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Place of delivery and newborn care practices in a village of Kaski district: a cross sectional study from Nepal

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ABSTRACT

Background:
First 28 days of life is known as neonatal period. Newborn care is important for the proper development and healthy life of a baby. During these days they have more risk of mortality, so special care, support and appropriate feeding is needed for healthier life. The main objective of study was to assess the place of delivery and newborn care practices in Pumdi Bhumdi VDC, Kaski, Nepal.

Methods:
A descriptive, cross-sectional study was carried out among 245 mothers having children aged upto 2 years in Pumdi Bhumdi, Kaski district, Nepal.

Results:
The mean age of mother was 24.91±3.8 years. It was found that 16.3% mother had delivery at home where as 83.7% in health facilities. After delivery, 97.1% had not applied anything on cord. The finding of study also shows that 86.1% of the newborn took bath after 24 hours and 87.3% mother feed colostrums. Place of delivery associated with education, birth order and ethnicity, but not significant with exclusive breastfeeding. Bathing was significant with education.

Conclusion:
Some unsafe newborn care practices exist in the community of the study area like, delivery at home, frequent visit by relatives, bathing of baby within 24 hour. There is need of education about delivery at institution and newborn care to mother and their family member.

Keywords:
Breast feeding, delivery, education of mother, newborn care practices, Nepal.

Introduction:

First 28 days of life is known as neonatal period. Newborn care is important for the proper development and healthy life of a baby. In this period babies are at high risk of mortality. So proper care, support and appropriated feeding pattern is required for their long and healthy life. Many efforts and programme have been conducted to improve health of child around the world but mortality rates are still high in neonate's death [1].

About 50% of neonates death within first 24 hour of birth and about 75% during the first week of life. About 3.1 million babies died during their first month of life in 2010 and 2.6 million babies were stillborn. Neonatal mortality rate fell from 33 death per 1000 live birth in 1990 to 21 per 1000 live birth in 2012 globally and more than 20% death due to sepsis and meningitis (12%) and pneumonia (10%) in 2012. It is estimated that half of birth occur without skilled birth attendance in low income countries [2].

Nepal has a Neonatal mortality rate (NMR) of 33 per 1000 live births which is quite high, but there is only minimal changes over neonatal mortality rate from (1996-2011). Statistics show that new/boiled blade was used to cut umbilical cord in 68% of non institutional delivery. Only 14% used clean home delivery kits. 40% of cases some material place on the umbilical cord. About 26.1% babies were bath after 24 hours of their birth. Nepal has committed to Millennium Development Goal (MDG) goal 4 by reducing child mortality by two-thirds between 1990 and 2015. Reduction on Infant mortality (IMR) under five mortality (U5MR) is mainly dependent on reducing NMR [3]. It is observed that, 52% of death under five children in south East Asia occurs during the neonatal periods [4].

In developing countries like Nepal, factors such as the unskilled attendance during delivery, tradition and cultural belief, lack of knowledge and understanding in mother, socio-economic status, geography, education and unavailability of the health services are the major causes of poor newborn care practices.

We aimed to assess the place of delivery and newborn care practices in Pumdi Bhumdi VDC, Kaski district of Nepal.

Materials and methods:

Study period

The study was carried out from July 2013 to November 2013.

Study design and participant

A descriptive cross sectional study was carried out among 245 mother of age group 15-49 years having children aged upto 2 years in Pumdi Bhumdi VDC of Kaski. Study population was selected based on the Nepal Demographic Health Survey (NDHS) report 2011, percentage delivery in health facilities is 35.3%. [3]. Purposive sampling technique was adopted to select VDC. The required sample was drawn from the sampling frame by simple random sampling. The list of mother who has babies aged upto

2 years old with the help of Female Community Health Volunteer (FCHV).

Study variable

Age, ethnicity, religion, occupation, educational status, use of maternal health services and birth preparedness were considered as independent variables whereas place of delivery and newborn care practices as dependent variable.

Response rate

The required sample size for study was 201 and assuming 20% non response rate, sample size was 245. The response rate of the study was 100%.

Questionnaire design

Semi-structured interviewed Schedule was used for data collection. After literature review, tools were developed and pre testing in 10% of sample size in Pardi Birauta Pokhara. Questionnaires were made in simple, clear format. Questionnaire was pretested and back translated English to Nepali language.

