

Antenatal to Postnatal: Assessing the Continuum of Maternal Health Service Utilization in Palpa, Nepal

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ABSTRACT

Introduction: One of the most prioritized programs of Government of Nepal is maternal health. Optimum utilization of maternal health services during pregnancy, delivery and postnatal period is an effective approach to reduce the maternal morbidity and mortality that helps us achieve the sustainable development goals target. This study aimed to assess the utilization of maternal health services including antenatal, intranatal and postnatal services among women in the Palpa district of Nepal. **Methods:** A descriptive cross-sectional study was conducted among 168 mothers in their reproductive age using a convenient sampling method. The study included those mothers who had delivered a child in the past 2 years, in Palpa district. The data collection commenced from March to September 2023. The data analysis was conducted using Statistical Package for Social Sciences software (v 21.0). **Results:** A remarkable finding in the present study was 88.1% of mothers had utilized a minimum of four antenatal check-ups, as recommended by the Government of Nepal. Out of 168 mothers included in the present study 89.9% had institutional delivery while the remainder had home delivery. Postnatal checkups following delivery was surprisingly uncommon as it was observed that only 28% mothers sought such care. Adequate utilization of maternal health services is influenced by factors such as proximity of health facilities, education level, and knowledge of maternal incentives. **Conclusion:** While service utilization for pregnancy and delivery in Palpa district aligns with national standard, further research is needed to identify factors contributing to underutilization of postnatal services.

Keywords: Maternal health; Maternal health services; Pregnancy; Sustainable Development Goal

INTRODUCTION:

Maternal health is a priority program of the Nepalese government. The government has prioritized the strengthening of maternal healthcare service delivery and access to care through its Safe Motherhood Program.[1] However, Nepal is still well short of meeting its goal for Sustainable Development Goal (SDG) 3.1 target of decreasing the maternal mortality ratio from 239 to 70 deaths per 100,000 live births.[2]

World Health Organization (WHO) has developed a strategic framework to end preventable

maternal mortality (EPMM) that aims to address access inequities, ensure health coverage, and strengthen health systems to improve maternal healthcare.[2] One of the major contributing factors to reduce maternal mortality is the utilization of maternal healthcare services, particularly antenatal care (ANC) and institutional delivery.[3] Antenatal, intranatal and postnatal care (PNC) encompass all types of medical care provided to pregnant women to assess the health status of both the mother and the developing fetus.[4] The constitution of Nepal ensures safe, quality, affordable, and accessible reproductive healthcare.[5]

This study aimed to explore the various factors related to the utilization of maternal healthcare services, including antenatal, intranatal and postnatal services among women in the Palpa district of Nepal.

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METHODS:

This cross-sectional study was conducted among women of reproductive age group (15-45 years) from 1 March 2023 to 30 September 2023. The data was collected from different municipalities in Palpa district, in the field practice area of the Lumbini Medical College. Women who had delivered in the last two years were included in the study. The convenience sampling method was used. The sample size was calculated using the formula $n = z^2pq/E^2$; where, Z is confidence level at 95% (standard value=1.96), p is the proportion of pregnant women receiving ANC care from skilled healthcare worker =94% [6], q is 1-p and E is margin of error that was set to 5%. Computing this we got a value of 86.66. Considering a non-response rate of 20% the final sample size was estimated to be 104.

Pre-tested, semi-structured questionnaire was used for the data collection. Ethical clearance was obtained from the institutional research committee (IRC) of the Lumbini Medical College Teaching Hospital (IRC-LMC-04/P-24). Informed verbal consent was taken prior to data collection. The data obtained were then entered and analyzed using Statistical Package for Social Science (SPSS) version 21.0. The results were then expressed as frequencies and percentages.

RESULTS:

Interviews were conducted with 168 mothers from the Palpa district. The majority of the mothers (75.6%) were between 20 and 30 years old, with a mean age of 24.4 ± 4.5 years. Regarding education, 44.0% of the mothers had at least primary-level education, while the majority (52.4%) had secondary or higher education levels. The mean age at marriage was 19.42 ± 2.85 years. Among the 168 participants, 74.4% were homemakers (Table 1).

