

Utilization of Institutional Delivery Services and its Associated Factors among Chepang Mothers

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ABSTRACT

Background: Institutional delivery services play a critical role in reducing maternal and neonatal mortality. Despite this, a significant proportion of deliveries still take place at home, especially within marginalized communities like the Chepang. This study seeks to examine the barriers that Chepang women in Chitwan, Nepal, encounter in accessing institutional delivery services.

Methods: A community-based cross-sectional study was conducted from June 20th to July 20th, 2024, involving 174 mothers who had given birth in the last two years. Data were collected via face-to-face interviews using a semi-structured questionnaire, followed by statistical analysis using SPSS.

Results: The study found that 73.6% of mothers delivered at home. Major barriers included long distances to health facilities (66.7% reported more than one hour of travel), low education levels (34.5% were illiterate), and economic factors. Analysis revealed significant associations between institutional delivery and factors such as income source, with agricultural workers having lower odds of utilizing institutional services. Additionally, literacy (OR: 2.308, $p = 0.034$) and complications during pregnancy (OR: 0.147, $p < 0.001$) were significant predictors of institutional delivery.

Conclusions: The findings indicate critical barriers to institutional delivery among Chepang mothers, highlighting the urgent need for targeted interventions to improve healthcare access. Enhancing education and addressing transportation challenges are essential for promoting safer childbirth practices and improving maternal health outcomes in this vulnerable population.

Keywords: Barriers; chepang community; healthcare access; institutional delivery; Nepal.

INTRODUCTION

Institutional delivery services, a comprehensive strategy to reduce maternal mortality, provide safe delivery, minimize complications, and improve the survival rate of both mothers and newborns.¹ The 2022 demographic health survey report indicates that 19 % of deliveries took place at home.² In a marginalized community in Nepal, reasons for avoiding health facilities included unnecessary births, distance, transportation issues, costs, poor service quality, and spousal restrictions.³ In tribal communities, home deliveries remain prevalent, reflecting low utilization of institutional services. The interplay of complex dynamics, including education and economic status, significantly impacts institutional

delivery rates. These study highlights the need for intervention alignment to enhance healthcare access for tribal mothers particularly.⁴ Research on Chepang mothers remains limited,⁵ particularly regarding the factors they face in accessing institutional services, hence this study was needful to assess the utilization of institutional delivery services and its associated factors among mothers belonging from Chepang community.

METHODS

A community based cross-sectional study was conducted among the extremely marginalized Chepang mothers of Rapti Municipality, Chitwan Ward Nos. 10, 11, 12, and 13 from June 20th to July 20th, 2024. It includes 174 chepang

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mothers who gave birth in the last two years. The list of mothers was taken through the immunization register of the health post of the selected ward. The sample size was calculated with a finite population. The total population of Chepang mothers having children below two years of age was (N) 307, and the marginal error (e) was considered 0.05. By using the formula of finite population $n = \frac{N}{1 + (N \cdot e^2)}$, the sample size was obtained as 174. From Chitwan district, out of seven municipalities, Rapti municipality was purposefully chosen, and in Rapti municipality there are 13 wards. Among 13 wards, four wards were purposefully selected (wards 10, 11, 12, and 13), and within those Chepang mothers having less than two years, children were eligible for the study. The study was conducted after receiving the ethical clearance (Ref. No. 080/81/312) from Nobel College Sinamangal, Kathmandu. Formal permission was taken from the authorized body of Rapti Municipality to collect data. Further verbal and written consent were taken from each respondent. A face-to-face interview was taken using a semi-structured questionnaire, which lasted for 15-20 minutes for each respondent. Respondents were clearly explained that they had a choice to reject or discontinue research at any point of study time. Confidentiality was maintained throughout the study. Pre testing was done among the Darai community of Ratnanagar municipality, Chitwan district, where a 10% sample size (i.e., 17 mothers). Data were entered in Epi-data 3.1 and exported to JASP (*free and open-source software*) for analysis. Chi-square test was used to find out the association between variables. The $p < 0.05$ was considered significant, and the strength of association was assessed by odds ratios with 95% confidence interval.

