

## Original Research Article

# Breastfeeding and infant/young child feeding in Nepal

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### ABSTRACT

**Background:** Under nutrition being a major problem in Nepal, it is necessary to meet the minimum dietary standard which is essential for growth and development of young children, so promotion of infant and young child feeding practices among children is important intervention.

**Methods:** A descriptive, cross sectional study was conducted among mothers of children of Bardia and Kailali districts of under 2 years and data was collected using the pre-tested questionnaire.

**Results:** The study shows 30.3 percent of the mothers initiated breastfeeding within an hour of birth, 47.9 percent gave colostrums, 25.5 percent were practicing exclusive breastfeeding at 6 or more months, 60 percent mothers fed anything else as prelacteal feed before breast feeding, 60 percent of mothers started complementary feeding between 3-6 months, 47.9 percent of mothers used anything from a bottle with a nipple yesterday or last night, 74.8 percent of mothers were currently breast feeding their children, 58 percent used iodized salt and 70.05 percent revealed that their child received Vit A within last six months.

**Conclusions:** The present study showed that late initiation of breast feeding and practice of prelacteal feeds among home delivered mothers being high. The frequency of complementary feeding ranged was less and early/late weaning are still widely prevalent, use of bottle feeding is high, use of iodized salt is still low. There is a need to educate the mothers regarding proper infant/child feeding practices.

**Keywords:** Breastfeeding, Food and liquids, Complementary feeding, Prelacteal feeding

### INTRODUCTION

The poor nutritional status of children is considered as serious problem in Nepal from many years. Malnutrition remains a serious obstacle to survival, growth and development in Nepal and the magnitude of the malnutrition is very big here.<sup>1</sup> Child nutrition has been a problem in many parts of the country. Faulty feeding practice among the young children was the one of the major cause of malnutrition in Nepal. Complementary feeding practices among the young children also have been found very critical in the rural and urban areas of the

country. Early introduction of supplementary feeding is a very common cultural practices in the South Asian region including Nepal which has a historically high burden of under-nutrition.<sup>2-4</sup> Complementary feeding strategies encompass a wide variety range of interventions designed to improve the quality and quantity of these foods and also improve the feeding behaviors.<sup>5</sup>

Nutritionally unbalanced complementary food may cause micronutrient deficiency disease. Most common forms of malnutrition in the country are protein energy malnutrition and micronutrient diseases like iodine

deficiency disorder, vitamin A deficiency and iron anemia disorder.<sup>6</sup> Each type of malnutrition creates its own particular havoc on the human body, and to make it worse, they often appear in combination.<sup>7</sup>

The primary objective of this study was to describe the infant/child feeding practices in Tharu community and the secondary objective was to explore the factors affecting the initiation and duration of breastfeeding among Tharu community in Banke and Bardia districts of Nepal.

## METHODS

Exploration of these objectives requires an approach that not only describes relationships between variables, but also the experiences of people. Therefore, the research aims to follow a mixed method approach.

A descriptive cross-sectional study was conducted to describe the feeding practices and nutritional status of less than two years children in mid-western region of Nepal. The quantitative and qualitative research methods were used. This study was conducted in Bardia and Kailali districts of mid western region of Nepal. The study was conducted from August, 2017 to August, 2018. The study population includes all children of less than two years. In the first stage, geographical areas with the Tharu population were divided into eight sub-geographical areas and 20 samples were collected randomly from each sub-geographical areas using the lot quality assurance sampling (LQAS methodology). A total of 167 mother-child pair were collected. All the children of less than two years coming for growth monitoring in the clinics of each sub-geographical area were the population of study. All together 30 mothers with children up were up to 2 years old.

A semi-structured questionnaire was designed and pre-tested. Before starting the interview, the mothers gave a verbal consent and an explanation of the study. The mothers of the children less than two years were the informant. The children less than 2 years or up to years were included in the study and exclusion criteria were children above 2 years, Those mothers who were not permanent residences for less than one year and those who were out of VDC during whole data collection period were excluded. If the informant selected turned out not to fulfill criteria for inclusion, then the informant next to her were included. Descriptive analysis such as percentage, mean and standard deviation (SD) were used to describe composition and relationship among variables.

