardiomyopathy, paroxysmal supraventricular tachycardia, organic psychosis, and rectus sheath hematoma which was not present in the present study. This may be due to the unavailability of multidisciplinary services in the study setting.<sup>10</sup>

In the present study, most of the mothers were delivered through caesarean section (56.89%). The percentage of mothers who had vaginal birth was found to be 42.4%. A similar study shows that caesarean section was found to be associated with a significantly increased risk of postpartum readmission than spontaneous vaginal delivery.<sup>11</sup> Similarly another study done in a provincial hospital Island also reported a different result than the present study where 56% of the mothers who delivered by vaginal delivery were readmitted due to postpartum morbidity whereas 44% of them delivered by caesarean section.<sup>12</sup>

The present study found that 36.2% of the mothers had some complications during the pregnancy among which hypertensive disorder was the most common one, 36.4% of all other causes. Consistent with this study is a study done in India that found that 26.6% of the mothers with postpartum morbidities had the co-morbid conditions during pregnancy.<sup>13</sup>

The study findings are not representative of the general population as it was conducted in a selective tertiary setting. The study does not incorporate the women who had delivered outside the settings. Further study analysing the risk factors for postpartum readmission is recommended.

**CONCLUSIONS**

The postpartum woman are readmitted due to different morbidities, the most common cause being wound infection followed by urinary tract infection. Puerperal pyrexia, secondary PPH, and hypertension were other causes of readmission among postpartum mothers. The maximum number of women were readmitted within the first week of delivery. Standard hospital policy regarding postnatal care and postnatal discharge might reduce the incidence of postpartum readmission.

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