

Postnatal Care Visit and Its Determinants Among Mothers in Chitwan, Nepal: A Mixed-Method Study

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ABSTRACT

BACKGROUND: Postnatal care for six weeks after giving birth is vital for the health of both mother and newborn. The postnatal period is dangerous for both mother and baby, where morbidity and mortality are highly prevalent if proper care is not done. PNC visits should be more noticed, creating a missing link towards safe motherhood. This research examines the social and cultural influences that affect postnatal care practices among mothers with infants under one.

METHOD: This study utilized a combination of methods, primarily emphasizing quantitative techniques. It was conducted in Madi, Rapti, and Ratnanagar municipalities in Chitwan, utilizing a cluster random sampling technique. Data was gathered through 527 face-to-face interviews utilizing a structured questionnaire for quantitative data, six focus group discussions and three key informant interviews for qualitative data. The quantitative and qualitative data were analyzed using logistic regression and by the thematic content analysis method, respectively. The statistical analysis was conducted using SPSS version 21.

RESULT: Based on the study's findings, it was revealed that most participants surveyed were between the ages of 20 and 24 and engaged in household and agricultural work. Of the 527 respondents, 79.1% were aware of partial postnatal visits, only 20.9% knew about complete postnatal visits, and 11.8% reported practicing PNC visits. Our analysis, which employed binary logistic regression, uncovered that social and cultural factors significantly impacted postnatal care visits and practices. The most influential factors for PNC visits and practices were occupation, antenatal care visits, mode of delivery, time to reach healthcare facilities and healthcare-seeking behavior. Qualitative data was also collected through FGD and IDIs to support our quantitative data, and both analyses indicated that social and cultural factors influence postnatal care visits among mothers.

CONCLUSION: Fewer mothers reported about aware and complete Postnatal care visit. The major confounding factors for PNC visits and practices were occupation, antenatal care visits, mode of delivery, time to reach health facilities, and healthcare-seeking behaviour. It is essential to involve both traditional and religious leaders to address these issues effectively. Local health organizations should conduct postnatal care visits by going door-to-door to identify and manage problems.

KEYWORDS: Postnatal Care, Visit, Mother, Social, Cultural, Factors, Nepal

INTRODUCTION

Post-natal care refers to issues about the mother and the baby from birth up to 6 weeks.¹ PNC visits are critical to survival and are considered an essential component of care for mothers and babies across the globe.² Ensuring proper care during this

time is crucial to preventing illness and death for both mother and child.³ According to the World Health Organization, four PNC visits are recommended: the first within 24 hours of delivery, the second after 48-72 hours, the third after 7-14 days, and the fourth after six weeks.¹

The postnatal period is the final stage of the childbirth experience and is heavily influenced by cultural practices and traditions.⁴ Culture plays a significant role in shaping a mother's experience and behavior during this time. It is important to note that most maternal and infant deaths occur within the first month after birth.⁵ Nearly half of postnatal maternal deaths occur within the first 24 hours, and 66% during the first week. Overall, proper PNC can help ensure the well-being of both mother and newborn during this crucial time.⁶ Access to maternal healthcare services is impacted by various sociodemographic factors, including education, age, ethnicity, and service delivery environment.⁷ Social determinants such as lack of basic amenities and inadequate healthcare also play a role. It is essential to understand these factors to improve maternal and newborn health, a global priority.⁸ Various contextual factors influence maternal health and are a social phenomenon. Inequities stem from social factors such as governance, policies, cultural values, and laws that create hierarchies based on social class, ethnicity, gender, education, occupation, and income. These factors operate through individual, environmental, and health system factors, resulting in differential outcomes based on socioeconomic status.⁹ Cultural factors also influence the postnatal care visit. The concept of culture is broad and encompasses various aspects such as knowledge, art, laws, morals, religion, attitudes, habits, customs, traditions, ways of thinking and behaving, and experiences that individuals acquire as members of society.¹⁰ Culture is a learned behavior passed down through generations and significantly impacts health and disease.¹¹ Cultural beliefs and practices influence the postnatal practices passed down through generations. Although some traditional methods are beneficial to the mother and baby, most practices have harmful effects on health.¹² In Nepal, postpartum care varies based on the region's topography, culture, tradition, and religious practices due to the

country's diverse cultures and traditions. Numerous cultural and social barriers delay Nepalese women from seeking postnatal care services. Likewise, traditional beliefs and practices are the major obstacles to improving postnatal care for women in Nepal.