The most common health facility visited for ANC was a health post (60.7%). Most mothers (67.3%) could reach the nearest health facility within 30 minutes. A total of 88.1% of the mothers had four or more ANC visits. During these visits, 91.7% of pregnant women received iron and calcium supplements, and 81.0% received two doses of tetanus vaccination (Table 2).

A total of 89.9% of the mothers delivered at a health institution. Among the non-institutional

Table 1: Demographic profile of the participants (N = 168).

Variables		Frequency (%)
Age	<20 years	16 (9.5)
	20-30 years	127 (75.6)
	>30 years	25 (14.9)
Mean age (in years)	24.4 ± 4.5 years	
Mean age at marriage (in years)	19.4 ± 2.8 years	
Education	No education	6 (3.6)
	Primary	74 (44.0)
	Secondary and above	88 (52.4)
Residence	Urban	75 (44.6)
	Rural	93 (55.4)
Ethnicity	Brahmin	40 (23.8)
	Chhetri	21 (12.5)
	Janajati	75 (44.6)
	Dalit	32 (19.1)
Occupation	Home maker	125 (74.4)
	Agriculture/ small business	30 (17.9)
	Teacher	10 (6.0)
	Other	3 (1.7)
Distance to health facility	<30 mins	113 (67.3)
	30 mins -1 hour	29 (17.3)
	>1 hour	26 (15.4)

deliveries, the reasons were high cost (29.4%), distance to the health facility (23.5%) and the child being delivered before reaching the health institution (41.2%). Caesarean sections accounted for 29.8% of the deliveries. This study shows that only 28% of the mothers had three or more postnatal visits (Table 3).

Table 2: Utilization of maternal health services during pregnancy (N =168).

Characteristics		Frequency (%)
No. of ANC visit	<4	20 (11.9)
	≥ 4	148 (88.1)
Health facility visited	Health post	102 (60.7)
	Government hospital	36 (21.4)
	Private hospital	26 (15.5)
	Primary health center	4 (2.4)
Iron /calcium supplement	Yes	154 (91.7)
	No	14 (8.3)
Two doses of Tetanus vaccination	Yes	136 (81.0)
	No	32 (19.0)

Table 3: Utilization of maternal health services during and after delivery (N = 168)

Characteristics		Frequency (%)
Place of delivery	Health institution	151 (89.9)
	Home	17 (11.1)
Mode of delivery	Vaginal delivery	118 (70.2)
	Cesarean delivery	50 (29.8)
Reason for home delivery	High cost	5 (29.4)
	Health facility too far	4 (23.5)
	Born before reaching health facility	7 (41.2)
	No complication	1 (5.9)
Postnatal clinic visit	No visit	8 (4.8)
	1-2 times	113 (67.2)
	3 or more times	47 (28)

Regarding knowledge of different government benefits for delivery services, 75% of the mothers were aware of maternal incentives provided by the government. Additionally, 56% of mothers knew about transport incentives offered by the government.

Mothers with secondary or higher education levels were more likely to have institutional deliveries, although this difference was not statistically significant. The occupation of mothers was not significantly associated with the utilization of maternal health services. Mothers who were aware of government-provided maternal incentives were significantly more likely to have an adequate number of ANC visits ($p=0.028$). Those who had adequate ANC visits were slightly more likely to deliver their child at a health institution, but this difference was not statistically significant.

DISCUSSION:

The Right to Safe Motherhood and Reproductive Health Act in Nepal ensures access to maternal health services and respectful maternity care.[5] Through the National Safe Motherhood program, Nepal has invested significant resources aimed at reducing maternal and neonatal morbidity and mortality. The Government of Nepal provides incentives of Nepalese rupees (NRs) 200 for each ANC visit (a total of NRs 800 for four ANC visits) and during delivery, travel incentives of NRs 3000 in mountain region, NRs. 2000 in hilly region and NRs.

