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Factors Influencing Postnatal Care Utilization in Lumbini Province, Nepal

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Abstract

Postnatal period is the most critical period of maternal health continuum, which contributes a vast proportion of both maternal and neonatal. Though Nepal has improved its coverage of maternal health services, the coverage of postnatal care (PNC) is not evenly spread across the population groups and provinces. The targeted planning and equal distribution of resources require evidence at the province level. This study presents the use of postnatal care in the 48 hours after delivery, and its important determinants among women in the Lumbini Province. Demographic and Health Survey (NDHS) 2022; used as a sample of 481 women aged 1549 years with a live birth within the five years before the survey and full data on early PNC that had a stratified two-stage cluster sampling scheme. Socio-demographic and reproductive factors were subjected to weighted descriptive statistics, bivariate analysis and bivariate logistic regression. Women who had postnatal care in 48 hours had a 76.3 percent and those who did not had 23.7 percent. Birth order became the most important determinant: women of second and third-or-more births were much less likely to receive early PNC than first-time mothers (OR = 0.51 and OR = 0.25). There was also large age, caste/ethnicity, education, wealth status and residence differences. Nevertheless, there are still huge inequities even with utilization. Interventions should be equity-oriented targeting high-parity females, adolescents, marginalized castes, rural people, and poor households to enhance access to timely postnatal care.

Keywords: *Post-natal care; Early PNC; Maternal health; Lumbini Province; Nepal*

Introduction

The period of the maternal health continuum which is most critical and as such is associated with a disproportionate burden of maternal and neonatal morbidity and mortality immediately after giving birth. Maternal and newborn mortality is experienced in the first 48 hours of birth in the world, mainly because of complications that are preventable, such as postpartum hemorrhage, sepsis, hypertensive diseases, and newborn infections (Jat et al., 2011). Timely postnatal care (PNC) is vital in early identification and treatment of these complications as well as facilitating the necessary practices such as breastfeeding, maternal recovery, counselling and referral to follow-up care. Although the world has improved the systems of antenatal and intrapartum care, the postnatal period has continuously been under-emphasized and in the low- and middle-income countries (LMICs), postnatal coverage and content gaps remain a persistent issue (Moucheraud et al., 2015).

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This study LMICs indicate that the use of early PNC is heavily influenced by the socio-economic, demographic and structural factors. On-time postnatal contact is always linked with maternal education, household wealth, birth order, caste or ethnicity, and place of residence (Doctor & Nkhana-Salimu, 2017; Jat et al., 2011). The women belonging to the marginalized groups, poor households and rural areas are less likely to be offered PNC within the recommended time frames. Other factors that restrict the early uptake include socio-cultural norms, lack of autonomy, and beliefs that postnatal checkups are not necessary, particularly in young mothers and in high parity women (Maharjan & Pant, 2020). The South Asian studies also note the significance of continuity and quality of prenatal care and delivery on the use of postnatal services and thus the importance of integrated maternal health systems (Khanal et al., 2020).

The Aama Surakshya Programme, the increase of skilled birth attendance as well as Female Community Health Volunteers mobilization have substantially improved maternal health indicators in Nepal. The postnatal stage is however a weak point in the continuum of care. Nationwide surveys indicate that there are continued caste, ethnic, geographic, and socio-economic disparities in maternal and newborn outcomes (Ghale et al., 2021). The postnatal contact remains limited by structural factors, such as distance to its facilities, lack of counselling at discharge, and household deprivation (Bhattarai & Hamal, 2022). Qualitative material also indicates that women have less access to early PNC due to postpartum restrictions, gender norms and lack of decision-making power (Maharjan & Pant, 2020).

Of special significance though under-researched is Lumbini Province. The province is typified by the strong urban-rural inequality, transnational movement, large proportions of marginalized caste and ethnic groups, and the socio-economic heterogeneity. Thecharacteristics form unique weak points in maternal health service use. Though small-scale or district-level data are available, few data with nationally representative data are available to study early PNC utilization in Lumbini Province during the crucial first 48 hours. This studies tend to look at larger PNC windows (42 days) or national meanings, obscuring inequity in provinces and avoiding the relevance of policy.

It is against this background that the current research will evaluate the use of postnatal care in the 48 hours' delivery and determine the socio-demographic and reproductive predictors of postnatal care amongst reproductive-aged women in Lumbini Province, Nepal. This research fills a distinct evidence gap by relying on national survey data as a measure of representative samples and an analytical framework based on equity and offering policy-relevant data to deliver province-specific maternal health interventions.

Data and methods

Study design: This study has used a quantitative and cross sectional design, based on the Nepal Demographic and Health Survey (NDHS) 2022. The analysis was done on women who gave a live birth within the five years before the survey and were living in Lumbini Province. The objective of the study was to measure the use of post-natal care (PNC) during the first 48 hours and potential determinants of this issue, mainly sociodemographic factors.

