

# Factors Associated with Mothers Health Seeking Behavior among Newborn Illness

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## ABSTRACT

**Background:** Inappropriate, delayed and poor health seeking behavior increases the high risk of morbidity and mortality among newborns, infants and children. Newborns health status depends upon mothers' health seeking behavior. This study aimed to determine the factors associated with mother's health seeking behavior among newborn illness in Rupandehi District, Nepal.

**Methods:** Community based cross-sectional study among 372 mothers aged 15-49 years was conducted in Rupandehi district Nepal from May to November 2019. Multistage probability random sampling was used as the sampling technique. Siddharthanagar municipality and Mayadevi rural municipality were selected randomly among 16 local units of Rupandehi district. Two wards from each unit were selected by stratified random sampling using non replacement lottery method. As the sample size was 372, ninety three respondents were selected randomly from each ward.

**Results:** The mean age and standard deviation of mothers was  $25.32 \pm 4.36$  years respectively. Among 372 mothers, 21.24% had poor health seeking behavior. Mothers having more than one child (AOR=0.15; CI: 0.02-0.98), primary and above education (AOR=8.89; CI: 3.15-25.08), visited hospital after 24 hours of newborn illness (AOR=13.59; CI: 1.73-106.7), knew danger signs of newborn (AOR=18.74; CI: 5.65-62.23), practiced exclusive breastfeeding (AOR=8.20; CI: 3.36-20.03) were significantly associated with health seeking behavior.

**Conclusions:** Almost 22 % of mothers had poor health seeking behavior regarding their newborn illness. Number of living child, education of mother, appropriate time for treatment, receive health services when there is dangers signs of newborn and exclusive breast feeding practice were independent factors associated with mother's health seeking behavior. Hence, decision-makers and local administrator should provide specific intervention to newborns' mother regarding family planning, identifying and preventing danger signs of newborn, importance of appropriate time of treatment and exclusive breastfeeding.

**Keywords:** Health seeking behavior; illness; mother; newborn.

## INTRODUCTION

Newborns are vulnerable to illness and need further care and attention. <sup>1</sup> Globally 2.4 million newborn faced highest risk of death and most are due to lack of quality care, treatment <sup>2</sup> and delays in health care seeking. <sup>3</sup> A large number of newborn morbidities and deaths are linked to mothers' poor health-care seeking behavior. <sup>4</sup>

Though neonatal mortality rate in Nepal reduce from 50

to 21 deaths per 1,000 live births between 1996 and 2016 <sup>5</sup>, it was not satisfactory since Sustainable Development Goal target to reduce it to 12 per 1000 live births by 2030. <sup>6</sup> The application of appropriate health seeking such as early and exclusive breastfeeding, assessment for signs of serious health problems, preventative treatment, timely vaccination <sup>7</sup>, sought care at health institution within day they recognize signs and symptoms <sup>8</sup>, has a great role in minimizing serious and life-threatening

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newborn illnesses.<sup>9</sup> However, study conducted in Nepal reported there is a poor health care behavior.<sup>10</sup> Limited studies had been conducted among mothers for finding factors associated with health seeking behavior of their newborn. Thus, this study aims to determine factors associated with mother's health seeking behavior among newborn illness in Rupandehi District, Nepal.

## METHODS

A community-based cross sectional study was carried out in Rupandehi district, Nepal, from May to November 2019. Mothers having children less than 12 months of age were included in study for taking information regarding their newborn illness during the first month (28 days) of their life. Similarly, children whose families were residing in selected area for less than one year were excluded from the study. If there were more than one child in the selected household, one child was selected randomly using a lottery method and information was collected from his or her mother.

The sample size of the study was 372 which was determined by using formula  $n = Z^2 pq / L^2$  with 95% level of confidence interval, 5% margin of error (L), critical value  $Z = 1.96$  and  $p = 0.844$  (84.4% of mothers of sick neonates sought health seeking behavior for medical care)<sup>11</sup>,  $q = 1 - 0.844 = 0.156$ . Thus,  $n = (1.96)^2 * 0.844 * 0.156 / (0.05)^2 = 202.23$ . As multistage stratified probability random sampling was used as sampling technique, original sample size 202 was multiplied by design effect 1.75 which results  $n = 202 * 1.75 = 353.5$ . Furthermore by adding 5% nonresponse rates, the final sample size of the study was 372.