1000 in terai region. The mother gets the incentives at the time of discharge after delivery, only if she had completed four ANC visits and has delivered in the hospitals with Safe Motherhood program.[1]

In this study, we found that 88.1% of women had four or more ANC visits during their pregnancy. This figure is higher than the national average of 80% and similar to that of Lumbini Province (86.9%).[6] This indicates good utilization of antenatal health services among pregnant women in the Palpa district. Adequate ANC visits play a significant role in reducing morbidity and mortality of pregnant women by ensuring the well-being of both mother and fetus during pregnancy. Previous studies of the Nepal Demographic and Health Survey (NDHS) have revealed that education status and wealth are significantly associated with having four or more ANC visits.[7]

Regarding the quality of ANC, tetanus vaccination coverage in our study (87.5%) is below the national average of 93% and that of Lumbini Province (96%).[6] However, other indicators of ANC visits are good and comparable to the NDHS 2022. Studies in Pakistan and Ethiopia have revealed that the quality of ANC is an important predictor of institutional delivery.[8,9] A systematic review of factors influencing the utilization of health services by adolescent mothers in low- and middle-income countries also revealed similar results.[10]

The rate of institutional delivery in our study is 94%, which is higher than both the national average (79%) and that of Lumbini Province (84%). The majority of the women could reach the nearest health institution within an hour. Proximity to birthing facilities has been shown increase the likelihood of institutional deliveries for all women.[11]

Most of the women in our study had at least primary level education or higher. This education level may have contributed to increased awareness of the importance of ANC visits and institutional delivery in improving maternal and child health. Studies analyzing sociodemographic factors among women in Nepal and Ethiopia have shown that educated women and those with educated husbands are more likely to receive good-quality antenatal care.[12,13] Similar studies in Nepal and Indonesia have revealed that higher education levels are positive predictors for institutional delivery.[7,14]

Only three-fourths (75%) of the participants were aware of various government incentives schemes for safe delivery. The schemes of the Safe Motherhood program should be better disseminated at the community level. The public should be informed about the facilities provided by the government to encourage full utilization of maternal health services. This study revealed that women who were aware of maternal incentives were slightly more likely to deliver in a health institution. Previous studies conducted in Nepal have reported similar findings.[5,15,16]

Despite the high rates of ANC visits and institutional deliveries, this study shows a significantly low level of adequate postnatal visits (28%). The Government of Nepal recommends at least three postnatal visits: within 24 hours, on the 3rd day and on the 7th day after delivery. These visits ensure the wellbeing of both the mother and newborn in the early postnatal period. Optimal PNC visits reduce morbidity and mortality of mothers and neonates, aligning with the achievement of SDGs by 2030.[17] Lack of awareness, the recovery period after delivery, or the absence of observable complications may be some of the reasons why new mothers avoid postnatal visits.[18]

The present study has some limitations. The number of women who had less than four ANC visits and who had home delivery is limited, which necessitates a bigger sample size to explore the factors influencing the underutilization of maternal antenatal services. The quality of maternal health service utilization is measured by number of ANC visits, health service during ANC, place of delivery, postnatal visits but specific examination such as blood pressure measurement and counselling on diet, breastfeeding, danger signs, weight measurement are not specified. Also, the data was collected from a single district of Nepal, so the findings cannot be generalized to the entire population.

CONCLUSION:

There was a higher prevalence of adequate ANC visits and institutional delivery in the study population compared to the national average of Nepal. Factors such as education level, distance to nearest healthcare facilities, and awareness of maternal incentives were likely instrumental in enhancing utilization of good maternal health services. However, considerably low PNC service utilization

depicts the need for effective policy interventions to improve PNC visit coverage. Future studies with larger sample size are needed to comprehensively assess the quality of ANC services and identify additional factors for improving maternal healthcare outcomes.

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