

## Magnitude and associated factors of postnatal care service utilization among postpartum mothers in Banke district, Nepal

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### ABSTRACT

**Background:** Postnatal care is a care provided to postpartum mothers after the delivery of child for at least 42 days. Postnatal care services play an important role in improving maternal and newborn health and prevent long-term complications.

**Objectives:** The study aimed to assess the utilization of postnatal care services among postpartum mothers in Janaki rural municipality of Banke district.

**Methods:** A community-based cross-sectional study was conducted among 203 postpartum mothers who had children less than 12 months. Proportionate stratified random sampling method was used to reach the sample. Interview schedule as structured questionnaire was used as a data collection tool. Data was entered and analyzed in SPSS v.16. Descriptive statistics was computed to describe socio-demographic profile of participants and factors related to postnatal care utilization. Univariate logistic regression analysis was done to identify the most independent factors related postnatal care utilization.

**Result:** A total of 203 postpartum mothers who had child less than 12 months were enrolled in the study. The prevalence of the low postnatal service utilization was 82%. The mean age with standard deviation of the respondents was  $24.55 \pm 3.95$ . There was no statistical association between postnatal care utilization and sociodemographic variables. No health service received after delivery ( $p < 0.001$ ) was found statistically significant with low utilization of postnatal care services.

**Conclusion:** The study concluded that low utilization of the postnatal care services was high. Providing awareness on importance of postnatal care services during antenatal care visit and increasing the availability and accessibility of health care to postnatal women is crucial. Strengthening the health services and empowering the mother's groups to increase postnatal care services is a key intervention to increase services.

**Keywords:** Postnatal care, Utilization, Postpartum, Nepal

## 1. Introduction

Postnatal care is a care given to the mother and her newborn baby immediately after the birth for the first 42 days of life [1,2]. WHO had recommended at least three post-natal care visits after birth on day 3 (48-72 hours), between days 7-14 after birth and 6 weeks after birth. Postnatal care is an important aspect of maternal care as serious and life-threatening complications can occur in these period [1,3]. Essential postnatal care is critical for survival of postpartum women and newborns [1].

During postnatal care visit, both mother and newborn health is assessed. Postnatal care includes prevention, early detection and treatment of complications, and the provision of counseling on breastfeeding, birth spacing, immunization and maternal nutrition [3]. PNC services utilization is influenced by different factors such as maternal age, educational level of the mother, occupational status of women and husbands, place of delivery and awareness about PNC services [4,5]. Globally postnatal care utilization has been improving maternal and child health, yet in South-East Asia and Sub Saharan Africa it is still emerging problem for maternal and neonatal health [6].

In context of Nepal, several studies had highlighted diverse culture, religion, geographical difficulties, lack of

transportation, lack of time due to heavy workload and limited skilled health professional as a reason that affect the utilization of postnatal services [7]. In the past two-decades, Nepal has made steady progress in improving maternal health service utilization however, inequalities among different population sub-groups and in economic status of people still persist [8].

In Nepal, Department of Health Services (DoHS) had recommended three visits for PNC service (within 24hrs, on 3<sup>rd</sup> and 7<sup>th</sup> day of delivery) which is still very low. The percentage of women who received a postnatal care (PNC) assessment within two days following delivery rises from 45% in 2011 to 57% in 2016 [9]. The proportion of mothers who attended three PNC visit as per protocol at the health facility decline to 16% in FY 2074/75 from 19% of FY 2073/74. Similarly, in province no.5, PNC utilization has decreased from 25% in 2073/74 to 22% in 2074/75. However, there were significant socioeconomic disparities in PNC utilization: 81% of women in the highest wealth quintile had an early PNC visit compared to only 37% among women in the lowest wealth quintile [9,10]. PNC is the recommended strategies to reduce the maternal death during postpartum period. According to HMIS database 2074/75, PNC utilization in Janaki RM is very low

compared to Four ANC utilization as per protocol i.e. only 71 women had 3 PNC visits as per protocol among 681 women receiving scheduled 4 ANC visits [10]. The study aimed to assess the utilization of postnatal care services among postpartum mothers in Janaki rural municipality of Banke district.

## **2. Method**

### **2.1 Study area and period**

The study was conducted in Janaki rural municipality in western Nepal from August 2019-January 2020. Janaki RM is located in Terai region and is one of the rural municipalities of Banke District. Among all municipalities of Banke, Janaki RM has the lowest number of PNC utilization. All the wards of the Janaki rural municipality were selected.

