

Factors Affecting the Uptake of Institutional Delivery, Antenatal and Postnatal Care in Nawalparasi District, Nepal

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ABSTRACT

Background

Maternal deaths and complications are highly preventable with good antenatal, postnatal and skilled care during childbirth. Inadequate information on the factors affecting these services could be barrier to a reduction of maternal deaths in low-income countries.

Objective

To assess the uptake of antenatal, postnatal and skilled care during childbirth.

Method

A cross-sectional study was conducted in eight villages of Nawalparasi district in southern Nepal. A total of 447 women who had given birth within the preceding 24 months were recruited using multistage random sampling. Data were collected using a pre-tested semi-structured questionnaire. Chi-square tests were used to assess association between variables.

Result

Over 70% of women had gone for at least four antenatal care check-ups while only 14.3% had at least three postnatal check-ups in their last pregnancies. The proportion of institution delivery was 54%. Women's literacy was associated with the uptake of antenatal services ($p < 0.001$), postnatal care ($p = 0.04$) and institutional delivery ($p < 0.001$). Knowledge of antenatal ($p < 0.001$) and postnatal care was also associated with uptake of respective services ($p < 0.001$).

Conclusion

The uptake and knowledge of antenatal care was much better than of postnatal care. Home delivery rates were still very high. A scaling-up of education and awareness-raising interventions in this community could help improve the uptake of maternal health services.

KEY WORDS

Childbirth, Maternal health, Pregnancy, Service utilisation, South Asia

INTRODUCTION

Nearly all of maternal deaths occur in low-income countries (LICs).¹ The maternal mortality ratio of Nepal has decreased over time, yet, still high at 239 per 100,000 live births.²⁻³ Nevertheless, these deaths largely are preventable with appropriate maternal care services such as Antenatal Care (ANC), skilled care during delivery and Postnatal Care (PNC).⁴

ANC can help identify the danger signs of pregnancy and prevent complications.⁴⁻⁵ Studies show a positive association between ANC and reduced maternal mortality.⁶ Institutional delivery can lead to safe birth.⁷ A study in Haiti suggested that a good access to ANC was linked to increased institutional delivery.⁸ PNC is often neglected, but it is as important as ANC.⁹ The World Health Organization (WHO) recommends a minimum of four antenatal visits and at least three postnatal visits.⁹⁻¹⁰ National estimates indicated that only 69% of pregnant women in Nepal make at least four ANC visits; 57% of births took place in health facilities; and 57% of women received PNC within the first two days following delivery.³

Inadequate information on the magnitude and manageability of the problem is a barrier to the reduction of maternal mortality in LICs.¹⁰ It is essential to understand the factors affecting the use of maternal health care services especially when it comes to designing and implementing interventions to improve maternal health. This study aims to assess the uptake of antenatal, postnatal and skilled care during childbirth in Nawalparasi district of Nepal.

METHODS

A cross-sectional study was conducted between June-July 2015 with mothers who delivered their last baby 24 months prior to the study. It was conducted in eight villages (i.e. local administrative bodies referred to as Village Development Committees "VDCs") of Nawalparasi district, Nepal. These VDCs were selected based on the very rural and marginalized community thus, are representative of villages in the southern part of Nepal, the so-called Terai. All the eight selected VDCs have separate government-run health post services.

A multi-stage sampling method started with a complete list of women with children under the age of 24 months in each health post from the government's immunization register. From this list the required number of respondents in each VDC was calculated. Systematic sampling was applied to select respondents in each VDC. The first sample respondent was picked randomly and subsequent respondents were picked up on the basis of equal intervals within each VDC. The sample size was determined by using a sample size calculation formula for cross-sectional studies assuming the following: national proportion of institutional delivery 12.35% ($p=0.350$), 5% level of significance ($\alpha =$

0.05) and 10% non-response rate; this calculation resulted in required total sample of 447.¹¹

