

# FACTORS ASSOCIATED WITH UTILIZATION OF MATERNAL HEALTH SERVICES IN SELECTED MOUNTAINOUS VILLAGES OF KASKI DISTRICT, WESTERN NEPAL

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## ABSTRACT

**Background:** Nepal has the highest maternal mortality rate in the world even though Nepal started and implemented various initiative safe motherhood programs nationally. The main purpose of this study was to identify the related maternal health factors associated with the utilization of Antenatal Care Visits (ANC), delivery and Postnatal Visits (PNC).

**Methods:** Community based cross-sectional study was conducted among 200 mothers of reproductive age group who delivered within 2 years of the survey in Dhital and Dhampus villages of Kaski district, Western Nepal. A structured questionnaire was used for collecting the information from the participants. Data analysis was done by chi-square test and multivariable logistic regression.

**Results:** The findings from the study showed that the coverage of ANC visit was 98% and among them only half of the women visited 4 ANC visits as recommended by the government of Nepal. Out of total respondents, 80% of the respondents delivered in the hospital by Skilled Birth Attendant (SBA) and only 24% visited PNC after the delivery. Age of the respondent, husband education, respondent education, income status, level of maternal knowledge and level of enabling factors were statistically significant and positively associated in bivariate analysis. Multivariate analysis showed age, occupation of respondent, level of maternal health knowledge; enabling factors were positively significant after controlling the variables.

**Conclusions:** The coverage of the maternal health service is still low in mountainous village of Nepal even though free maternal health services are provided with the incentives. This study just identified some factors associated with utilization of maternal health services in mountainous villages of Nepal. Further and deep investigation is necessary to go in the details by the concerned authority to find actual scenario of the mountainous part of Nepal in relation with the maternal health services.

**Keywords:** Maternal health, Maternal health services, Nepal

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## INTRODUCTION

Nepal has the highest maternal mortality rate in the world even though Nepal started and implemented various initiative safe motherhood programs national wise and still maternal health services continue to be underutilized specially in the rural areas [1]. The Maternal Mortality Ratio (MMR) according to Nepal Demographic and Health Survey (NDHS) [2] 2012 is 281 per 100,000

live births and infant mortality rate is 46 per 1000 live birth, is still high among the South Asian Countries. Maternal health service includes the health service during antenatal care, delivery and postnatal care by the skilled health service provider which are crucial for the survival and wellbeing of both mother and child. Antenatal Care Services (ANC) creates a platform for the pregnant women about the delivery of evidence based clinical interventions, counseling on maternal health, birth and emergency preparedness. The World Health Organization (WHO) recommend all the pregnant

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women to complete the four antenatal checkups that is first at 4<sup>th</sup> month, second at 6<sup>th</sup> month, third at 8<sup>th</sup> month and fourth at 9<sup>th</sup> month of pregnancy [2]. Delivery of pregnant women in the health facility by the skilled birth attendants like nurse, midwife and doctors is essential for the safe delivery and immediate postnatal period as well as important for identifying, managing and referring the complications in women and the newborn baby. Postnatal care visit helps the mother for providing care for themselves and the newborn and is recommended for the women to receive at least three postnatal checkups in Nepal [2].

Utilization of maternal health service is important for the further improvement of maternal and child health however there is insufficient knowledge about the current magnitude of the various factors influencing the use of these services. Several studies had examined the association between the different factors and maternal service utilization but the results are not consistent and most of the studies are limited in urban or nearby areas. So, with the aim to fill the gap and increase the participation of women of reproductive age for the utilization of maternal health service this study was conducted in different kind of population living in rural and mountainous region with poor transportation facility of Nepal. The objective of this study was to describe the related maternal factors and their association with the utilization of the ANC visits, delivery and PNC visits among the reproductive age of women in two mountainous villages of the Kaski district of western Nepal.