Sample and sampling procedure: The sample consisted of 50 participants who experienced stress at work. Sample and Sampling Procedure The sample comprised 50 participants who were stressed at work.

The stratified, two stage cluster sample, and was representative on national and provincial level. During the first step, probability proportional to size was used to sample enumeration areas (EAs). The second phase involved the systematic sample of a given number of households in each EA. In this analysis, 481 women were considered, who experienced a live birth during the reference period and had all the details on PNC utilization. Sampling weights were taken into consideration the survey design, clustering, and the non-response.

Data analysis methods: The distribution of PNC utilization variables was summarized using descriptive statistics in the most important demographic and socioeconomic variables. Jason used bivariate logistic regression to investigate unadjusted relationships between independent variables and early PNC use (within 48 hours). Odds ratios (OR), confidence intervals (CI), 95 percent and p-values were provided. To compute the correct variance and valid inferences, survey weights and the intricate nature of the sampling structure were taken into consideration with the help of the "svy command.

Ethical consideration: The ethical approval of the NDHS 2022 was given by the Nepal Health Research Council and the ICF Institutional Review Board. The secondary data studied in this analysis was publicly available, and the data was de-identified; thus, no personal identifiers were accessed or collected. The anonymity and confidentiality of the respondents were also strongly upheld and no information was utilized in a way that would lead to harm or distress to persons and populations. All the research practices were in line with the research ethics on international standards on research, which is safe, respectful, and protective of the researcher and the respondents.

Results

Table 1 shows the post-natal care (PNC) utilization distribution of women in the Lumbini Province during 2 days. Among 481 respondents, 367 (76.3 out of the total 481) had received PNC within the recommended 48 hours after delivery and 115 (23.7 out of the total 481) had not received post-natal care.

Age of respondents: The use of PNC in 2 days was different according to the ages. The proportion of female users of PNC was greatest in women 20-24 years (35.3%) and 25-29 years (32.8%). Adolescents (< 20 years) on the other hand only comprised 6.3 percent of PNC use, indicating a less involvement of younger mothers in early PNC services.

Birth order: Patterns in birth-order were strong, whereby women in the first-order birth showed the highest PNC utilization (48.0%), decreasing in the same order with women of higher birth orders. Only twenty-five percent of third and further-order births of women obtained timely PNC. This demonstrates that multiparous women have low chances of accessing early PNC.

Education level: Education was found to be closely related with the PNC use. Women who had received higher education constituted 22.6 percent of those who received timely PNC, as opposed to just 11.8 percent of women who had not attended schools. Most PNC users were of basic educational level (65.6%), which shows that higher educational level makes it easy to use the services.

Religion: Religion did not significantly affect PNC usage, with 91.9 percent of PNC users being Hindu women, just like the percentage of non-users (92.1%).

Caste/ethnicity: Caste/ethnicity was significantly different. Women it belonged to Other Terai caste (36.2%) and Brahmin/Chhetri (14.9%) had a relatively better PNC utilization. Conversely, among the women who underwent PNC, Dalit women were 21.6 percent as opposed to 29.2 percent of non-users, which shows that there may be a difference.

Place of residence: The use of PNC was a bit more prevalent in the urban (55.3%) residents compared to the rural residents (44.7%). Though the difference is not enormous, it implies geographic differences in maternal health services accessibility.

Wealth quintile: There was an evident economic gradient. Female poorest household inhabitants were 15.6 percent of PNC users vs. 25.7 percent non-users whereas in the richest quintile, female inhabitants were 18.8 percent of PNC users vs. 7.6 percent non-users. That means that more prosperous families are prone to access early PNC.

Table 1: Distribution of Postnatal Care Utilization Within 48 Hours of Birth

Variable	No		Yes		Total	
	Number	Percent	Number	Percent	Number	Percent
Age						
<20	3	2.7	23	6.3	26	5.5
20-24	49	43.1	129	35.3	179	37.1
25-29	40	35.2	120	32.8	161	33.4
30-49	22	19.0	94	25.6	116	24.0
Birth order						
First	36	31.2	176	48.0	212	44.0
Second	40	35.0	116	31.5	156	32.4
Third or higher	39	33.8	75	20.5	114	23.7
Level of education						
No Education	18	15.9	43	11.8	62	12.8
Basic Education	86	75.2	240	65.6	326	67.8
Higher Education	10	8.9	83	22.6	93	19.4
Religion						
Hindu	106	92.1	337	91.9	442	91.9
Other religion	9	7.9	30	8.2	39	8.1
Caste/Ethnicity						
Dalit	33	29.2	79	21.6	112	23.4
Janjati	9	8.1	17	4.5	26	5.4
Other Terai	31	27.2	133	36.2	164	34.0
Brahmin/Chhetri	16	14.2	54	14.9	71	14.7
Place of residence						
Urban	57	50.2	203	55.3	260	54.1
Rural	57	49.8	164	44.7	221	45.9