Motherhood is significant in understanding gender codes and intersecting oppressions. However, identifying it solely with female biology has led to matrophobia.¹³ On the one hand, motherhood is a unique bond between a mother and child shaped by social context and culture. It has transformed throughout history and varies with time and place. Andrea O'Reilly believes motherhood is a cultural practice that changes with economic and societal factors. It is a social and cultural construction that varies in expectations and values.¹⁴ Likewise, motherhood in a patriarchal society emphasizes the control women's reproductive power has on them. Motherhood as an institution reinforces male dominance and creates a boundary for women. Cultural variations make it difficult to define the meaning of motherhood.¹⁵

The global maternal mortality ratio (MMR) in 2021, estimated by the WHO, is 211, with the highest rate in South Sudan at 1150.¹ Surprisingly, MMR has risen significantly in developing countries recently, while only a slight increase has been reported in developed countries. Low-income countries have an MMR of 462 per 100,000 live births, while high-income countries have 11 per 100,000 live births.¹⁶ Overall MMR remains low in the United Kingdom, maternal mortality rates differ along racial and ethnic lines. Compared to White women, Black women, women of mixed ethnicity, and Asian women have a higher risk of dying during pregnancy or up to 6 weeks postpartum.¹⁷ It is a concerning fact that many maternal and neonatal deaths happen within two days after childbirth. Developing countries are disproportionately affected, as almost all such deaths (99%) occur in these regions. It is estimated that there were 303000 maternal deaths globally

due to complications related to pregnancy and childbirth.⁵

It is essential to prioritize care for both mother and child after childbirth, as this period is associated with high maternal and neonatal deaths. It is concerning to learn that globally, 216 women per 100,000 live births die yearly due to pregnancy-related complications. This high maternal mortality rate is especially pronounced in developing countries, where 99% of maternal deaths occur.¹⁸ Shockingly, almost half of all postnatal deaths occur within the first 24 hours, and 66% happen within the first week. The study emphasizes the need for effective prevention and management of conditions during late pregnancy, childbirth, and the postpartum period to reduce the number of maternal and neonatal deaths, which are largely preventable.¹⁹

In the late '90s, the National Safe Motherhood Programme (NSMP) was prioritized in the Nepal Health Sector Strategy Plan (NHSSP).²⁰ Nepal had a maternal mortality rate of 170 per 100,000 live births, a challenge caused by various direct and indirect factors, including cultural influences impacting maternal and newborn health.⁵ According to the Nepal Maternal Mortality Study 2021, Nepal's maternal mortality ratio is 151 per 100,000 live births. This ratio differs among provinces, with Bagmati Province having the lowest rate of 98 per 100,000 live births and Lumbini Province having the highest rate of 207 per 100,000 live births. There is a ratio of 158 pregnancy-related deaths per 100,000 live births, ranging from 102 per 100,000 live births in Bagmati Province to 212 per 100,000 live births in Lumbini Province.²¹ To achieve the Sustainable Development Goals (SDGs) introduced by the United Nations in 2015, including a goal to reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030, Nepal must focus on policy and programmatic efforts.²²

Around 70% of women received a postnatal check within the first two days after giving birth, and 54% received the checkup within

four hours. However, 28% received no check two days after giving birth. The percentage of women aged 15-49 who underwent a postnatal check increased from 22% in 2006, 57% in 2016 and 70% in 2022. In Madhesh Province and Karnali Province, only 58% of women underwent a postnatal check within the first two days after giving birth, while more than 70% did in other provinces.²³

A study conducted in Banke district in Nepal found that nearly 18% of postpartum mothers utilized postnatal services highly, while 82% utilized them less.²⁴ In Nepal, there has been a study on the percentage of mothers and newborns who received postnatal checks within the first two days of giving birth. While 70% of both groups received a check, only 63% received one. The percentage of those who received a check was higher for those who gave birth in a health facility at 82% for mothers and 80% for newborns, compared to those who gave birth elsewhere at 23% and 30%, respectively.²³