RESULTS

The major source of income was agriculture for more than three-fourths (79.3%) of the mothers, labor for less than one fifth (18.4%) of the mothers, abroad for 1.7% of the mothers, and less than 1% of the mothers reported civil services as a major source of income. Less than half (48.3%) of the mothers had their basic education, 34.5% of mothers cannot read and write, whereas 10.9% of mothers can read and write, 5.7% of mothers have completed secondary education, and less than 1% have graduated. More than one-fourth (29.3%) of the mothers were primiparous, more than three-fifths (62.1%) were multiparous, and 8.6% of mothers were grand multiparous. (Table 1)

Table 1. Socio - demographic characteristics of the respondent.

Variables	Frequency (n=174)	Percentage (%)
Source of Income		
Agriculture	138	79.3
Civil services	1	0.6
Abroad	3	1.7
Labor	32	18.4
Women's education		
Cannot read and write	60	34.5
Can read and write	19	10.9
Basic education	84	48.3
Secondary level	10	5.7
Graduates	1	0.6
Parity		
Primiparous	51	29.3
Multiparous	108	62.1
Grand Multiparous	15	8.6

The distance to nearest Health institution was more than 1 hour for 66.7%, around 15 min for 14.4%, around 30 minutes for 13.8% and around 45 minutes for 5.2% of the respondent. (Table 2)

Table 2. Distribution of the respondents based on the accessibility.

Variables	Frequency (n=174)	Percentage (%)
Distance		
Around 15 minutes	25	14.4
Around 30 minutes	24	13.8
Around 45 minutes	9	5.2
More than 1 hour	116	66.7

Less than three-fourths (73.6%) of the respondents had delivered their child at home, which indicates only 26.4% of the respondents had delivered in a health institution. Of the respondents, 35.1% had a history of two pregnancies, 29.3% had one pregnancy, 17.2% had three pregnancies, 9.8% had four pregnancies, and 8.6% had more than four pregnancies. More than four-fifths (85.1%) of mothers had at least one ANC visit, and 14.9% of respondents didn't go for an ANC checkup. The majority (88.5%) of the mothers

didn't face any complications during pregnancy. Almost half (47.1%) of the mothers had planned pregnancy, and more than half of the mothers (52.9%) had unplanned pregnancy. (Table 3)

Table 3. pregnancy related characteristics of the respondents.

Variables	Frequency (n=174)	Percentage (%)
Place of delivery		
Home	128	73.6
Health institution	46	26.4
Frequency of pregnancy		
One	51	29.3
Two	61	35.1
Three	30	17.2
Four	17	9.8
More than four	15	8.6
ANC Visit (at least one)		
Yes	148	85.1
No	26	14.9
Complications during Pregnancy		
Yes	20	11.5
No	154	88.5
Planned Pregnancy		
Yes	82	47.1
No	92	52.9

Those with an agricultural income were significantly less likely to utilize institutional delivery compared to those with non-agricultural income (OR = 3.363, $p < 0.001$). Mothers who could read and write also had higher odds of institutional delivery (OR = 2.308, $p = 0.034$). Multiparous mothers showed lower odds of institutional delivery compared to primiparous mothers (OR = 0.364, $p = 0.005$). Additionally, respondents residing more than 30 minutes from healthcare facilities have lower odds of utilizing institutional delivery services (OR = 0.333, $p = 0.002$). Multi gravida respondents had significantly lower odds of institutional delivery (OR=0.28, $p < 0.001$), and not attending antenatal care (ANC) greatly reduced the chances of utilizing institutional delivery (OR=0.092, $p=0.005$). No complications during pregnancy decreased the odds of institutional delivery (OR=0.147, $p < 0.001$),

while unplanned pregnancies also resulted in lower odds of institutional delivery (OR=0.32, $p=0.001$). (Table 4).

Table 4. Association with variables and utilization of institutional delivery.

Variables	Institutional delivery		Odds ratio	95% CI	P-value
	Utilized	Not utilized			
Source of income					
Agriculture	29 (21%)	109 (79%)	3.363	1.554-7.277	0.001*
Non agriculture	17(47.2%)	19 (52.8%)			
Women's education					
Can read and write	10(16.7%)	50 (83.3%)	2.308	1.052-5.062	0.034*
Cannot read and write	36(31.6%)	78 (68.4%)			
Parity					
Primiparity	21(41.2%)	30 (58.8%)	0.364	0.179-0.741	0.005*
multiparity	25(20.4%)	98 (79.6%)			
Distance					
Less than or equal to 30 minutes	21(42.9%)	28 (57.1%)	0.333	0.163-0.682	0.002*
More than 30 minutes	25(20%)	100 (80%)			
Frequency of pregnancy					
Primigravida	23(45.1%)	28 (54.9%)	0.28	0.137-0.572	<0.001*
Multigravida	23(18.7%)	100 (81.3%)			
ANC visit					
Yes	45(30.4%)	103 (69.6%)	0.092	0.012-0.697	0.005*
No	1(3.8%)	25(96.2%)			
Complications during pregnancy					
Yes	13(65%)	7 (35%)	0.147	0.054-0.398	<0.001*
No	33(21.4%)	121 (78.6%)			
Planned Pregnancy					
Yes	31(37.8%)	51 (62.2%)	0.32	0.157-0.652	0.001*
No	15(16.3%)	77(83.7%)			