A pretested semi-structured questionnaire with open and close-ended questionnaires were designed based on validated questions from the Nepal Demographic Health Survey (NDHS) 2011.¹² The questionnaire which was designed in Nepali language was piloted in a different community with similar socio-economic context in order to prevent contamination. Wording and order of questions were adjusted after pretesting. Female enumerators from same region, speaking local dialects were trained to collect the questionnaire and conducted the face-to-face survey.¹³ Information was collected on socio-demographics, knowledge, attitudes and practice towards ANC, PNC, and delivery services. Female enumerators were trained and mobilized for the data collection and first author monitored the field work and ensured the data collection was appropriate. Data were entered using SPSS version 20.0 for data management and analysis. Frequencies and percentages were calculated to describe the descriptive statistics and Chi-square test was done to observe the association between variables related to demographic factors influencing the uptake of maternal health services. The significance level was considered to be a p-value less than 0.05. Ethical approval was granted by the Nepal Health Research Council. Respondents were consented verbally prior to the interviews.

RESULTS

Among the 447 participants in the study the mean age was 24.5 years with a standard deviation of 4.3 years. Just over three-quarters of the participants were literate, however, only 60.2% reported having had formal education (Table 1). Nearly all respondents were housewives, while 42.5% of the participants' husbands were farmers. About three-quarters (73.2%) of women had either one or two children.

Among participating women, a large majority (71.8%) went for at least four ANC check-ups during their last pregnancy; 45.4% ($n=203$) gave birth at home while 54.6% ($n=244$) gave birth at a health institution such as hospital, primary Health care, health post or birthing centre. More than one third of the deliveries were assisted by Traditional Birth Attendants (TBA) although deliveries by TBAs are not recommended by the Government of Nepal at the time of the study. Only 74.2% of women with an institutional delivery reported receiving the government's incentive. Over three-quarters were satisfied with the care they had received during their last delivery irrespective of place of delivery. Less than one quarter (23.7%) of women knew the recommended number of PNC check-ups while only 14.3% of the women actually had three or more PNC check-ups (Table 2).

Table 3 shows that ANC practice was significantly associated with literacy level ($p<0.001$), formal schooling ($p=0.006$),

Table 1. Socio-demographic characteristics of participants

Characteristics (n=447)	N	%
Age of the respondent Mean/SD		
≤ 25 years	301	67.3
26 years and above	146	32.7
Literate	339	75.8
Education level (n=269)		
Not been to school	178	39.8
Primary	139	31.1
Secondary	91	20.4
Higher secondary and above	39	8.7
Main occupation		
Housewives	430	96.2
Agriculture	12	(2.7
Paid job outside home	5	1.1
Husband's main occupation		
Farmer	190	42.5
Other job (skilled and unskilled)	98	21.9
Formal sector and abroad	159	35.6
Number of children		
≤ 2	327	73.2
3 and above	120	26.8

Table 2. Maternity services knowledge and practice

Variable	N	%
Knowledge on number of recommended ANC check-ups		
Did not know recommended number of visits	106	23.7
Knew recommended number of visits	341	76.3
Four or more ANC visits in last pregnancy (as recommended)	321	71.8
Place of most recent delivery		
Home	203	45.4
Health Institution	244	54.6
Assisted the most recent delivery		
Doctor/nurse	230	51.5
Health worker (general)	37	8.3
Traditional Birth Attendant (TBA)	160	35.8
Family member/relatives	15	3.4
No one	5	1.1
Government incentive for institution delivery (n=244)	181	74.2
Satisfaction with care during delivery (n=447)		
Satisfied or highly satisfied	341	76.3
Acceptable	87	19.5
Not satisfied or highly dissatisfied	19	4.2
Knowledge on recommended PNC check-ups		
Knew recommended number of PNC visits	106	23.7
Did not know recommended number of PNC visits	341	76.3
Three or more PNC visits after most recent delivery	64	14.3

caste/ethnicity ($p=0.027$), ANC knowledge ($p<0.001$) and PNC knowledge ($p=0.020$) respectively. Similarly, place of delivery was significantly associated with age of the respondents ($p=0.030$), parity ($p<0.001$), literacy level ($p<0.001$) and formal schooling ($p<0.001$). Moreover, PNC practice was significantly associated with literacy level ($p=0.041$), husband's main occupation ($p<0.001$) and PNC knowledge ($p<0.001$) respectively. Occupation of the respondents and ANC visits, PNC practices or place of delivery did not find significant difference.