In Nepal, the maternal mortality ratio is 239 per 100,000 live births, and the neonatal mortality rate is 33 per 1,000 live births.²⁵ The utilization of postpartum care services decreased from 19% in 2017 to 16% in 2018, attributed to cultural, geographical, and perceived importance factors.²⁶ The proportion of mothers having three PNC visits as per protocol stands at 11% in Baglung district²⁷, 34.4% in Chitwan district²⁸ compared to 18% at the national level.²⁶ A positive association was found between antenatal and postnatal care visits, implying that a mother's perception of antenatal care can impact postnatal care.²⁹ Nearly 99% of respondents had utilized postnatal care service at least once, 34.7% had received two, and only 21.7% had accepted the PNC service three times within seven days after delivery.²⁷ About 36.8% of women received PNC services within six weeks after delivery, 29.4% received the service within 48 hours, and 34.1% received the service within seven days.³⁰ In a study conducted in the Gambia, the prevalence of

postnatal care was 22.4%.³¹ Postnatal care is critical but often neglected in developing countries, with many factors influencing maternal and newborn health services during the postpartum period, including sociodemographic, health service-related, and cultural factors.

MATERIALS AND METHODS

Study Setting and period:

The study was conducted in Chitwan, a district in the central region of Nepal, a federal republic comprising seven federal provinces and 77 districts. Chitwan is one of the 78 districts and occupies the southwestern corner of Bagmati Province, consisting of 13 districts. It is home to the district center, Bharatpur, the second-largest city in Nepal after Kathmandu. Chitwan spans an area of 2,238.39 km² (864.25 sq mi) and is divided into one metropolitan city, one rural municipality, and five municipalities, including Bharatpur Metropolitan City, Kalika, Khairahani, Madi, Ratnanagar, Rapti Municipality, and Ichchhakamana Rural Municipality. The name Chitwan is derived from the Chitwan Valley, situated between the Mahabharat and Siwalik ranges, which serve as foothills of the Himalayas.³² As per the 2021 Census, Chitwan district has a population of 720,000, indicating a 2.07% increase from the previous year, surpassing the national average of 0.92%. The female population accounts for 53.91%. The district has a rich blend of caste/ethnic groups, religions, and cultures.³³ Chitwan boasts a wide variety of public and private healthcare facilities, making it a popular destination for medical care. It is regarded as the second-largest medical hub in Nepal, with seven public health centers, three NGO-run facilities, and 175 private institutions. Additionally, the district has 24 birthing centers, three primary emergency obstetric neonatal care sites, and three comprehensive emergency obstetric neonatal care sites. Despite the availability of these resources, maternal and child health in Chitwan still requires attention. Several initiatives have been

introduced at the grassroots and district levels to address this issue, but there is still room for improvement. According to the District Health Office's Annual Report, there were 36 health posts, three primary healthcare centers, and three hospitals.³⁴ The study gathered data from October 28, 2021, to March 18, 2022.

Study Population: This study uses mothers across multiple categories to mothers with children within a year based on different categories. The type was separated by Brahmin/Chhetri, Madhesi, Janajati, and Dalit. In addition, they were segregated based on caste, religion, occupation, educational qualification, and economic status. Three healthcare providers were used for IDIs.

Study Variables: This study focuses on postnatal care visits and practice as the dependent variable and uses independent variables to assess social and cultural factors that may affect it. These factors include a mother's age, economic status, education, occupation, religion, ethnicity, decision-making, healthcare-seeking, and cultural practices were analyzed. The study found a significant relationship between these factors and postnatal care. Specifically, education level, economic conditions, religion, caste, and healthcare-seeking behaviors were examined to determine variations in postnatal care. Decision-making regarding PNC service was also explored across different religions and ethnicities.

Designs: A study was conducted in Chitwan to investigate the social and cultural factors that impact mothers' postnatal care visits. The research used quantitative and qualitative methods, including focus group discussions and in-depth interviews. The primary aim was to analyze and identify the factors that affect postnatal care practices and visits in specific municipalities within Chitwan in Nepal.

Sample size and sampling procedure: Determining the appropriate sample size is a crucial aspect of empirical research. In this study on postnatal mothers, quantitative data was gathered from 1633 participants in three municipalities. We employed Wayne Enanoria's formula for optimal precision to determine the appropriate sample size. Our calculations dictated a sample size 527 with a 95% confidence level. To conduct the sampling process, we utilized a multistage technique incorporating a design effect of two, and we factored in a 5% non-response rate.