## RESULTS

A total of 167 mother-child pairs responded and the response rate was 100 percent, 11 mothers were replaced as they did not meet the inclusion criteria and did not give consent for interview. The mean age of mothers was

23.18 with standard deviation of 4.14. Nearly 58.1 percent of the mothers were illiterate and majority of them were housewives (Table 1). The mean age of children was 9.6 months with standard deviation of 0.68 months.

**Table 1: Socio-demographic profile of mothers and infants/child in the study group.**

Variables	N	%	
Age of mother (in years)	<20	22	13.2
	≥20	145	86.8
Family type	Nuclear	18	10.8
	Joint	149	89.2
Family size	<5	15	13.6
	5-9	57	35.4
	>10	95	50.9
Income source of family	Agriculture	64	35.5
	Business	13	11.8
	Labour	57	30.9
	Service	33	21.8
Income sufficient for months	<12 months	23	21.1
	12 months	34	31.7
	>12 months	52	42.2
Occupation of mother	Housewife	149	43.6
	Service	4	24.5
	Labour	4	31.8
Birth order	First	25	14.5
	2-3	139	82.7
	>/4	3	2.7
Education of mother	Illiterate	97	58.1
	Literate	70	41.9
Sex of infant	Female	53	31.7
	Male	114	68.3
Delivery place	Home	97	58.1
	Hospital	70	41.9
Birth at weight (in Kg)	<2.5	34	17.2
	2.5-3	120	61.8
	>3	13	20.9

### Breastfeeding

Breastfeeding, also known as nursing care, is the feeding of babies and young children with milk from a woman's breast milk. Health professionals suggest that breastfeeding begin within the first hour of a baby's life and continued as much as the baby wants. During first week of life mother should nurse their babies about every two to three hours and the duration of a feeding is usually ten to fifteen minutes on each breast Mothers should pump milk so that it could be used later when breastfeeding is not possible.

Breastfeeding was being done by all mothers (Table 2). Among home delivered mothers, only 48.4 percent had early introduction of breast feeding compared to 96% among hospital delivery 96 percent. Regarding pattern of

breastfeeding, 47.5 percent of the mothers said they breastfed on demand. Almost 18 percent of mothers' breastfed at regular intervals irrespective of the child's demands and 37.5 percent used both the methods. The frequency of breastfeeding during the day time varied from 3 to 10 times. Duration of suckling time at each feed varied from 8 to 30 minutes with inverse relationship between frequency and duration. All the mothers said they breastfed during the night and frequency of night feeds ranged from 1 to 6 (Table 2).

**Table 2: Ever breastfed child.**

Ever breastfeed	N	%
Yes	167	100
No	0	0

**Table 3: When breastfeeding began.**

Breastfeeding beginning	N	%
<1 hour	69	30.3
1-6 hours	48	39.1
<24 hours	50	30.6
Total	167	100

The proportion of mothers who initiated breast feeding within less than one hour was 30.3 percent followed by 1-6 hours 39.1 percent.

The percentage of mothers who were practicing or had practiced breastfeeding only till 3 months of age was 12.9 percent. Between 3-5 months, proportion of mothers practicing breastfeeding only was 66.5 percent. Exclusive breast feeding ( $\geq 6$  months) was done by 25.5 percent of mothers. Among home delivered mothers, exclusive breast feeding was 23 percent compared to 27 percent in hospital delivered.

**Table 4: Colostrum (first milk) and prelacteal feeding.**

	N	%
<b>Colostrum feeding</b>		
Yes	80	47.9
No	67	40.1
Don't know	13	12.0
Total	167	100
<b>Distribution of prelacteal feeding</b>		
<b>Prelacteal feeding</b>		
Yes	100	60
No	16	17
Don't know	51	23
Total	167	100

The proportion of mothers who gave colostrums to the newborns was 47.9 percent and the rest of the mothers expelled their colostrums and discarded them. The most common reason quotes by mothers about colostrums was

not being not so good for their babies and was not the protection from infections.