DISCUSSION

The present study assessed the knowledge, practices and socio-demographic characteristics associated with maternal care services in a rural district of Nepal. Our results indicated that ANC knowledge and practice among the participants was much better compared to PNC knowledge and practice. The proportion of women who were aware of at least four ANC visits during the course of an uncomplicated pregnancy and took recommended four ANC check-ups was higher than the current national proportion of ANC visits.³ However, the proportion of women in our study who knew about the WHO recommended number of three PNC check-ups and who had attended PNC at least three times was only 27.3% and 14.3% respectively. The proportion of PNC uptake was much lower than the national average (57%).³ This finding supports the results of a study conducted in Nepal in 2006 which reported a very low PNC uptake and suggested that lack of awareness was the main barrier to the utilisation of PNC services and a more recent study in Nepal which concluded that community-based health promotion has a much stronger effect on the uptake of antenatal care than on the uptake of delivery care.^{14,15} A similar study conducted in Ethiopia also concluded that ANC utilisation was higher than that for PNC.¹⁶ Evidence suggests that ANC is an important entry point for the subsequent use of delivery and PNC services, however, this contradicts with the results of our study.¹⁷ The proportion of ANC check-ups, delivery in health facilities among our study respondents was higher than the data presented in Nepal Demographic Health Surveys of 2011¹² and 2016.³ This indicates that the number of women utilising ANC services and institutional delivery is on increasing trend, whereas, PNC services are still underutilised.

The women who give birth at a government health facility are provided with a cash incentive in Nepal as a strategy to promote institutional delivery and skilled birth attendance. This provision is under Nepal's Safe Delivery Incentives Programme (SDIP) launched in 2005.¹⁸ However, among the 244 women in our study who had given birth in a health institution, only 74.2% had received the cash incentive for delivery in a government health facility. So, effective measures need to be taken to identify the loopholes under

Table 3. ANC, PNC and place of delivery by socio-demographic factors

Socio-demographic factors	ANC visits			Place of delivery			PNC visits		
	Less than 4 / none	Four or more	p-value	Home	Institution	p-value	Fewer than 3/none	Three or more	p-value
Mean age									
25 years and below	81(64.3)	220(68.5)	0.389	126(62.1)	175(71.7)	0.030	256(66.8)	45(70.3)	0.584
26 years and above	45(35.7)	101(31.5)		77(37.9)	69(28.3)		127(33.2)	19(29.7)	
Number of children									
2 or less	84(66.7)	243(75.7)	0.052	127(62.6)	200(82.0)	<0.001	275(71.8)	52(81.2)	0.110
3 and more	42(33.3)	78(24.3)		76(37.4)	44(18.0)		108(28.2)	12(18.8)	
Literate	82(65.1)	257(80.1)	0.001	129(63.5)	210(86.1)	<0.001	284(74.2)	55(85.9)	0.041
Attended School	63(50)	206(64.2)	0.006	95(46.8)	174(71.3)	<0.001	224(58.5)	45(70.3)	0.074
Caste/ethnicity									
Dalit	48(38.1)	88(27.4)	0.027	69(34.0)	67(27.5)	0.135	116(30.3)	20(31.2)	0.877
Non-Dalit caste groups	78(61.9)	233(72.6)		134(66.0)	177(72.5)		267(69.7)	44(68.8)	
Main occupation									
Housewives	121(96.0)	309(96.3)	0.219	196(96.6)	234(95.9)	0.83	368(96.1)	62(96.9)	0.096
Agriculture	5(4.0)	7(2.2)		7(3.4)	5(2.0)		12(3.1)	0	
Paid job outside home	0	5(1.6)		0	5(2.0)		3(0.8)	2(3.1)	
Husband's main occupation									
			0.650			0.378			<0.001
Farmer	56(44.4)	134(41.7)		93(45.8)	97(39.8)		177(46.2)	13(20.3)	
Other job: (un-) skilled labour)	24(19.0)	74(23.1)		44(21.7)	54(22.1)		70(18.3)	28(43.8)	
Formal sector and abroad	46(36.5)	113(35.2)		66(32.5)	93(38.1)		136(35.5)	23(35.9)	
Antenatal care knowledge									
Didn't know recommended	75(59.5)	31(9.7)	<0.001	50(24.6)	56(23.0)	0.67	99(25.8)	7(10.9)	0.009
Knew recommended	51(40.5)	290(90.3)		153(75.4)	188(77.0)		284(74.2)	57(89.1)	
Postnatal care knowledge									
Didn't know recommended	105(83.3)	236(73.5)	0.028	159(78.3)	182(74.6)	0.355	328(85.6)	13(20.3)	<0.001
Knew recommended	21(16.7)	85(26.5)		44(21.7)	62(25.4)		55(14.4)	51(79.7)	