The study selected participants from five municipalities using a multistage cluster stratified sampling method to ensure a proportional representation of the target population. The sample size of each stratum was determined using a proportional sampling method. Various aspects of postnatal care were examined, focusing on social and cultural factors that influence it. Random sampling techniques were employed to draw samples from each stratum. A qualitative study was conducted to collect reliable data on postnatal care determinants. Participants included healthcare providers and mothers from various castes, selected through non-probability purposeful sampling, using the Key informant interview technique to obtain more accurate information. The primary objective of the study was to gain a better understanding of postnatal care visit determinants. Purposive sampling was employed, with three key informants being selected. Open-ended questions were used to gather more in-depth information. Additionally, six focus group discussions (51 mothers) with two discussions being held in each of the three municipalities and three in-depth interviews were conducted with healthcare providers. The final sample size was mainly determined based on the information saturation level

Data Collection Tools and Technique: In this study, a combination of qualitative and quantitative data was gathered from various

sources. The researcher utilized closed-ended, structured questionnaires to collect quantitative data from respondents who were interviewed directly. While the quantitative data provided broad insights into a larger sample size, the qualitative data obtained through focus group discussions and Key Informant Interviews (KII) with healthcare providers was crucial in addressing specific research questions guidelines. An explanatory sequential design explored gaps and unknown information from the quantitative data. Throughout the research process, both primary and secondary sources were utilized to gather data.

Data Collection Procedure: The process of gathering data involved obtaining both quantitative and qualitative information simultaneously. Primary data was collected in Nepali using a structured questionnaire and an unstructured interviewer guide. The questionnaire was developed in English after a literature review and translated into Nepali. The principal investigator was present to provide guidance and ensure data quality. Participants were given written consent, and their privacy was maintained during data collection. Confidentiality was ensured by using deidentified data when disseminating the results.

Data Management and Analysis: Data management and analysis included organizing and tabulating the quantitative data for interpretation. Mothers' social and cultural characteristics and postnatal care visits were analyzed using SPSS. Significant variables were identified through cross-tabulation, and binary logistic regression was used to study the determinants of independent variables on postnatal care visits. FGD and IDI supported the analysis. Both qualitative and quantitative data were used for the conclusion.

Quantitative data: Quantitative data was checked for completeness, inconsistencies, and missing values. Descriptive statistics

described the study population concerning socio-demographic and relevant variables. Bivariate analysis determined the association between each independent variable with postnatal care visits. Only variables with a p-value of less than 0.05 were included in the multivariable analysis. Variables with a p-value of less than 0.05 were deemed significantly linked to the use of postnatal care services. The adjusted odds ratio was utilized to ascertain the degree and direction of the association of the significantly linked variables.

Qualitative data: Qualitative data was transcribed verbatim and translated from Nepali to English for analysis. Thematic content analysis was used to analyze the data by creating codes and terms to identify the determinants of postnatal care visits. The qualitative and quantitative findings were triangulated, and the determinants of PNC visits and practice were reported directly by the participants.

Data quality control: To ensure data quality control, separate questioning tools were prepared for each data collection

method, data collectors and supervisors were recruited and trained, the questioning tool was pretested, and continuous supervision and guidance were provided during data collection. The audio file, consent form, field note, and FGD enrollment form were consistently coded for qualitative data.

Ethical Approval: Ethical approval was obtained from Nepal Health Research Council (Ref. No. 2827) Review Committee. Participants were given a clear explanation of the study's purpose and confidentiality guarantee, and verbal consent was obtained from each survey participant. No discrimination based on caste or religion occurred, and participation was voluntary. Anonymity was protected with a code system.

RESULTS

Based on the results, 79.1% were aware of partial postnatal visits, while only 20.9% were aware of complete postnatal visits. At the same time, only 11.8% reported the practice of total postnatal visits. See Figure 1 for the details.