### **2.2 Study method and population**

A community based cross-sectional study design was conducted to assess the utilization of PNC among all delivered women having  $\leq$  12 months of child of Banke district of Nepal. Quantitative method was used.

### **2.3 Sample size and Sampling procedure**

The study sample was calculated by using the Cochran formula pertaining to the objectives of the study. The finite population was obtained from the district annual report of health office, Banke; the total PNC in last fiscal year was 355. Using the Cochran formula and adding

10% non-response rate the total sample size was 203.

Using finite population, the sample size was 183, adding 10% non-response rate, the total sample size for the study was 203. The following steps were followed for the selection of respondents in selected districts. The sample was selected by multistage sampling method.

#### **First stage:**

1. Nepal has 77 districts, through the simple random technique, Banke district was randomly selected.
2. Banke district has one sub metropolitan, one municipality and six rural municipalities. Among all, Janaki rural municipality had lowest postnatal care utilization thus all the six wards of the Janaki rural municipality were taken.
3. Proportionate stratified random sampling method was used for sample selection. Stratification was done among the wards of Janaki RM. Total delivered women from each ward was taken, number varies among the wards. With intension of giving similar proportion for all wards for their representation in study, proportionate stratified random sampling method was chosen. PNC detail was obtained from birthing center of Janaki RM and randomly sample were selected.

## **2.4 Data collection procedure**

Interview schedule as a structured questionnaire was used as a data collection tool. Face to face interview with respondents was carried out to collect the data. Informed consent from individual respondent on their agreement for data, time, etc. was obtained beforehand. Completeness in data was checked and amendment was made before leaving the wards. Researcher herself was directly involved in data collection and analysis. Data collection was carried out by face to face interview in Nepali and Hindi language. Two-month time was given for data collection.

## **2.5 Data processing and analysis**

Data classification, coding, entry and analysis was done by using SPSS version 16. Descriptive and inferential statistical analysis were applied. Univariate and bivariate logistic regression models were used to determine the significance of association in order to identify the most important independent factors associated with PNC utilization. The odds ratio and 95% CI was reported while showing the association between outcome and independent variables. This result was considered significant at 5% level i.e. p value ( $<0.05$ ). During data coding in SPSS for analysis, outcome variable of interest i.e. high PNC Utilization was coded as 0 and low PNC utilization was coded as 1.

## **2.6 Ethical Approval and Patient Consent**

First of all, ethical approval was taken from Institutional Review Committee of Manmohan Memorial Institute of Health Sciences. (MMIHS-IRC) (Registration Number 443, Approval reference number 126/02). The official approval was taken from the Janaki Rural Municipality to conduct the study. FCHV was approached to collect the details of the postnatal mothers in their respective wards. Informed (written) consent was taken from the study subjects before conducting the study. Privacy and confidentiality of the entire respondents was maintained. The collected data was kept confidential and only used for study purpose. Respondent choice of not participating in the study was respected. Questions were not asked in a way that hurts their dignity. Respondent was selected without any discrimination of ethnicity, occupation, socio economic status and religion. After the completion of the data, the queries of the respondents were addressed and necessary information was imparted relating PNC services.

## **3. Result**

### **3.1 Socio-demographic characteristics**

Table 1 represents socio-demographic characteristics of postpartum women. The mean age and standard deviation of the respondents was  $24.55 \pm 3.95$  years. Around

half (48.8%) of the respondents were illiterate. Majority (70.4%) of respondents followed

Hinduism. Most of the all (97.5%) respondents were homemakers.

Table 1: Sociodemographic Characteristics of respondent (n=203)

Variables	Frequency	Percentage
<b>Age (in year)</b>		
15-19	14	6.9
20-24	83	40.9
24-29	73	36.0
30 and above	33	16.3
Mean:24.55, SD:3.95, Min:18 Max:40		
<b>Ethnicity</b>		
Dalit	24	11.8
Disadvantaged non-Dalit Terai caste	120	59.1
Religious minorities	59	29.1
<b>Religion</b>		
Hindu	143	70.4
Muslim	60	29.6
<b>Employment of Respondent</b>		
Agriculture	1	0.5
Homemaker	198	97.5
Business	2	1.0
Government services	1	0.5
Daily wages	1	0.5
<b>Family Size</b>		
Nuclear	55	27.1
Joint/extended	148	72.9
<b>Education of Respondent</b>		
No education	99	48.8
Basic Education	80	39.4
Higher education	24	11.8
<b>Respondent Husband's Employment</b>		
Agriculture	41	20.2
Government services	13	6.4
Non-government services	34	16.7
Business	35	17.2
Working abroad	17	8.4
Daily wages	63	31.0
<b>Respondent Husband's Education</b>		
No education	52	25.6
Basic education	99	48.8
Higher education	52	25.6
<b>No. of Children</b>		
One	78	38.4
Two	51	25.1
Three	45	22.2
More than three	29	14.3
<b>Decision maker of Health care</b>		
Father-in-law	17	8.4
Mother in law	65	32.0
Husband	118	58.1
Self	3	1.5