Wealth quintile						
Poorest	29	25.7	57	15.6	87	18.0
Poorer	23	20.4	73	20.0	97	20.1
Middle	26	22.9	84	22.9	110	22.9
Richer	27	23.5	83	22.8	110	22.9
Richest	9	7.6	69	18.8	78	16.1
Total	115	100.0	367	100.0	481	100.0

Source: Nepal Demographic and Health Survey, 2022

Table 2, the unadjusted logistic regression is used to determine the factors that are related to receiving post-natal care within 2 days after childbirth. The findings indicate that birth order was a major predictor of early PNC usage. Women who give birth to the third or higher-order babies were found to have 75 percent lower odds of timely receipt of PNC compared to those who gave birth to the third baby (OR = 0.25, p = 0.002). This shows that there is a negative slope in the use of PNC with an increase in parity. Additional demographic characteristics like age, religion, caste/ethnicity, residence and education did not have statistically significant relationships with PNC in the first 48 hours but certain groups (age 20-24 and 25-29) had lower odds than adolescents.

There were also no significant impacts of household economic status on early PNC utilization, with the direction of association evidence indicating that women in the richest households (OR = 2.24) had a higher probability of having a timely PNC utilisation than those in the poorest households, but this was not significant. Otherwise, schooling did not also provide the initial prediction of early PNC use as part of the unadjusted model, although higher-educated women had merely a slightly higher prediction. Generally, Table 2 results indicate that the birth order is the most significant variable that determines early post-natal care in the bivariate analysis, whereas socioeconomic and demographic factors and geographic variables have weak or insignificant associations. Those trends underscore the fact that multiparous women need to be targeted to interventions to enhance timely PNC coverage.

Table 2: Factors association of post-natal care within 2 days

Variable	Odds Ratio	Std. Err.	t	P>|t|	95% Conf. Interval	Sig
Age						
20-24	0.3553796	0.221678	-1.66	0.102	0.1023216-1.234292	
25-29	0.6265621	0.4351083	-0.67	0.503	0.1566704-2.50577	
30-49	1.147112	0.8882667	0.18	0.86	0.2445433-5.38091	
Birth order						
Second	0.5054929	0.1612277	-2.14	0.036	0.2674425-0.9554321	**
Third or higher	0.2524739	0.1088664	-3.19	0.002	0.1067652-0.59704	***
Religion						
Other religion	5.712409	7.09369	1.4	0.165	0.4790215-68.1214	

Caste/Ethnicity						
Muslim	0.1615629	0.2336818	-1.26	0.212	0.0090061-2.89832	
Janjati	1.437131	0.5774574	0.9	0.37	0.6444409-3.204866	
Other Terai	1.395313	0.660697	0.7	0.484	0.5422571-3.590358	
Brahmin/Chhetri	1.048075	0.481469	0.1	0.919	0.4189603-2.621875	
Educational attainment						
Basic Education	0.8212685	0.3255826	-0.5	0.621	0.3722461-1.811925	
Higher Education	1.642979	0.8413846	0.97	0.336	0.5911631-4.566217	
Residence						
Rural	0.9879198	0.349561	-0.03	0.973	0.4875257-2.001916	
Wealth quintile						
Poorer	1.67359	0.6908199	1.25	0.217	0.7342276-3.81476	
Middle	1.344767	0.4146001	0.96	0.34	0.7267587-2.488308	
Richer	1.384421	0.6891314	0.65	0.516	0.5125879-3.739107	
Richest	2.240852	1.454406	1.24	0.218	0.6134629-8.185367	
_cons	6.120281	4.691985	2.36	0.021	1.324997-28.27014	**

Altogether, descriptive results suggest that younger age, first-time mothers, better-educated women, urban residents, higher caste and women in higher-income households are more most likely to use PNC within 2 days after childbirth. These trends prove that specific interventions should be implemented to promote PNC adoption among the adolescent population, multiparous women, people of Dalit communities, rural residents, and the poorest families.