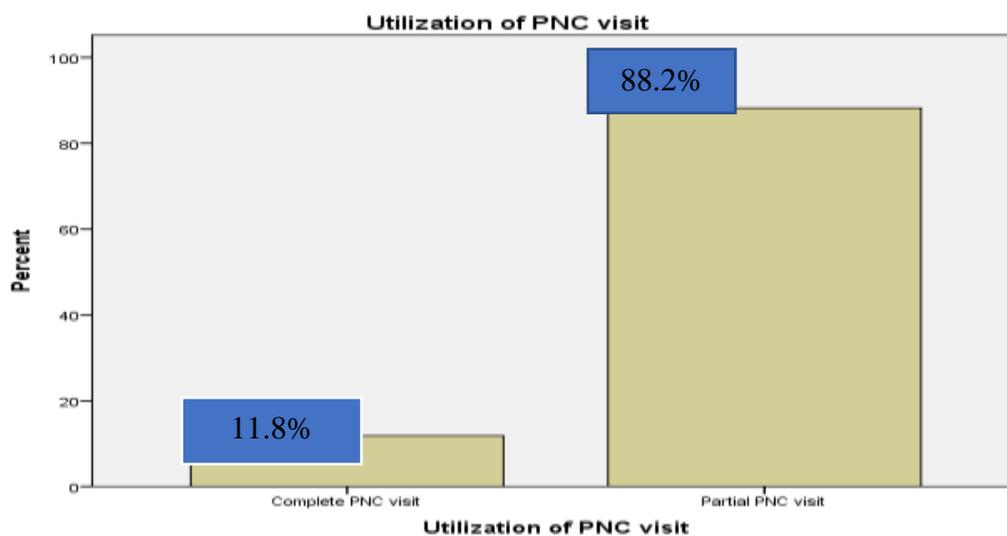


Figure 1 Practice of postnatal care visit

Table 1 Respondents Awareness of Postnatal Care Visit n=527

Variables	Frequency (N)	Percentage (%)
Postnatal period		
2 weeks	6	1.1
4 weeks	111	21.1
6 weeks*	410	77.8
Received postnatal checkups in recent birth	527	100.0

24 hours (1 st visit)	527	100.0
3 days (2 nd visits)	149	28.3
7 days (3 rd visit)	162	30.7
45 days (4 th visit)	260	49.3
Completed PNC visits (n=62)	62	11.8
Reasons for not seeking complete postnatal visits ** (n=465)		
Don't know about postnatal care visits	12	2.3
Not felt important	19	3.6
No health problem raises during that period	389	73.8
Long distance	45	8.5
Types of postnatal services **		
Immunization of Newborn (Only BCG)	524	99.4
Iron tablets supplementation (for mother)	525	99.6
Exclusive Breastfeeding Counseling	504	95.6
Personal Hygiene education	524	99.4
Vitamin A supplementation (for mother)	476	90.3
Nutritional Education	522	99.1
Postnatal Family Planning counseling and services	500	94.9
Danger signs of mothers	259	49.1
Danger signs of baby	260	49.3
Rest and exercise	524	99.4
Did you take iron supplement during the postpartum period?		
Yes	518	98.3
If yes, take the iron supplement. (n=518)		
a. ≤ 2 weeks	103	19.5
b. 3-5 weeks	180	34.2
c. ≥ 6 weeks	235	44.6

Source: Field Survey, 2022, ******Multiple responses

According to Table 1, 77.8% of participants knew about the recommended postnatal care visits for six weeks after giving birth. However, some participants needed to be informed about this. Many believed the first visit should be within 24 hours, with subsequent visits on the third and seventh day after childbirth. All participants attended their recent child's first postnatal visit within 24 hours, with some visiting within three or seven days. Only 11.8% completed the recommended number of visits. In discussing the significance of postnatal care visits with healthcare providers, many respondents expressed a need for more awareness regarding the importance of such visits. It was also found that some respondents believed that such visits were unnecessary and that certain cultural customs prohibited physical contact or examination. As a consequence, many individuals tend to overlook the benefits of postnatal care visits.

The study also found that many mothers did not attend postnatal care appointments for various reasons. Some claimed no health issues during that period, while about 10% cited distance as a hindrance. Others expressed that they did not perceive the

visits as essential or needed more understanding about their purpose. During a discussion about postnatal checkups, a mother named Bikita Regmi shared her experience with complete PNC visits. She underwent a cesarean section and visited the health center four times within 45 days. Bikita explained that she was admitted to the hospital for seven days and was advised to follow up with a PNC visit within 45 days. She was able to complete all of her visits as recommended. Other mothers in the discussion reported that they did not feel any need to have PNC visits and did not encounter any problems so that they did not feel necessary. All respondents received immunization, iron tablet supplementation, exclusive breastfeeding counseling, personal hygiene education, vitamin A supplementation, nutrition information, and postnatal family planning. However, less than half received information about maternal and neonatal danger signs. During conversations with mothers about iron tablet supplements, they all reported taking iron tablets during the postpartum period. However, some Brahmin and Dalit mothers did not take iron tablets. When asked why,

they cited concerns about constipation and consumption during pregnancy.