## METHODOLOGY

A cross-sectional study was conducted in two mountainous villages of the Kaski district of Western Nepal among 200 mothers of reproductive age group 15-49 years. Purposive sampling was used for selecting the district and the villages. The inclusion criteria of the study was the mothers who have delivered the baby before 2 years of the survey and it was found out with the help of the Female Community Health Volunteer (FCHV) of the village. The independent variables were Caste, Religion, Marital status, Mothers age, Economic status, Mothers education Husband education, Mother occupation, Husband occupation, Number of children, Final decision on health care, maternal health related knowledge, (Enabling factors) Availability and Accessibility and the dependent variables were Antenatal visit, Persons assisting during delivery and place of delivery and Postnatal visit. A close structured questionnaire was developed in the Nepali language on the basis of

reviewed literature as well as from the Nepal Demographic Health Survey (NDHS). The questionnaire consist of 4 parts and they were socio-demographic characteristics of the women, maternal health related knowledge, Enabling factors and maternal health service related variables. Pretesting was done in one of the village of the Kaski district with similar socio-demographic characteristics and some parts of the questions were changed after the pretesting. The data collection of the research was done in May 20-May 30 in 2015. All the eligible mothers were identified with the help of Female Community Health Volunteer (FCHV) in each ward. Face to face interview was done with the respondents in their home. Principal researcher as well as two experienced enumerators completed the process of data collection. The training was provided for the enumerators to teach the process of data collection. Data analysis was done by using descriptive and inferential statistics.

## Ethical considerations

The ethical permission was taken from the Nepal Health Research Council (NHRC) of Nepal (Reg.no. 100/2015).The verbal consent form was signed from the participants before the start of the interview and the confidentiality of the information was maintained

## RESULTS

Table 1 describes about the Socio-demographic characteristics, level of maternal health related knowledge and Level of Enabling factors. Half of the women (50%) were between the age group of 20-24 years. Housewife (86%) was the main occupation among women whereas agriculture (49%) was the main occupation for their spouse. Most of the respondents had primary education (61%) whereas 7% of the women were illiterate. Regarding the decision making about women's health about 31 % of the women took decision themselves about their health and more than half (69) of women took decision with their husband. For the caste of the respondents, more than half (57%) of them were from the lower caste. Majority (81%) of the respondents had low maternal health related knowledge while only 19% had moderate level of knowledge. Only 40% of the respondents had good enabling factors while more than half (60%) of the respondents had low enabling factors. Out of total 200 women, it was found that almost all (98%) of the women visited ANC and those who visited, about half (49%) of the women did not visit recommended four ANC service. For the place of delivery, about (20%) women still delivered in the

**Table 1** Socio-demographic characteristics, level of maternal health related knowledge and level of enabling factors (N=200)

Variables	N (%)	Variables	N (%)
<b>Age (years)</b>		<b>Education of respondent</b>	
15-19	13(6.5)	Cannot read and write	14(7)
20-24	100(50.0)	Primary education	122(61)
25-29	61(30.5)	Secondary Education	47(23.5)
≥30	26(13)	Higher Education	17(8.5)
<b>Marital status</b>		<b>Religion</b>	
Married	197(98.5)	Hindu	179(89.50)
Widow	39(1.5)	Buddhist	21(10.5)
<b>Occupation of mother</b>		<b>Level of knowledge</b>	
Housewife	171(85.5)	Low level of knowledge	159(81)
Agriculture	23(11.5)	Moderate level of knowledge	41(19)
<b>Decision maker of health</b>		<b>Level of enabling factors</b>	
Myself	61(30.5)	Low level of enabling factors	120(60)
Myself and husband	139(69.5)	Good level of enabling factors	80(40)
<b>Visited ANC in last pregnancy</b>		<b>Place of delivery</b>	
Yes	196(98)	Hospital	160(80)
No	4(2)	Home	40(20)
<b>Frequency of ANC</b>		<b>Person assisting during delivery</b>	
Less than 4	95(48.5)	Unskilled birth attendants	40(20)
Four and above	101(51.5)	Skilled birth attendants	160(80)