A multistage probability random sampling was used as sampling technique for the study. The Rupandehi district was selected purposively. There are altogether 16 local units in Rupandehi district, Nepal. Among a total of 16 local units, 2 units were selected randomly to generalize the district. Then from selected 2 units, 4 wards (2 from each ward) were selected by stratified sampling technique through non replacement lottery method. In the selected wards, listing of the households having children aged less than 12 months of age was done with the help of Female Community health Volunteers (FCHVs). As the sample size was 372, 93 respondents were selected randomly from each ward (Figure 1).

The study was conducted in selected wards of two local units Mayadevi rural municipality and Siddhartha municipality of Rupandehi district, Nepal. Rupandehi district comes under Lumbini province of Nepal. A set of

semi structured questionnaire was formulated as data collection tool based on reviewing different literatures. The questionnaire was prepared in English language using different literature and translated into Nepali language, then again into English to identify misapprehensions. The Nepali questionnaire was pretested in ward number 2 of Mayadevi rural Municipality with 10 percentage of the sample size. Direct face to face interview was conducted with the mothers of infant for collecting data during their newborn illness at the first month (28 days) of their life. Data was collected by the trained enumerator having Bachelor degree in Public Health under the proper guidance and supervision of principal Investigator.

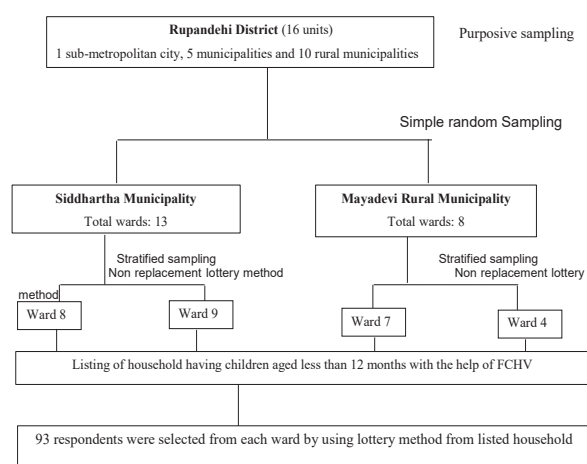


Figure 1. Flowchart showing sampling technique.

At the end of each day, every completed questionnaire was reviewed and edited to ensure its consistency and completeness. Coding of all the data was done to facilitate the data entry process. Data was entered into Microsoft Excel and exported to Statistical Package for the Social Sciences (SPSS) version 20 software for analysis. Classification and tabulation was done to make analysis further easier. All the data was rechecked and cleaned to ensure good quality of data. Descriptive analysis was done in terms of frequencies, percentages, mean and standard deviation. Bivariate and multivariate analysis was done to check whether the independent variables had association with the dependent variable. In this study, bivariate analysis was conducted with logistic regression to show the association of socio-demographic, socio-economic and knowledge related variables with the health seeking behavior of newborn's mothers, individually. After that, all the variables that showed significant association with the dependent variable with p-value 0.05 and less level of significance in bivariate analysis were entered into final multivariate logistic regression model.

Health seeking behaviour index was made which was categorized as “poor” and “good” behaviour and cross tabulation analysis done with socio demographic factors and with knowledge of respondents regarding signs and symptoms of newborn illness. Health seeking behaviour index consisted; incorporating familiarity of health seeking behaviour into daily actions and decision-making, Taking advantage by receiving free Government HS for new born, Receive health service when there is dangers signs of new born, Seek health service when baby ill in its 1st month, , Was your newborn baby checked by health worker, Was the newborn given BCG within one month, Did the mother seek for treatment when the newborn get illness, Have you practised exclusive breast feeding, Have you practised colostrum feeding?

Each individual variable was scored as 1 if the respondent gave positive answer and 0 if negative. Therefore, if the respondents gave all positive answers, she would get a full score of nine over nine otherwise she will get based on positive answer. Score of 1 to 5 was considered as poor health seeking behaviour whereas score 6-9 was considered as good health seeking behaviour.

In this study ethical approval was obtained from Institutional Ethical Review Board of Universal College of Medical Science, Teaching Hospital. Concerned stakeholders were officially contacted with letters and permission was obtained at all levels. Written informed consent was obtained from each research participants, while thumbprints were obtained from illiterate mothers. For respondents under the age of 18 years, assent was taken, along with the informed consent of their parents before data collection. For this, before obtaining the informed consent from the research participants, an information sheet comprising of purpose of the study, potential risks and benefits of participating, procedures of maintaining confidentiality, and right to not participate in this study, was provided to the research participant.