Table 2 Bivariate Analysis of Practice of PNC Visits and Social and Cultural Variables

Variables	The practice of PNC visits		Unadjusted OR	p-value	95%CI
	Partial no. (%)	Complete no. (%)			
Education level					
Up to Secondary	347(91.3)	33(8.7)	Ref		
Secondary and above	118(80.3)	29(19.7)	.387	<0.01	0.225-.665
Occupation					
Household work	301(90.9)	30(9.1)	Ref		
Agriculture	100(90.1)	11(9.9)	1.376	0.269	0.782-2.420
Service	22(57.9)	16(42.1)	3.043	<0.01	1.547-5.985
Business	42(89.4)	5(10.6)	11.338	<0.01	5.427-23.686
Annual family income					
Lowest- Second	51(92.7)	4(7.3)	Ref		
Middle	220(92.1)	19(7.9)	.908	0.866	0.296-2.785
Fourth- highest	194(83.3)	39(16.7)	.390	<0.05	0.133-1.142
Age of marriage					
≤ 19 years	297(91.4)	28(8.6)	Ref		
≥20 years	168(83.2)	34(16.8)	.466	<0.05	0.273-0.795
Age of first childbirth					
≤ 19 years	215(91.9)	19(8.1)	Ref		
≥20 years	250(85.3)	43(14.7)	1.946	<0.05	1.101-3.441
Health care seeking behaviour					
Modern method	142(81.6)	32(18.4)	.412	<0.01	.241-.704
Traditional	323(91.5)	30(8.5)	Ref		

PNC=Postnatal Care; 1=Reference group, Significance at 95%CI

OR=Odd Ratio; CI= Confidence Interval

Based on the data presented in the table, it was found that individuals who had completed secondary education or higher had 0.38 times more PNC visit experience than those who had only completed secondary-level education. This difference was statistically significant, with a p-value of less than 0.01. In addition, those with agriculture occupations had 1.37 times more PNC visit experience. In comparison, those with service occupations had 3.04 times more experience, and those with business occupations had 11.33 times more experience than those with household work. All of these differences were statistically significant. Individuals with higher family incomes also had significantly more PNC visit experience than those with lower incomes, with a ratio of 0.90 times higher and a statistically significant p-value of 0.05.

Furthermore, individuals who married at age 20 or older had 0.46 times more PNC visit experience, and those who gave birth to their first child at age 20 or older had 0.94 times more experience than those who

married and gave birth at age 19 or younger. This difference was highly statistically significant, with a p-value of 0.05. Lastly, the table showed that individuals who followed modern healthcare-seeking behavior had 0.41 times more experience with complete PNC visits than those who followed traditional practices. This difference was statistically significant, with a p-value of less than 0.001.

During a discussion at a field site, it was noted that postpartum practices vary among different communities. In the Muslim community, for example, mothers are advised to take special care of their health during the postnatal period, which typically lasts a few weeks after childbirth. *According to Hasina, one common practice is to massage the mother with oil. However, avoiding brushing teeth and taking baths for a few days is also recommended to prevent tooth weakening and catching a cold. The study showed that different categories of mothers had their own cultural beliefs and practices during this period, which shaped postnatal care practices within our society.*

Table 3 Multivariate Analysis of PNC Visit with Selected Social and Cultural Variables