this provision to improve institutional delivery. In the present study, the majority (76.3%) was satisfied with the services they received during delivery, irrespective of the place of delivery. Further research is needed to explore the factors affecting satisfaction with maternal health services in low-income countries such as Nepal. We can, of course, learn from the many studies on maternity care satisfaction conducted elsewhere.¹⁹⁻²¹

Several studies have found women's education in the developing world to be an important predictor of maternal health services utilisation including antenatal care services.²²⁻²⁵ Generally, higher levels of education of women are associated with greater use of ANC.²⁶ The results of our study support these evidences that women's education is a key factor to improve maternal care services utilisation in developing countries. In the present study, literacy was found to be significantly associated with ANC practice ($p<0.001$), PNC practice ($p=0.041$) as well as place of delivery ($p<0.001$). Formal schooling was also significantly associated with ANC practice ($p=0.006$) and with place of delivery ($p<0.001$).

Parity or the number of children was also found associated with ANC utilisation ($p=0.05$) and place of delivery ($p<0.001$). Similar studies conducted in Jordan and Kenya have found that women having larger numbers of children were less likely to use ANC.^{5,27} Moreover, a study conducted in India revealed that higher parity was associated with reduced use of antenatal care.²² In this study, PNC practice was found significantly associated with literacy ($p=0.004$), husband's main occupation ($p<0.001$), ANC and PNC knowledge ($p<0.001$). The current finding is similar to another study conducted in Indonesia which had shown that lower PNC utilisation was associated with lower educational levels, fewer ANC check-ups and home births.²⁸

Educating pregnant women regarding safe birth in order to reduce maternal mortality was also an important recommendation given by a previous study.²⁹ It is very important for mothers to recognize the importance of maternal care utilisation. Not surprisingly, knowledge of ANC was found to be better among women who had used ANC than those who had not.³⁰ Our study suggests that knowledge on the importance of ANC and PNC

check-ups was significantly associated with ANC and PNC uptake. Interventions related to improving literacy, formal schooling as well as raising awareness surrounding maternal health could be an important strategy to improve maternal care services utilisation in the rural communities in Nepal. More generally policy-makers should consider prioritising vulnerable populations in intervention design and implementation.³¹

One of the key strengths of our study is that it is the first well-conducted household survey of women in this particular part of southern Nepal. One limitation is that no cause and effect could be established between variables as this is a cross-sectional study. As this is a study of (potential) maternity care service users only, no information is available on maternity service providers in the district.

CONCLUSION

The study shows higher antenatal care knowledge and practices among the women in Nawalparasi district compared to the national proportion and the reasons could be potentially attributed to the factors such as

literacy, formal schooling, higher/lower caste, parity and knowledge on ANC/PNC. In contrast, PNC knowledge and uptake among the women in Nawalparasi was critically low. Strategies to improve PNC knowledge and practice need to be scaled up. Improving awareness and knowledge on ANC and PNC could yield to improved utilisation of ANC and PNC services. The proportion of health institution delivery, similar to the national average, is still low and needs further improvement. Literacy and formal education was found to be associated with PNC and institution delivery practices. The scaling-up of awareness-raising interventions at the community level could be an effective strategy to improve service utilisation in such rural communities.

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