About 60 percent mothers fed anything else as prelacteal feed before breastfeeding.

**Table 5: Types of prelacteal feeds.**

Drink given	N	%
Milk (other than breast milk)	14	20.3
Sugar or glucose water	10	14.3
Gripe water	8	20.3
Sugar salt water solution	10	14.3
Fruit juice	5	20.3
Infant formula	4	14.3
Tea	6	20.3
Honey	3	14.3
Other	59	35
Total	167	100

Among them, 20.3 percent used milk (other than breast milk), gripe water, fruit juice, tea and other followed by 14.3 percent used sugar glucose water, sugar salt water solution, infant formula and honey. Among home delivered mothers, more than 50 percent fed prelacteal compared to hospital delivered only 4 percent.

**Table 6: Currently breastfeeding at the time of interview.**

	N	%
<b>Currently breastfeeding</b>		
Yes	125	74.8
No	42	25.2
Total	167	100
<b>Duration of breastfeeding</b>		
Yes	100	59.8
No	67	40.2
Total	167	100

It does not matter if the mother is giving other liquids or foods as well as breast milk to the child; what is of interest is if the infant or child is breastfeeding at all.

The study shows that 74.8 percent of mothers were currently breast feeding their children.

The study shows that 59.8 percent of mothers breastfed for 9 months on an average.

The study shows that 47.9 percent of mothers used anything from a bottle with a nipple yesterday or last night. Majority of them reported (63 percent) not boiling the bottle regularly or boiling only sometimes.

The study shows that majority 47.9 percent mothers gave breast milk followed by any other porridge or gruel as liquids yesterday.

**Table 7: Bottle use for feeding.**

Anything from a bottle given with a nipple yesterday or last night	N	%
Yes	80	47.9
No	50	29.9
Don't know	37	29.2
<b>Total</b>	<b>167</b>	<b>100</b>

**Table 8: Liquids and foods given yesterday.**

Liquids given yesterday	N	%
Breast milk	80	47.90
Plain water	20	11.98
Commercially produced infant formula	21	12.57
Any fortified, commercially available infant and young child food" [e.g. Cerelac]?	18	10.78
Any (other) porridge or gruel?	28	16.77

The study shows that majority 47.9 percent mothers gave breast milk followed by ripe mangoes and papayas 12.5 percent and bread, rice noodles and other 10.18 percent as foods yesterday.

**Table 9: How many times infant or child ate yesterday.**

Times child ate yesterday	N	%
3-5	100	59.9
6-8	55	32.9
Don't know	12	7.2
<b>Total</b>	<b>167</b>	<b>100</b>

Out of total 167 respondents on this issue ask about consumption of child ate yesterday during maximum number of respondent that is 59.9 percent disclosed the view that it is 3-5 times a day followed by 6-8 times 32.9 percent respondents.

**Table 10: Type of salt.**

	N	%
<b>Types of salt</b>		
Yes (Iodized salt)	97	58
No (Normal salt)	60	40.7
Don't know	7	4.2
<b>Total</b>	<b>167</b>	<b>100</b>
<b>Received Vit A</b>		
Yes	110	65.8
No	47	28.2
Don't know	10	5.9
<b>Total</b>	<b>167</b>	<b>100</b>
<b>Received Vit A within last six months</b>		
Yes	117	70.05
No	43	25.7
Don't know	7	4.2
<b>Total</b>	<b>167</b>	<b>100</b>

The purpose of this question is to assess whether the household uses salt that has been fortified with iodine in cooking. Fortified salt prevents iodine deficiency. Iodine is an important micronutrient for growth and cognitive functioning and a lack of it may lead to an enlarged thyroid gland in the neck known as goiter. Out of total 167 respondents, 58 percent used iodized salt and 40.7 percent did not use iodized salt.

Lack of vitamin A causes children to get sick more easily and in extreme cases lack of vitamin A can cause eye damage and blindness. Vitamin A supplements are given because many children do not get enough vitamin A from the foods they eat.