*Indicates $p < 0.05$ at 95% CI

DISCUSSION

The recent study revealed that 26.4% had delivered their baby at Health Facility. The findings are quite similar to the study conducted in Tanahu district and Mahottari district of Nepal ^{3,6} where 22.5% and 30% mothers had institutional delivery. However, the finding contradicts with the study conducted in Ethiopia, Delhi and Rural Bangladesh⁷⁻⁹ which depicts that 38.9% ,90% and 74 % of the birth took place in health facility. The difference in the result may be due to the variation in geographical features, distance of health institution, level of awareness and variation in sample size. Education level has been the positive influencing factor for utilization of institutional delivery services in various studies ^{2,6,10} which further support the finding of our study. One possible explanation is that educated women are more aware of the benefits of institutional delivery, and education improves mothers' health-seeking behaviours. Our study shows that primiparous mothers are more likely to utilize institutional delivery compared to multiparous. This finding is supported by the various study conducted in Ethiopia and East Nepal.¹¹⁻¹³ The reasons might be explained as primiparous mothers often experience heightened fear and anxiety about complications during childbirth, which can drive them to seek institutional care. In contrast, multiparous mothers tend to have less fear, as their previous childbirth experiences may make them more confident in managing the process. Our study further showed that mothers living closer to these facilities are more likely to utilize institutional delivery. The findings are similar to the study conducted in Sindhupalchowk, Gorkha and Chitwan district ^{2,14,15} where mothers who have to travel long distance to reach health institutions are less likely to utilize institutional delivery. The distance from home to healthcare institutions is a significant factor driving the choice of home delivery. This may be attributed to limited transportation options in remote areas, the inability to walk long distances during labor, rapid progression of labor pain, and the fear of delays in reaching a facility. Additionally, the current study found that 85.1% of respondents had attended antenatal care (ANC) visits. This finding is consistent with studies conducted in a Southern Nigerian city, Northwest Ethiopia, and rural Uttar Pradesh, India.¹⁶⁻¹⁸ where, 89.6%, 86.8% and 83% of women had completed ANC visit. Possible reasons for this may include fear of complications during pregnancy and childbirth, increased awareness of the benefits of regular antenatal care visits, proximity to outreach clinics, and the desire to receive government-provided incentives. The study may have a few limitations; the study area was confined

to only four wards of a municipality of Chitwan district, this may limit the generalizability of findings to other settings in Chitwan district and the country as a whole. There was a possibility of recall bias as mothers were asked about the utilization of institutional delivery received within last 2 years prior to the data collections.

CONCLUSIONS

Despite the benefits of institutional delivery in reducing maternal and neonatal mortality, many women still opt for home deliveries. Key factors influencing this choice include education, income, proximity to healthcare, ANC visits, and pregnancy planning. Women with agricultural incomes, lower education levels, and those living farther from healthcare facilities are less likely to use institutional delivery services. The study highlights the urgent need to improve healthcare access for Chepang mothers by enhancing education, addressing transportation challenges, and supporting agricultural families. Providing resources for managing pregnancy complications and promoting family planning can empower women to make informed decisions about their health would go a long way in improving maternal health outcomes among Chepang mothers.

ACKNOWLEDGEMENTS

We extend our heartfelt gratitude to all those who contributed to the completion of this study, particularly the mothers of Chepang, the stakeholders of the municipality, the health post leaders in Rapti Municipality, Chitwan and the Female Community Health Volunteers (FCHVs) within the Chepang community residing in Rapti Municipality, Chitwan, Nepal. Your support has been invaluable.

CONFLICT OF INTEREST

We declare that there is no conflict of interest regarding this article.

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