**Table 2** Associations of independent variables with ANC visits and delivery

Variables	ANC visits		p-value	Delivery		p-value
	<4	≥4		SBA	USBA	
<b>Age (years)</b>			.594			.018*
15-19	6(54.5)	5 (45.5)		7(53.8)	6(46.2)	
20-24	50(50.0)	50 (50.0)		17 (17)	83(83)	
25-29	26(44.1)	33 (55.9)		11(18.0)	50(82.0)	
≥30	13(50.0)	13(50.0)		5(19.2)	21(80.8)	
<b>Husband education</b>			.005*			.285
Cannot read and write	5(83.5)	1(16.7)		2(33.3)	4(66.7)	
Primary education	49(56.3)	38(43.7)		18(20.5)	70(79.5)	
Secondary education	35(44.3)	44 (55.7)		17(20.7)	65(79.3)	
Higher education	4(19.0)	17(81.0)		1(4.8)	20(95.2)	
<b>Occupation of respondent</b>			.174			.024*
Housewife	81(46.6)	93 (53.4)		31(17.5)	146(82.5)	
Agriculture	14(63.6)	8 (36.4)		9(39.1)	14(60.9)	
<b>Income status (Nepali Rupees)</b>			.006*			.245
< 10000	76	66		32(23)	107(77.0)	
11000-20000	18	36		6(12.0)	44(88.0)	
More than 20000	1	5		2(18.2)	9(81.8)	
<b>Level of knowledge</b>			.001*			.007*
Low knowledge	85(54.8)	70(45.2)		38(23.9)	121(76.1)	
Moderate knowledge	10(24.4)	31(75.6)		2(4.9)	39(95.1)	
<b>Level of enabling factors</b>			.059			.001*
Low enabling factors	63(54.3)	53 (45.7)		87(72.5)	33(27.5)	
Good enabling factors	32(40.0)	48(60.0)		73(91.3)	7(8.8)	

home with the unskilled birth attendants. Those women who delivered in the hospital were all assisted by the skilled birth attendants and got first postnatal care. Majority (76%) of the women did not visit the postnatal care services after the child birth.

#### Associations of independent variables with ANC visits and delivery

Table 2 shows the associations between the independent variables with ANC visits and delivery. There was no statistically significant association

**Table 3** Associations of independent variables with postnatal visit after child birth

Variables	PNC visits after child birth		p-value
	N (%)		
	Yes	No	
<b>Husband education</b>			.041*
Cannot read and write	1(16.7)	5(83.3)	
Primary education	16(18.2)	72(81.8)	
Secondary education	21(25.6)	61(74.4)	
Higher education	10(47.6)	11 (52.40)	
<b>Level of maternal health knowledge</b>			
Low knowledge	25(15.7)	134(84.3)	.001*
Moderate knowledge	23(56.1)	18(43.9)	
<b>Level of enabling factors</b>			
Low enabling factors	19(15.8)	101(84.2)	.001*
Good enabling factors	51(63.7)	29(36.3)	

between antenatal care services and age of the respondents, marital status, Religion, Caste, Total number of children, Husband occupation, Respondents occupation and Decision maker of women's health

The three variables Husband's education and Income status and level of enabling factors were statistically significant with ANC visit. The better level of education of both husband and wife was found to have more ANC visits. Income status of the family was also positively significant with the ANC visits. Age of the respondent was found to be positively associated with delivery. Level of knowledge and level of enabling factors were positively associated with the delivery.

#### Associations of independent variables with postnatal visit after child birth

Table 3 shows that the three variables husband education, level of knowledge, level of enabling factors were statistically significant with the postnatal visits after child birth.