Variables	Awareness of PNC Visit		Unadjusted OR	Adjusted OR	p-value	95% CI
	Incomplete visit no (%)	Complete visit no (%)				
Occupation						
Household work	283(85.5)	48(14.5)	Ref			
Agriculture	90(81.1)	21(18.9)	1.376(.614-2.269)	1.261	.466	.675-2.356
Business	31(66.0)	16(34.0)	3.043(2.222-13.096)	7.018	<0.001	3.107-15.852
Service	13(34.2)	25(65.8)	11.338(1.052-5.354)	2.926	0.005	1.375-6.231
ANC visit						
≤ 3 visits	142(90.4)	15(9.6)	Ref			
≥ 4 visits	260(73.2)	95(26.8)	3.459	2.379	.009	1.242-4.559
Mode of delivery						
Normal delivery	372(85.5)	63(14.5)	Ref			
CS and instrumental delivery	45(48.9)	47(51.1)	6.167	7.109	<0.001	4.075-12.400
Time to reach the health facility						
Less than 30 minutes	100(66.2)	51(33.8)	2.740	2.111	.005	1.261-3.536
≥30 minutes	317(84.3)	59(15.7)	Ref			
Health care seeking behaviour						
Modern method	108(62.1)	66(37.9)	4.292(2.764-6.663)	2.323	0.001	1.388-3.889
Traditional	309(87.5)	44(12.5)	Ref			

The study reveals that individuals employed in agriculture were 1.26 times more likely to be informed about PNC visits. At the same time, those in business were 7.01 times more likely, and service workers were 2.92 times more likely (p=0.005) compared to those working in households. This finding is of particular significance as it is statistically significant. Additionally, respondents with

more than four antenatal visits to the health facility were 2.37 times more aware. In contrast, those who took less than 30 minutes to reach the facility were 2.11 times more aware of PNC visits. Lastly, individuals who followed modern healthcare-seeking behavior were 2.32 times more aware of PNC visits than those who followed traditional methods.

Table 4 Multivariate Analysis of Practice PNC Visits and Social Variables

Variables	The practice of PNC visits		Unadjusted OR	Adjusted OR	p-value	95% CI
	Partial no (%)	Complete no (%)				
Occupation						
Household work	301(90.9)	30(9.1)	Ref			
Agriculture	100(90.1)	11(9.9)	1.376(.782-2.420)	.890	.787	.383-2.068
Service	22(57.9)	16(42.1)	3.043(1.547-5.985)	.746	.648	.212-2.629
Business	42(89.4)	5(10.6)	11.338(5.427-23.686)	.195	.002	0.68-.562
Mode of delivery						
Normal delivery	415(95.4)	20(4.6)	Ref			
CS and instrumental delivery	50(54.3)	42(45.7)	.057(.031-.105)	.049	<0.001	.024-0.96
Time to reach the health facility						
Less than 30 minutes	122(80.8)	29(19.2)	.405(.236-.695)	.363	.011	.167-.790
≥30 minutes	343(91.2)	33(8.8)	Ref			

The results of a multivariate logistic regression analysis on factors related to the frequency of PNC visits practice are displayed in the table below. According to the data, individuals employed in agriculture, service or business had 0.89, 0.74 and 0.19 times, respectively, more PNC visits than those who do household work. This difference is statistically

significant. Additionally, those who underwent CS or instrumental delivery had 0.049 times more instances of PNC visits compared to those who had normal delivery. This factor was also significantly associated with complete PNC visits. Moreover, individuals who could reach the health facility in less than 30 minutes had 0.36

times more instances of PNC visits compared to those who took ≥ 30 minutes.

DISCUSSION

A recent study found that 77.8% of mothers were aware of recommended postnatal care visits, but some needed to be informed. Most believed the first visit should be within 24 hours, with subsequent visits on days three and seven. Half visited within 45 days, but only one-tenth completed all recommended visits. A similar study explains the postnatal care for mothers and babies for up to six weeks after birth.³⁵

A recent study discovered that most participants were aware of partial postnatal visits, but only 20.9% were aware and 11.8% practice of complete postnatal visits. A significant number of participants only partially visited healthcare providers after giving birth. A similar study conducted by Barrow & Jobe (2020) showed that the prevalence of PNC visits among mothers was 22.4%.³⁶ The study by Das, Sinha, & Dahal (2023) found that two-thirds of the population still needed to receive postnatal care (PNC) services, with only one-third visiting the health center for PNC services.³⁷ However, the present study indicates a positive trend, as Adhikari et al. (2021) reported that only 37.5% of participants underwent postnatal services twice or more, which aligns with this study.³⁸ A study found that 57.4% of mothers had one PNC, 40.4% had two PNC, and 2.2% had three or more PNC.³⁹ Similarly, a study in Myanmar showed that the prevalence of complete PNC utilization was 25.2%.⁴⁰ The differences in the proportions between this and previous studies may be due to variations in the study setting and population. Only 22% of respondents had used complete PNC, while 78% had partial utilization (1 to 2 times).²⁷ According to the 2017/2018 national report in Nepal, only 19% of women had PNC checkups according to protocol.⁶