Discussion

Descriptive findings of the study indicate that 76.3 percent of women received post-natal care (PNC) during the 48 hours of giving birth; this means that the level of early PNC use is relatively high in comparison with other recent national and subnational Nepal studies. The uptake was highest among young women (20-24 years old) and first-time mothers and lower among adolescents, multiparous women, less educated and poor households. Those results are mostly aligned with the tendencies of previous studies on PNC use in Nepal and other South Asian contexts where early marriages, low educational levels, and poverty are regularly identified as factors that restrict the access to care (Acharya et al., 2019; Yadav et al., 2022). Nevertheless, the percentage of PNC within 2 days in Lumbini is apparently larger than the national averages of the same measures in the past in NDHS 2016 (57% & 2022, 65% respectively), which might indicate some better outreach or provincial health system awareness in this area.

Birth order showed the most significant relationship with a timely use of PNC which was supported in Nepal, Bangladesh, and Ethiopia (Kassebaum et al., 2021; Tesfaye et al., 2020; Paudel & Jha, 2021). Through our examination we found that women who give birth on the second time had 49 less odds, and women with third or higher-order births had 75 less odds of receiving early PNC. Such results support the already existing assumption that multiparous women tend to assume that

childbirth is a common procedure and decrease their chances of going to the clinic after birth unless there are complications. Previous research explains such a trend with less perceived vulnerability, conflicting domestic roles, and lower health-seeking autonomy in women with more children (Anwar et al., 2020; Shrestha et al., 2021). The fact that this gradient has been upheld in our research confirms the necessity of parity-specific counseling during the antenatal visits and increased post-delivery follow-up by Female Community Health Volunteers (FCHVs) in Lumbini Province.

There were also statistically non-significant trends in the socioeconomic characteristics. More educated women and those in the wealthiest wealth groups presented better chances of PNC utilization, which aligns with the existing evidence showing maternal education outcomes in better health literacy and decision-making and health service navigation (Kaphle et al., 2023; Singh et al., 2020). Even though the relationships were not found to be significant in terms of statistics in bivariate model, the directional consistency with the regional and global results indicates that greater educational level and financial resources are likely to be enabling factors in uptake of PNC. The same tendencies have been observed in India, Uganda, and Pakistan, where the women with higher socioeconomic statuses have a higher rate of access to maternal care options because of a lower price barrier and the increased access to transport and information (Keats et al., 2018; Yaya et al., 2020).

The patterns of castes and ethnicity were similar to long term social gradients of maternal health use in Nepal. Dalit women were lower users of PNC, whereas Brahmin/Chhetri groups and Other Terai were higher users. This is in accordance with previous studies that found that the marginalized caste groups tend to suffer structural inhibitions including discriminatory attitudes, inaccessibility to quality facilities, and reduced social support systems (Puri et al., 2022; Maharjan et al., 2018). There were also slightly higher rates of PNC uptake in urban women compared to rural women which are indicative of disparities in physical access, service availability, and health system readiness- findings which are corresponding to the evidence in various LMIC settings (Islam et al., 2022; Banke-Thomas et al., 2017). In our analysis, the rural-urban disparities were not statistically important; however, the tendency, even at the end of the analysis, is directional, which indicates the continuation of the effects of geographic inequities on maternal health behaviors.

Overall, the findings in my interpretation point to the fact that, although has made admirable advances in early PNC coverage, the main weaknesses are the same: adolescents, high-parity women, the poor, rural population, and socially disadvantaged caste groups are still lagging behind. These trends mirror stronger sociocultural values regarding childbirth, risk perception, hierarchies of decision-making based on gender, and institutional obstacles to access to health facilities. The minor relationship effects of the regression model of multiple variables could be due to a combination of (a) decreased heterogeneous overall PNC uptake, (b) small sample size of certain subgroups, and (c) possible confounding unmeasured variables such as quality of care, counseling during ANC, household decision-making autonomy, and distance to facilities. The research was also characterized by the standard definitions of early PNC and a wide range of demographic and so-cioeconomic variables, which made it possible to interpret it multi-dimensionally. Nevertheless, it has the drawbacks of being cross-sectional, preventing causal inference; the use of self-reported data, which is subject to recall bias, particularly among women reporting births within five years; and possible residual confounding, where variables like facility quality, content with which counseling is provided, transportation barriers, and autonomy of women are not accounted. Also, there were no adjustments of province-level weighting, which can affect the accuracy of estimates within sub-groups.

Conclusion

This study concluded that despite most women receiving post-natal care (PNC) within 48 hours of child birth, there were still considerable inequalities in birth-order, socioeconomic status, caste/ethnicity, and place of residence. Women with multiple partners and poor women, less educated, socially disadvantaged, and rural population were significantly less likely to use early PNC.

The interventions to include are programs that reinforce the use of parity-based counseling in the antenatal care, increase early post-delivery home visits by Female Community Health Volunteers and reduce financial and geographical barriers to care. Pro-poor and social inclusion measures in support of multiparous women, marginalized caste/ethnic communities and rural people are mandatory in order to have timely and equal utilisation of PNC.

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