Inclusion Criteria

Only the mother of age group 15-49 years having at least one child up to two year of Pumdi Bhumdi VDC, Kaski were taken in the study.

Exclusion Criteria

Married women without children and mother having child above 2 years of age was excluded from the study.

Ethical consideration

Ethical approval was taken from Ethical Review Board of Pokhara University and Pumdi Bhumdi VDC, Kaski district. Verbal consent was taken from each respondents and the confidentiality of the information was maintained. Ethical issues were discussed and all sensitive aspects were reviewed with all related agencies. The purpose of the study was shared to each respondent. Informed consent was taken from the subjects.

Data collection

Investigators of this study were scheduled face to face Interviews with the participants, used as a technique for data collection. Mothers having infant below 2 years of age were participated in this study.

Data management and analysis

Data checking, compiling and editing was done manually on the same day of data collection. All the data was rechecked after entry, to ensure quality. Quantitative data from tools was entered and analyzed in SPSS, version 17.0. Descriptive study was done to determine newborn care practices. Result was obtained by the frequency distribution and cross tabulation of

the variables. Chi square test was applied to find out the association between the dependent and independent variables.

Results:

The mean (±SD) age of mother was 24.91±3.8 years and 98.8% were married. Results showed that majority of household were joint and Hindus. The study showed that 51.4% respondent was upper caste. Majority of parents received primary level education. Most of the mother's occupation was agriculture and 41.6% of their husband was settled in aboard and 48.6% couples had only one child.

Table 1: Newborn care practices during and after delivery n(%)

Characteristics	Frequency
Place of delivery	
Home	40(16.3)
Health facilities	205(83.7)
Reason behind not delivery in health facilities	
Cost too much	2(5.0)
Health facilities too far	30(75.0)
Don't trust health facilities	1(2.5)
Other	7(17.5)
If home delivery ,who assisted in delivery	**n=40**
Relatives	38(95.5)
Health workers	2(5.0)
If health facilities, who assisted in delivery	
Doctor	55(26.8)
Staff nurse	148(72.2)
ANM	2(1.0)
Instrument used to cut umbilical cord	
New/boiled blade	245(100)
Application on cord	**n=7**
Yes	7 (2.9)
No	238(97.1)
Things applied on cord	**n=7**
Oil	1(14.3)
Ointment	5(71.4)
Turmeric	1(14.3)
PNC 1st visit	
Yes	143(58.4)
No	102(41.6)

86.1% mothers reported that, first pregnancy was at the age of 18-30 years. Less than half of mothers had Antenatal care (ANC) visit 4 times and nearly all of mother had the T.T injection. Study shows that only 16.3% mother had delivery at home, remaining others in health facilities. All delivery at home conducted by relatives of mother. Among health facilities New/boiled blade was used to cut cord. After delivery nearly 2% mother had only applied something on cord mainly oil, ointment, powder and turmeric.

Table 2 expedites newborn care practices after birth of baby. The study shows that 94.3% newborn were dried up with clean cloth immediately after birth while only 86.1% newborn placed on mother belly/breast. After delivery 97.1% had not applied anything on cord. The finding of study also shows that 86.1% newborn was bathed after 24 hours.

Table 2: Newborn practices after birth of baby n(%)

Characteristics	Frequency
Child dried before placenta was delivered	
Yes	231(94.3)
No	14 (5.7)
Child placed on mother belly /breast	
Yes	211(86.1)
No	34(13.9)
Baby rapped in cloth	245(100)
Timing of bathing of baby	
Within hour	21(8.6)
2-24 hour	13(5.3)
After 24 hour	211(86.1)

Table 3: New born care feeding practices n(%)

Characteristics	Frequency
Baby feed on first time	
Colostrums	214(87.3)
Breast milk from other women	8(3.3)
Formula feed	23(9.4)
Timing of breast feeding	
Within 1 hour	141(57.6)
After 1 hour	104(42.4)
Exclusive breastfeeding	n=214
6 month	146(68.2)
4-5 month	33(15.4)
3 or less than 3 month	25(11.7)
>6 month	10(4.7)

In this study 87.3% mother feed colostrums, 3.3% feed breast milk from other women, 9.4% feed formula feed. 57.6% of the mother initiated breastfeeding within 1 hour. Among 214, 68.2% newborn were exclusively breastfeed for 6 month, 15.4% were exclusively breastfeed for 4-5 month, 11.7% for 3 or less than 3 month and 4.7% had more than 6 month (Table 3).