Most of the respondents (86.7%) had delivered in the centers with health facility. Most (83.1%) of the respondents took PNC services at government health facility. Most (91.8%) of the respondents took PNC services within 24hr of delivery. More than half (60%) of women received PNC service during previous delivery

and among them (84%) received PNC services at government health facility. Among the services received during PNC visit, examination of cord was found to be high (89.1%), More than half (59.6%) of respondents had to travel more than 30 minutes to reach health facility is illustrated in Table 2.

**Table 2: Health services related factors of respondents**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Place of delivery(n=203)</b>		
Health facility	176	86.7
Home	27	13.3
<b>PNC Service received(n=203)</b>		
Yes	183	90.1
No	20	9.9
<b>Place of PNC service received (n=183)</b>		
Government Health facility	152	83.1
Private hospital/ clinics	31	16.9
<b>Time of PNC Service received(n=183)</b>		
Within 24hrs	168	91.8
Within 7days	15	8.2
<b>PNC Service received Previously(n=125)</b>		
Yes	75	60
No	50	40
<b>Place of PNC received Previously(n=75)</b>		
Government facility	63	84
Private facility	12	16
<b>Danger sign seen previously(n=125)</b>		
Yes	33	26.4
No	92	73.6
<b>Services received during PNC visits(n=183)</b>		
<b>Examination of cord</b>		
Yes	163	89.1
No	20	10.9
<b>Measure temperature</b>		
Yes	177	96.7
No	6	3.3
<b>Counsel on danger sign</b>		
Yes	20	10.9
No	163	89.1
<b>Counsel on breast feeding</b>		
Yes	150	82
No	33	18
<b>Observe breastfeeding</b>		
Yes	171	93.4
No	12	6.6
<b>Counsel on Family planning</b>		
Yes	150	82
No	33	18

Variables	Frequency	Percentage
<b>Distance from health facility(n=203)</b>		
Less than 30min	82	40.4
More than 30min	121	59.6
<b>Access to transportation (203)</b>		
Walking	42	20.7
Rickshaw/cycle	135	66.5
Motorbike	26	12.8
<b>Informed by health worker about PNC Services(n=183)</b>		
Yes	150	82
No	33	18
<b>Facility charges during delivery(n=183)</b>		
Yes	23	12.6
No	160	87.4

Figure 1 showed majority (82%) of the respondents had low utilization of postnatal services.

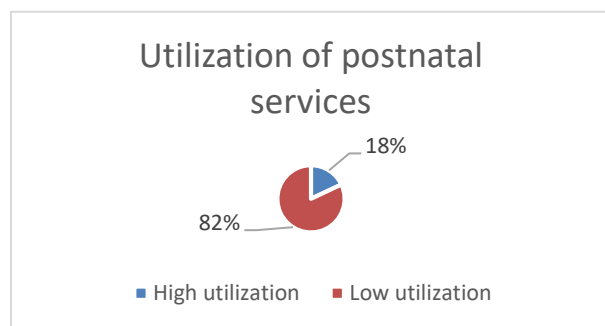


Figure 1: Utilization of Postnatal Care Services

Table 3 explains the association of PNC service utilization with different socio-demographic variables. Age, ethnicity, religion, education, family size, husband’s employment, husband education, number of children were not found with statistical association with PNC utilization. No received of health services after delivery was found statistically significant with PNC utilization ( $p < 0.001$ ,  $OR=0.032,95\%$   $CI=0.011-0.089$ ) is presented in Table 4.