#### DISCUSSION

The utilization of maternal health services include in my study were ANC visit, person assisting during delivery and the postnatal visit. The results of my study showed that almost all (98%) of the women have ANC visit which shows the somewhat similar result like the report from the western development region of Nepal [3]. One of the cross-sectional study conducted in rural Nepal showed that about 79% of the women completed 4 ANC visit [4]. In my current study half 48.5% of the respondents did not complete the four complete ANC visit recommended by the government of Nepal which is different from above mentioned study as well as from the result of annual report of Nepal [3]. The previous study from the Nepal

showed that 93% of the deliveries took in the home [5]. In my study it was found 80% of women were assisted by SBA which is more than expected as the study area was rural and mountainous part of Nepal. Another community based study done in the Pumdri Humdi of the Kaski district of western Nepal showed that about 20% of the women still delivery in the home without skilled birth attendants which is similar to the current study finding [6]. The study done in the Pokhara showed that 6.7% of the home deliveries were assisted by the SBA [7]. It was also noticed that those who delivered in the hospital were found to be helped by the SBA and women who delivered in the home were found to be helped by the friends and relatives and also the traditional birth attendants but they had not got the training of the SBA.

As shown in the result section education level of the women education is statistically and positively associated with the antenatal visits. Data analysis from the utilization of maternal health services in Nepal also shows that women with more than primary level were significantly more likely to have more ANC visits [5]. Also the study done in Bangladesh, developing country like Nepal also found the women having higher education are more likely to utilize the services [8]. However the study done in Western Nepal showed that there was no association between the husband education with ANC visits and delivery [7]. The previous studies showed that women with higher number of children were less likely to go hospital for the delivery as the women have more experienced from the previous children and they think it is not so necessary to go to the hospital [8]. A maternal health study carried out in the Kenya found no significant association of women's participation in decision making concerning their health on the utilization of maternal health services [9]. Similar study conducted in

Nepal also showed that involvement of women about the decision regarding the health care were weak for the utilization of maternal health services [10]. In contrast the study done in north India among urban poor and middle income women showed that women's autonomy was the powerful factor of the utilization of the maternal health services [11]. Level of maternal health related knowledge was significant both in the bivariate and also positively associated in the multivariable analysis with the ANC visits, postnatal visits and person assisting during delivery. It is obvious that women having the knowledge about the pregnancy, delivery complication prepare themselves to be far away from these complications and are more likely to visit the hospitals for the ANC, delivery and PNC which finally helps for the upliftment of the maternal health as well as the neonatal health. Similarly a study in Nepal about the challenges facing in the maternal health also reveals that the least level of knowledge related to the major obstetric complications are less likely to seek and receive the maternal health services. Those who have less level of knowledge are also more likely to delay when they did seek care [2]. Study from the Indonesia also reveals that lack of knowledge about the obstetric complications hinders women for the use of maternal health services [13]. Availability and accessibility of the maternal health information as well as transportation, companion, female health workers are equally important to enable women to go the health facility for receiving maternal health. A community based study from the Nepal showed that the proportion of the ANC visits was found higher in those women who were access to the convenient source of the transportation. Various studies have reported distance to the health facility is the significant determinants for utilization of the maternal health services for the women [14, 15]. Because the health facility is far from the women's home and the transportation is not easily available they have to prepare to go near the health service before 2 or 3 days which is more costly and time consuming So, this may be reason that still 20% of the women delivered in the home without the help of SBA even though the free delivery is provided by the government of Nepal and also they do not visit the postnatal care after the child birth.

#### CONCLUSION AND RECOMMENDATION

The findings showed that the four ANC visits is less in the mountainous villages of Nepal compared with national report of the Nepal. In addition most women do not like to visit postnatal care after the child birth. The barriers were lack of knowledge

about obstetric complications, respondent education as well as the enabling factors for the utilization of maternal health services. In summary, this study just slightly highlights the factors associated with utilization of maternal health services in mountainous villages of Nepal. Further and deep investigation is necessary to go in the details by the concerned authority to find actual scenario of the mountainous part of Nepal in relation with the maternal health services. There is also need to evaluate the maternal health services provided by the government of Nepal in rural and mountainous village to find out the why women are less likely to use the services even though the services are provided with free of charge and in addition with the incentives. The knowledge of obstetric complications should be provide through the media like local FM's as well as the FCHV should be actively involved to disseminate the information in the villages. Health post and hospitals should encourage as well as counsel women to visit the postnatal care after the child birth.

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