Table 4 explains the socio demographic influences, factors associated with the place of delivery, and breast feeding

There was significant association of socio demographic and timing of breast feeding with place of delivery. Breast feeding was not significant with the place of delivery (p>0.05). Although there were some significance observed in place of delivery with education of mother, education of husband, ethnicity, birth order (P<0.05). There was significant relationship between place of delivery and timing of bathing of newborn. Bathing was not correlated with ethnicity, where as significant with education of mother, education of husband, place of delivery (P<0.05).

Table 4: Association of place of delivery with socio demographic factors and breast feeding

Characteristics	Place of delivery		P-value
	Home (n=40)	Health facilities Delivery (n=205)	
Education of mother			
Up to secondary level	35(21.7%)	126(78.3%)	0.001[†]
Higher-university level	5(6.0%)	79(94.0%)	
Education of husband			
Up to secondary level	35(22.4%)	121(77.6%)	0.000[†]
Higher-university level	5(5.6 %)	84(94.4%)	
Ethnicity			
Dalit	19(22.9%)	64(77.1%)	0.012*
Upper	12(9.5%)	114(90.5%)	
Other (Janajati groups)	9(25.0%)	27(75.0%)	
Birth order			
1	12(10.1%)	107(43.7%)	0.013*
2	18(19.4%)	75(80.6%)	
3 and more	10(30.3%)	23(69.7%)	
Exclusive breastfeeding			
Yes	25(17.2%)	120(82.8%)	0.388[x]
No	15(15.0%)	85(85.0%)	

[†]P<0.01, statistically significant
*P<0.05, statistically significant
[x]P>0.05, statistically not significant

Table 5: Association of place of delivery, mothers education and bathing

Characters	Bathing		P- value
	Before 24 hour	After 24 hour	
Place of delivery			
Home delivery (n=45)	29(72.5%)	11(27.5%)	0.000[†]
Institutional delivery(n=205)	8(3.9%)	197(96.1%)	
Ethnicity			
Dalit	16(19.3%)	67(80.7%)	0.200[x]
Upper	14(11.1%)	112(88.9%)	
Other	7(19.4%)	29(80.6%)	
Education of husband			
Upto secondary level	32(13.1%)	129(80.1%)	0.002[†]
Higher –university level	5(2.0%)	79(94.0%)	
Education of mother			
Upto secondary level	31(19.9%)	125(80.1%)	0.004[†]
Higher university level	6(6.7%)	83(93.3%)	

[†]P<0.01, statistically significant
[x]P>0.05, statistically not significant

There was significant association of place of delivery with timing of bathing of newborn. Bathing was not significant with ethnicity where as education of mother, education of husband, place of delivery shows positive correlation (P<0.05) (Table 5).

Discussion

This study presented that all respondent have Antenatal care (ANC) visit but only 1.6% had at least once visit. Most of respondent 46.9% had 4 times ANC visit which is lower than the report showed by NDHS 2011, because mother visit health facilities during pregnancy if they have health sickness or any complication. For normal check up they were not interested [3]. The study done in Baitadi district shows that 28% of mother had not any ANC visit [5]. The study done in Rajasthan, India shows that majority 88% of respondent have ANC visit two or more than 2 times [6]. Similarly study conducted on Darjeeling districts shows 66.5% mother had two or more than 2 times ANC visit [7]. According to this study place of delivery, education of mother was found to be associated with ANC visiting P-value<0.05 and there no any association with family types and ethnicity. The study conducted in Biratnagar Municipality shows that education status and family types are associated with ANC visiting times [8].

Place of delivery
Our data showed that 83.7% mother had institutional delivery and 16.3% home delivery. The main reason of home delivery was the long distance of health institutions. An early study from rural Chitwan Nepal in 2012 reported 90% delivery at home [9] and study done in Kailali district 68.7% deliveries were at home [10]. This study shows that home delivery attains by relatives but study done in Pokhara city shows that 6.2% delivery at home delivery by skilled birth attendance [11]. Research in Chandigarh India shows, delivery was assisted by skilled birth attendant and traditional birth attendant [12]. The study done in Uganda shows that 46% had institutional delivery, which is less than that of this study [13]. The chi-square test shows that there was association with education of mother, ethnicity, and birth order. The result was similar to the studies conducted in Ganda community of Raipur India [14].