Table 3: Univariate analysis of socio-demographic variables and postnatal service utilization

Characteristics	Utilization of PNC services		P value	OR	CI
	Low (%)	High (%)			
<b>Age</b>					
15-19	12(92.3)	1(7.7)	0.605	Ref	1
20-24	65(83.3)	13(16.7)		0.41	(0.050-3.489)
25-29	48(77.4)	14(22.6)		0.28	(0.034-2.392)
30 and above	25(83.3)	5(16.7)		0.41	(0.044-3.972)
<b>Ethnicity</b>					
Dalit	17(81)	4(19)	0.51	Ref	1
Disadvantage non- Dalit terai caste	86(79.6)	22(20.4)		0.92	(0.281-3.010)
Religious minorities	47(87)	7(13)		1.58	(0.410-6.081)
<b>Religion</b>					
Muslim	48(87.3)	7(12.7)	0.22	Ref	1
Hindu	102(79.7)	26(20.3)		1.74	(0.709-4.309)
<b>Education of respondent</b>					
Higher education	20(83.3)	4(16.7)	0.35	Ref	1
Basic education	57(77)	17(23)		0.55	(0.244-1.247)
No education	73(85.9)	12(14.1)		0.82	(0.239-2.826)
<b>Family size</b>					

Characteristics	Utilization of PNC services		P value	OR	CI
Nuclear	38(84.4)	7(15.6)	0.61	Ref	1
Joint	112(81.2)	26(18.8)		0.79	(0.319-1.976)
<b>Respondent's husband employment</b>					
Agriculture	32(84.2)	6(15.8)	0.24	Ref	1
Government Office	6(60)	4(40)		0.28	(0.061-1.307)
Non-government services	24(72.7)	9(27.3)		0.50	(0.157-1.596)
Business	29(90.6)	3(9.4)		1.81	(0.415-7.916)
Working abroad	14(87.5)	2(12.5)		1.31	(0.235-7.323)
Daily wages	45(83.3)	9(16.7)	0.93	(0.303-2.897)	
<b>Respondent's husband education</b>					
No education	40(87)	6(13)	0.43	Ref	1
Basic education	74(82.2)	16(17.8)		0.69	(0.252-1.912)
Higher education	36(76.6)	11(23.4)		0.49	(0.165-1.463)
<b>Number of children</b>					
One	61(83.6)	12(16.4)	0.23	Ref	1
Two	38(80.9)	9(19.1)		0.83	(0.320-2.157)
Three	10(27.8)	26(72.2)		0.51	(0.197-1.331)
More than three	2(7.4)	25(92.6)		2.45	(0.513-11.792)
<b>Decision maker of health care</b>					
Father in-law	12(75)	4(25)	0.70	Ref	1
Husband	88(83.8)	17(16.2)		1.72	0.497-5.993
Mother in-law	48(80)	12(20)		1.33	0.365-4.875
Self	2(100)	0(0)		0	0.000

Table 4: Univariate analysis between maternal related factors and PNC service utilization

Characteristics	Utilization of PNC services		P value	OR	95%CI
	Low (%)	High (%)			
<b>Place of delivery (183)</b>					
Health facility	144(81.8)	32(18.2)	0.79	Ref	1
Home	6(85.7)	1(14.3)		1.33	(0.155-11.462)
<b>Time of receiving PNC services (183)</b>					
Within 24hrs	137(81.5)	31(18.5)	0.62	Ref	1
Within 7days	13(86.7)	2(13.3)		1.47	(0.316-6.853)
<b>Place of PNC service received (183)</b>					
Government health facility	124(81.6)	28(18.4)	0.76	Ref	1
Private health facility	26(83.9)	5(16.1)		1.17	(0.415-3.326)
<b>PNC service received previously (110)</b>					
No	33(84.6)	6(15.4)	0.37	Ref	1
Yes	55(77.5)	16(22.5)		0.62	(0.223-1.755)
<b>Danger sign during previous delivery (110)</b>					
No	65(18.2)	16(19.8)	0.91	Ref	1
Yes	23(79.3)	6(20.7)		0.94	(0.330-2.702)
<b>Health services after delivery</b>					
No	143(91.7)	13(8.3)	<0.001	Ref	1
Yes	7(25.9)	20(74.1)		0.032	(0.011-0.089)
<b>Distance from health facility</b>					
Less than 30min	60(78.9)	16(21.1)	0.37	Ref	1
More than 30min	90(84.1)	17(15.9)		1.41	(0.662-3.009)
<b>Access to transportation</b>					
Motor bike	19(79.2)	5(20.8)	0.55	Ref	1
Rickshaw/cycle	101(84.2)	19(15.8)		1.39	(0.466-4.204)