## RESULTS

The mean age of mothers was 25.32 + 4.36 years. All the mothers followed Hinduism. Nearly two-fifth (39.0%) of mothers belonged to Madhesi ethnic group followed by more than one-third (36.8%) Brahmin/Chettri. More than half (56.2%) of the respondents had more than one child. Nearly three-fifth (57%) of the mothers had male child. Regarding the education of mothers, more than one-third (34.7%) were found illiterate. Similarly few (8.3%) of the infant’s father were found illiterate. Nearly half (47.0%) of the mothers were housewife. Similarly,

less than one-fifth (16.7%) fathers were engaged in agricultural work (Table 1).

**Table 1. Background related characteristics of study population.**

Characteristics	Number (n=372)	Percentage
<b>Age of mother</b>		
15 years to 24 years	171	46.0
25 years to 34 years	182	48.9
35 to above	19	5.1
Mean Age ± S.D; 25.32 ± 4.36		
<b>Ethnicity</b>		
Brahmin/Chettri	145	39.0
Madhesi	137	36.8
Dalit	50	13.4
Janjati	40	10.8
<b>No. of living child</b>		
1 child	163	43.8
More than 1 child	209	56.2
<b>Sex of child</b>		
Male	212	57.0
Female	160	43.0
<b>Education of mother</b>		
Illiterate	129	34.7
Primary	54	14.5
Lower secondary	44	11.8
Secondary	78	21.0
Intermediate and above	67	18.0
<b>Education of father</b>		
Illiterate	31	8.3
Primary	65	17.5
Lower secondary	92	24.7
Secondary	101	27.2
Intermediate and above	83	22.3
<b>Mother Occupation</b>		
Housewife	175	47.0
Service/Business	105	28.2
Farmer	92	24.7
<b>Father Occupation</b>		
Daily Wages	111	29.8
Business	102	27.4
Service	97	26.1
Farmer	62	16.7

Most of the respondents, 322 (86.6%) were familiar about the term health seeking. Majority (96.2%) of the newborns had suffered from some illness during their 1<sup>st</sup> month of life. Nearly three-fifth (59.7%) mothers knew about the danger signs during newborns. More than four-fifth (86.0%) of the mothers had fed colostrum to their newborns and 86.6% had their newborn checked by the health worker. Three-fourth (75.8%) of the mothers practiced exclusive breastfeeding for their child. For overall grading, the respondents with a total score (0-5) were considered as having poor health seeking behavior whereas those who scored (6-9) were considered as having good health seeking behavior. The study showed that more than three-fourths (78.76%) of the respondents had good health seeking behavior about their newborn illness (Table 2).

**Table 2. Distribution and grading of health seeking behavior regarding newborn illness among mothers.**

Characteristics	Frequency (n=372)	Percentages
<b>Health Seeking Behavior</b>		
Incorporating familiarity of health seeking behavior into daily actions and decision-making	322	86.6
Taking advantage by receiving free Government HS for newborn	213	57.3
Receive health service when there is danger signs of newborns	222	59.7
Visit somewhere for newborn treatment	372	100
Seek Health service when Baby ill in its 1st month	358	96.2
Baby checked by Health worker	322	86.6
BCG within 1 <sup>st</sup> month	301	80.9
Practiced exclusive breastfeeding	282	75.8
Practiced colostrum feeding	320	86.0
<b>Grading of health seeking behavior</b>		
Poor Health Seeking Behavior (0-5)	79	21.2
Good Health Seeking Behavior (6-9)	293	78.76

More than three-fourths (76.6%) of the mothers were aware of having health facility in their locality. More than half (54.3%) respondents rarely utilized free health facility for their sick new born. Similarly, three-fourths (75.3%) of newborns' mothers had access of transport to

health facility. Distance to the health facility was greater than thirty minutes walking distance for two-thirds (66.1%) of respondents. One third of the respondents (33.3%) visited private hospitals/clinics whereas 15.3% still visited traditional healers for treating their newborn illness (Table 3).

**Table 3. Availability, accessibility of health facility and place for treatment during illness.**

Characteristics	(n= 372)	Percentage
<b>Aware of availability of health facility</b>		
Yes	285	76.6
No	87	23.4
<b>Accessibility of transport</b>		
Yes	280	75.3
No	92	24.7
<b>Distance to health facility</b>		
15-30 minutes	126	33.9
>30 minutes	246	66.1
<b>Decision for treatment</b>		
Wife	78	21.0
Husband	212	57.0
Both	82	22.0
<b>Place for treatment</b>		
Public hospitals	96	25.8
Private hospitals/clinics	124	33.3
Pharmacy	95	25.5
Traditional healer	57	15.3