Bathing of newborn
This study shows that majority 94.3% of baby was dried before expulsion of placenta which is higher than the report showed by NDHS 2011. This study shows that majority 86.1% of baby was placed on mother belly /breast before placenta was delivered. The study also explains that majority 86.1% of baby was bathed after 24 hour. The result was higher than report showed by NDHS 2011 and previous studies was done in western Nepal [11], Baitadi district [5], but lower than previous study conducted on Chitwan district [9]. The study done in Meerut UP shows those only 10.63% newborns were not bathed

immediately after birth [15] study done in Ganda, Raipur, India shows that 67.5% [14], study done in Nigeria shows that 98.2% [16] newborn were immediately bathed after birth, but in this study only 8.6% had bathed immediately. There is lower rate of immediate bathing in this study because most of parents were educated and immediate bathing was only found in home delivery. In this study bathing was significantly associated with place of delivery, education of mother, education of husband ($p>0.05$). A study from Chitwan district showed delay bathing was associated with place of delivery [9].

Application of ointment

The entire respondent used new blade to cut the cord of baby. 2.9% mother applied oil, ointment, turmeric *etc.* in the cord after cutting to it. Application on cord was lower than the other study conducted on Kaski district [11]. Similar study done in Kailali district shows that 41.7% mother applied various materials on cord stump [10]. Studies done in India Uttar Pradesh [15], Ganda community Raipur [14], shows higher rate of application of different things on cord compared with this study. This practice was greatly reduced with the knowledge of people about the use of clean new blade to cut the cord and to prevent the infection. In this VDC almost all mother are literate and they were aware of their newborn health status.

Colostrum Feeding

It was encouraging to note that almost all 87.3% had fed colostrums to their baby, the scenario is far better than other rural areas where a practice of discarding colostrums still persisting [9]. Many of them 57.6% had initiated breastfeeding within an hour of birth. The result was similar to previous studies [9, 11] but Bangladesh health survey shows 44.6% newborn are breast feed within 1 hour [17]. According to NDHS 2011 reported that 44.5% were breastfed within 1 hour after birth similarly this study shows that 9.4% newborn was feed formula feed due to the insufficiency of breast milk. This study shows that more than half 68.2% mother had exclusively breast feed the child up to 6 months but study done in Kailali district only 9% had exclusively breastfeeding [10].

Conclusion

Newborn care during and after delivery is important to save the neonate. Newborn mortality can be reduced by simple house hold practices. The study shows some unsafe practices still exist in the community, like delivery at home, attendants by relatives, bathing of baby within 24 hours, so there is need of education about delivery at institution and newborn care to mother and their family member. The government should take necessary steps towards awareness to mother through Information, Education and Communication (IEC) activities about safety measure for handling infants. Appropriate health education and communication method must be adopted for the harmful

tradition in newborn care practices like delayed wiping and raping, immediate bathing and delay initiation of breast feeding.

Limitations & future scope of the study

This study is limited with a small number of populations; broad spectrum study with a larger sample size is strongly recommended. Developing countries like Nepal, poor newborn care practices and neonatal deaths are the major public health problems. So multicentre study is required to identify the gaps in the knowledge and practices of newborn.

Abbreviations

Antenatal Care (ANC), Auxiliary Nurse Midwifery (ANM), Female Community Health Volunteer (FCHV), Information, Education and Communication (IEC), Infant mortality rate (IMR), Millennium Development Goal (MDG), Nepal Demographic Health Survey (NDHS), Neonatal Mortality Rate (NMR), Postnatal care (PNC), Skilled Birth Attendant (SBA), (T.T) Tetanus Toxoid, Village development committee (VDC), Under five mortality rate (U5MR).

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Competing interests

Authors declare that they don't have any competing interest.

Authors' contribution

Shiva Raj Acharya and Asmi Pandey designed the study, performed, interpreted the data, analyzed, written the manuscript and revised. Final manuscript is approved by all authors.

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