Characteristics	Utilization of PNC services		P value	OR	95% CI
Walking	30(76.9)	9(23.1)		0.87	(0.255-3.016)
<b>Informed by health worker about PNC services</b>					
No	31(93.9)	2(6.1)	0.065	Ref	1
Yes	119(79.3)	31(20.7)		0.248	(0.056-1.092)
<b>Facility charges during delivery</b>					
No	131(81.9)	29(18.1)	0.932	Ref	1
Yes	19(82.6)	4(17.4)		1.052	(0.333-3.324)

#### 4. Discussion

This study showed that nearly one fifth (18%) of postpartum mothers had high utilization of postnatal services and majority (82%) had low utilization of postnatal services which corresponds with a findings of the study done by Shrestha N et al which showed the only 17.5% of women had high PNC services utilization [11]. Another study done by Simataa M et al showed contradicts findings about 27.8% of mothers had low utilization of PNC services [12]. The reason for the contradictory findings might be level of awareness of PNC care, mothers educational status, cultural beliefs.

Our study showed one in tenth (9.9%) of women didn't receive PNC services and majority (91.8%) had attended first recommended visit (within 24 hours) among who visited for PNC services which contrasts with the findings of the study done by Kafle H et al which showed 30.1% women didn't receive any PNC services and 63% and 13.5 % women had attended first recommended visit

[13]. Another study done by Mon AS et al and Wudineh KG et al showed 13.5% had attended first recommended visit. This showed that still there is very low uptake of PNC services [2,14]. In this study, it was observed that due to lack of awareness about PNC facility and because of no incentive during PNC checkup seems to be a reason for low PNC utilization.

In our study only 8.2% of postpartum mothers had received PNC services within seven days which contradicted with the findings of the study done by Kafle H et al which found 21.8% women attended visit on seven days [13]. This difference might be due to the differences in the study areas, there is differences in cultural belief which might be barriers for PNC utilization in our study area.

Our study found majority (91.8%) of the postpartum mothers had visited first PNC visit that is within 24 hours as per protocol and only 8.3% of postpartum mothers visited or received PNC services within seven days which contradicts with the findings of the study done by Tasfaye G et al which found more than half

(54.3%) had first PNC visit and 18.5% had third PNC visit [5]. This might be due to changes in settings and PNC protocol and level of awareness among the postpartum mothers group.

The present study showed 93.9% women were not informed by health worker about PNC services during delivery time had low PNC service utilization and 79.3% of them had high PNC service utilization. In this study statistical significant was found between women who did not receive any health facility after delivery ( $p < 0.001$ ) and PNC utilization, there seems to be low PNC utilization among mother who did not receive health services during delivery. Similarly, a study in Ethiopian revealed that majority of women who were aware about PNC services only 66.83% of women obtained PNC service [15]. It is observed specially in delivery at health facility, most of the postpartum mothers get motivated by care and information provided during delivery which enhances PNC utilization.

In present study, women's education, husband education and husband employment was not found statistically significant with postnatal visit which contradicts with the findings of the study done by Tasfaye G et al which showed statistical significance with these variables ( $p < 0.05$ ) [5]. Another study done by Simataa M et al showed similar findings which showed no

statistical association of women's education ( $p = 0.128$ ) [12]. Another study done by Kafle H et al found contrasts findings which showed statistical association of education of women ( $p = 0.001$ ), family type ( $p = 0.004$ ), ethnicity ( $p = 0.020$ ), household income ( $p = 0.001$ ), distance to health facility ( $p = 0.001$ ) and place of delivery ( $p = 0.001$ ) with postnatal care utilization [13]. Our study found no statistical association of religion ( $p = 0.22$ ), distance to health facility ( $p = 0.37$ ) which is similar with the findings of the study done by Simataa M et al. which showed no statistical association of religion ( $p = 0.15$ ), distance to health facility ( $p = 0.57$ ) [12].

The study had some limitations. Changeability of effect sizes can be reduced with increasing the sample size. The study was conducted among postpartum mothers of one rural municipality of a district which cannot be generalized to nation. Despite this limitations, this study assessed the utilization level of postnatal services and associated factors. To reduce the recall bias, respondents were asked for their PNC cards for verifications.

## 5. Conclusion

The study showed the utilization of postnatal care services among postpartum mothers was low. Study found significant association between women who did not receive health services after delivery and PNC utilization. The

PNC utilization was low among mother who didn't receive any health services after delivery as compared to women who received health services after delivery of child. Awareness program should be conducted to mother about the importance of PNC services, health

facilities should be accessible when ever required to provide prompt maternal services. Strengthening the health services and empowering the mother's groups to increase postnatal care services is a key intervention to increase services.

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