In this study primarily bivariate logistic regression analysis was performed where variables such as age of mother, ethnicity, number of living child, education of mother, education of father, mother's occupation, father's occupation, appropriate time for treatment, known about danger sign and practice of exclusive breast feeding were significantly associated with health seeking behavior at 0.05 and less level of significance. Similarly, a multiple logistic regression analysis was performed to identify factors independently associated with health seeking behavior among respondents. Only five variables were found as associated factors of health seeking behavior during the final analysis. Mothers having greater than one child had 0.15 times less odds [AOR=0.15; 95% CI=0.02-0.98] of seeking health service as compared to the single child. Respondents with primary and above education had 8.89 times higher odds of [AOR=8.89; 95% CI=3.15-25.08] of seeking health services relative to those with illiterate. Respondents who visited hospital after 24 hours of newborn illness

had 13.59 times higher odds [AOR=13.59; 95% CI =1.73-106.7] of seeking overall health service. Likewise, those who receive health service when there is danger signs in newborn had 18.74 times higher odds [AOR=18.74; 95% CI=5.65-62.23] of seeking health-related assistance than those who did not receive. In addition, those who practiced exclusive breastfeeding had 8.20 times higher odds [AOR=8.20; 95% CI=3.36-20.03;  $p<0.001$ ] of seeking health-related assistance than those who did not practiced (Table 4).

Table 4. Factors associated with mother's health seeking behavior among newborn illness.				
Characteristics	Health seeking behavior		COR (95% CI)	AOR (95% CI)
	Poor HSB n(%)	Good HSB n (%)		
<b>Age of mother</b>				
15 - 24 years	17 (21.5%)	154 (52.6%)	1	1
25-34 years	53(67.1%)	129 (44.0%)	0.27 (0.15-0.49)	0.43 (0.16-1.17)
35 to above	9 (11.4%)	10 (3.4%)	0.12 (0.04-0.34)	0.30 (0.05-1.91)
<b>Ethnicity</b>				
Brahmin/Chettri	6 (7.6%)	131 (44.7%)	1	1
Madhesi	48 (60.8%)	97 (33.1%)	0.09 (0.04-0.23)	0.57 (0.13-2.47)
Dalit/Janjati	25 (31.6%)	65 (22.2%)	0.12 (0.05-0.31)	0.29 (0.06-1.38)
<b>No. of living child</b>				
1 child	15 (19.0%)	148 (50.5%)	1	1
>1 child	64 (81.0%)	145 (49.5%)	0.23 (0.13-0.42)	0.15 (0.02-0.98)
<b>Sex of child</b>				
Male	42 (53.2%)	170 (58%)	1	
Female	37 (46.8%)	123 (42%)	0.82 (0.5-1.35)	-
<b>Mother's education</b>				
Illiterate	70 (88.6%)	59 (20.1%)	1	1
Primary and above	9 (11.4%)	234 (79.9%)	30.85(14.5-65.3)	8.89 (3.15-25.08)
<b>Father's education</b>				
Illiterate	13 (16.5%)	18 (6.1%)	1	1
Primary and above	66 (83.5%)	275 (93.9%)	3.01 (1.40-6.45)	0.98 (0.31-3.14)
<b>Mother's Occupation</b>				
Farmer	30(38%)	62 (21.2%)	1	1
Housewife	43(54.4%)	132 (45.1%)	1.49 (0.85-2.59)	0.80 (0.33-1.95)
Service/business	6 (7.6%)	99 (33.8%)	7.98 (3.14-20.28)	0.61 (0.10-3.67)
<b>Father's Occupation</b>				
Farmer	20(25.3%)	42 (14.3%)	1	1
Business/service	21(26.6%)	178(60.8%)	4.04 (2.01-8.12)	0.68 (0.21-2.22)
Labor worker	38(48.1%)	73 (24.9%)	0.92 (0.47-1.77)	0.49 (0.18-1.41)
<b>Appropriate time for treatment</b>				
Within 24 hours	13 (16.5%)	86 (29.4%)	1	1
After 24 hours	66 (83.5%)	207 70.6%)	0.47 (0.25-0.90)	13.59 (1.73-106.7)
<b>Receive health service when there is dangers signs of newborn</b>				
No	74 (93.7%)	76 (25.9%)	1	1
Yes	5 (6.3%)	217 (74.1%)	42.3 (16.5-108.5)	18.74 (5.65-62.23)
<b>Time for 1<sup>st</sup> checkup</b>				
Within 1 month	44 (55.7%)	182 (62.1%)	1	
1 week of delivery	35 (44.3%)	111 (37.9%)	0.77 (0.46-1.27)	-
<b>Practice exclusive breast feeding</b>				
No	54 (68.4%)	36 (12.3%)	1	1
Yes	25 (31.6%)	257 (87.7%)	15.4 (8.56-27.78)	8.20 (3.36-20.03)