A recent study found a significant statistical correlation between ethnicity and awareness of postnatal care visits ($p=0.05$). Brahmin

and Chhetri respondents had higher awareness of postnatal care than others, consistent with other studies showing that these women tend to have better knowledge of postnatal care. However, women from disadvantaged economic, ethnic, geographic, and linguistic backgrounds often receive poor quality maternal and child health services, have low levels of power, and have poor social positioning in Nepalese society compared to women from advantaged ethnic groups who usually have higher wealth status.⁴⁰

To address this equity gap, health policies and programs should focus on disadvantaged ethnicities and design context-specific strategies to provide quality care to those groups. A study conducted by Adhikari found that respondents from Brahman/Chhetri and Janajati caste/ethnicity were more likely to have complete postnatal care compared to Dalits. Additionally, studies in Nepal consistently showed that the Tamang ethnic group was less likely to have had postnatal care than Brahman/Chhetri, and women from Janajati were less likely to utilize maternal services than women from Brahman/Chhetri.⁴¹ A systematic review and meta-analysis on inequities in the utilization of postnatal care in low- and middle-income countries concluded that the use of postnatal care varies significantly by socioeconomic status.⁴²

Mothers aged 20 years and older better understand postnatal care than younger mothers. The study found that individuals who received four or more antenatal care (ANC) visits were 2.37 times more knowledgeable about PNC visits than those who had less than four ANC visits. Furthermore, those who had a cesarean section delivery were found to have 6.16 times more awareness of PNC visits than those who had a vaginal delivery. Occupation, ANC visits, and mode of delivery were seen as the primary factors influencing PNC visits. A study by Khatri, Durham, Karkee, and Assefa discovered that receiving optimal quality care during

the antenatal period resulted in better care during postnatal care visits. Mothers' occupations in agriculture, service, and business tend to practice PNC visits more than those in household work. Similarly, those who had undergone a CS or instrumental delivery were more familiar with PNC visits than those with normal delivery modes. Respondents who could access a health facility within 30 minutes were found to have more experience with PNC visits than those who took longer than 30 minutes to access healthcare.⁴³

Strength and limitations

This study utilized a mixed-method design, which helped us better understand the factors that affect postnatal care (PNC) visits and the barriers that prevent access to the service. We uncovered valuable insights by learning from participants' experiences and points of view. However, due to the cross-sectional study design, it was impossible to determine a cause-and-effect relationship between the factors and PNC visits. Additionally, there may have been recall bias since the data was collected from women who gave birth within one year prior to the study period.

Recommendations

In order to enhance the effectiveness of PNC visits, healthcare providers need to offer education and services that are culturally sensitive. Governmental, non-governmental, and local stakeholders should also implement door-to-door postnatal visit programs. Future research should utilize advanced study designs that can detect cause-and-effect relationships and investigate the determinants of PNC visit utilization.

CONCLUSION

This study found that PNC visit utilization is low in a selected municipality in Chitwan, Nepal. Factors quantitatively associated with low PNC visit utilization include low education and income levels, distance of health facilities, age of mothers, culture, and lack of awareness. Qualitatively, lack of

awareness of PNC visits, cultural and traditional beliefs, and religious practices also contribute to low utilization. Government healthcare facilities must focus on offering culturally appropriate care and higher quality services for mothers from underprivileged communities to enhance healthcare utilization. Intensified maternal health care coverage and community engagement can also improve postnatal care quality. Authorities should use IEC materials in the mother's native language for better dissemination.

Authors' Contributions

IAP conceptualized the design of the study, reviewed literature, prepared tools, collected and analyzed data, interpreted results, and drafted the manuscript. PKP contributed to the interpreted data, reviewed the literature, and edited and drafted the manuscript extensively. Both authors have read and approved the final version of the manuscript.

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Declaration by Authors

Ethical Approval: Approved

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Abbreviations

ANC: Antenatal care

PNC: Postnatal care

CI: Confidence interval

aOR: Adjusted odds ratio

SDG: Sustainable development goals

WHO: World Health Organization

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