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## DISCUSSION

Factors such as no of living child, education of mother, appropriate time for treatment, receive health service when there is dangers signs of newborn and practice of exclusive breast feeding were found to be significantly associated with mother's health seeking behavior. The present study revealed that less than one fourth (21.2%) of the newborn's mothers had poor health seeking behavior which is in line with the study conducted in Lalitpur, Nepal <sup>12</sup>, south-east Nigeria <sup>13</sup> and Nairobi, Kenya. <sup>14</sup> Similarly another study conducted in Baghdad Iraq found slightly more than one-fourth of the mothers had poor health seeking behavior. <sup>15</sup> However in contrast to this study, another study conducted in western Nepal found that slightly more than one-fourth of mothers sought appropriate care for their childhood illness. <sup>16</sup> In contrast to the current study, higher proportion of poor health seeking behavior was also found in several other studies, such as study conducted in India <sup>17</sup>, Bangladesh <sup>11, 18</sup> and Ethiopia. <sup>19</sup> This disparity might be due to unequal age group of the children, divergence scoring system for measuring health seeking behavior and that previous study was conducted in hospital setting.

In this study three-fourth of the mothers fed exclusive breastfeeding to their newborn which is in line with the study conducted in Rupandehi, Nepal <sup>20, 21</sup>, however in contrast to this study another study conducted in mid-western and eastern regions of Nepal which found lower proportion of exclusive breastfeeding practice. <sup>22</sup> This differences might be due to different study setting. More than four-fifth of the mother in this study fed colostrum to their newborn which is in line with other studies such as study conducted in Nepal <sup>20, 23</sup> and northeast Ethiopia. <sup>19</sup>

In this study, one-fifth of the mothers were predominantly found taking decisions for treatment of their sick newborns which is line with the study conducted in northwest Ethiopia. <sup>24</sup> Two-third of respondents in this study have their nearest health facility at more than thirty minutes walking distance which is in line with another study conducted in Chitwan, Nepal. <sup>25</sup> Similar result was also found in the study conducted in rural Nepal, with distance to health facilities and lack of transportation as major barriers to seeking appropriate care. <sup>26</sup> However, in contrast to this study another study conducted in Ilam district of Nepal indicated that just one-fifth of respondents thought the distance between their residence and the nearest health care facility was more than thirty minute walking distance. <sup>27</sup> This divergence might be due to the geographical features of different study setting. This study reported that only

around one-fourth of the mothers seek treatment from public/ government health facilities and slightly less than one-fifth from traditional healers which is in line with the study conducted in Ilam district of Nepal. <sup>27</sup> The present study revealed that about one- third of the mothers visited private hospitals/clinics for the treatment of their newborns which is in line with the study conducted in Iraq. <sup>15</sup>

No of living child in this study was significantly associated with the health seeking behavior of the mothers which is in line with the study conducted in Rural Tanzania. <sup>28</sup> The present study revealed that mothers' education was significantly associated with the health seeking behavior of the mothers which is in line with the study conducted in Nepal <sup>12, 16, 26</sup>, Kenya <sup>14</sup>, Ethiopia <sup>19</sup>, Iraq <sup>15</sup> and Sub-Saharan Africa. <sup>29</sup> Appropriate time for treatment in this study was significantly associated with mothers' health seeking behavior of newborn which is in line with another study conducted in Ethiopia. <sup>24</sup> Sex of the child in this study was not significantly associated with health seeking behavior among newborn illness which is in line with the study conducted in western Nepal <sup>16</sup> and west Ethiopia. <sup>24</sup>

The strength of the study was this study was conducted in community setting using multistage probability random sampling technique and found the associated factors of health seeking behavior using adjusted odds ratio. Though the study aimed to find the health seeking behavior among mothers of newborn, data was collected from the mothers of infant and questions were asked during their child's newborn period. Hence, recall bias may exist.

## CONCLUSIONS

The study revealed that slightly less than one-fourth of the mothers had poor health seeking behavior regarding their newborn illness. Number of living child, education of mother, appropriate time for treatment, known about danger signs of newborn and practice of exclusive breast feeding were associated with mother's health seeking behavior.

## CONFLICTS OF INTERESTS

The authors declare that there is no conflict of interest.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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