More than half 110 (65.8 percent) of the sampled mothers said that their child received Vit A and 28.2 percent of the child did not receive Vit A.

Out of total 167 respondents, 70.05 percent revealed that their child received Vit A within last six months and 25.7 percent said their child did not receive Vit A within last six months.

### Complementary feeding

Out of 167 mothers, 48 (29 percent) had introduced complementary feeds after six months.

Mothers who reported giving complementary food by 3 months were 10.9 percent, 60 percent between 3-6 months. Highest age for starting complementary feeding was 7-8 months with 50 (30 percent). Among complementary feeds, 69 (41) used dalbhat, 30 percent used both dalbhat and cow milk, followed by cerelacs 8.2 percent and sarwattom pittho and litho 10.9 percent and jwalo 10.4 percent. Breast milk followed by any other porridge or gruel as liquids yesterday and ripe mangoes and papayas and bread, rice noodles and other as foods yesterday.

The frequency of complementary feeding ranged from 1 to 6 times; 36.4 percent of the mothers reported giving complementary foods 3 times a day, 50.6 percent said they fed only 1 to 2 times per day and 10 percent said they fed 4 to 5 times per day and the rest fed more than 5 times per day.

### DISCUSSION

The present study has shown that breastfeeding was done by almost all mothers sampled in the study. This is similar to the findings of Osrin et al and the findings of Nepal Demographic and Health Survey 2011.<sup>8,9</sup> This is one of the positive factors besides late stoppage of breastfeeding with median duration of breastfeeding in Nepal at 34 months.<sup>10</sup> Immediate breastfeeding ensures that the infant begins to receive the nutritional and antiviral/antibacterial benefits of the mother's colostrum. Colostrum is yellow and thicker than the mature milk,

and it contains more antibodies and white blood cells. It gives the infant protection against bacteria and viruses.

However, majority of infant and young children in our study setting did not meet the recommended feeding practices. This finding is inconsistent with Bangladeshi study which showed that food items are present at household and diversity of required food can be met at local level.<sup>11</sup> It may be due to the fact that the majority of the community depends on specific staple foods availability at the local level such as rice, wheat, potato. Although children are fed with adequate frequency, food items remain the same with poor diversity. However, in Nepalese context, there is widespread cultural belief of cereal foods having high energy contents would be enough for child growth and ignoring the importance food diversity.

The study revealed that 47.9 percent gave colostrum and 60 percent gave prelacteal feeds including Milk (other than breast milk), gripe water, fruit juice, tea and other used sugar glucose water, sugar salt water solution, infant formula and honey marketed infant formula feeding, cow's/buffalo's milk and water to the child. The finding is quite lower than the finding those found by NDHS survey and in Kathmandu where 47.9 percent of mothers used colostrum as first feed and the remaining mothers used infant formulas, cow/buffalos milk and water as first feed.<sup>9,12,13</sup> The rate of prelacteal feeding is lower than the finding at Kaski district where the rate of prelacteal feeding was 13.4 percent.<sup>14</sup> The finding is lower than those found in western Nepal where 92.4 percent provided colostrums.<sup>15</sup>

In this study, 30.3 percent of women had initiated breastfeeding within one hour of birth which is lower than the previous studies by Osrin et al in rural (63 percent) area of Nepal and higher than the findings of the previous study done in Pokhara (only 43 percent). NDHS 2006 reported that 35.4 percent of children were breastfed within one hour of birth whereas the findings of study done in Pokhara found type and size of family to be associated with initiation of breast feeding.<sup>13,14</sup>

About 40 percent mothers were informed about exclusive breastfeeding and this was similar to the findings of the study done by Roy et al.<sup>16</sup>

This study revealed 42 (25 percent) of the mothers were practicing exclusive breastfeeding (6 or more than 6 months), therefore 48 (29 percent) had introduced complementary feeds after six months. 61 percent of infants 0 to 6 months old were exclusively breastfed. The finding is comparable to NDHS (2011) i.e. 70 percent while higher than the worldwide exclusive breastfeeding rate of 34.8 percent and higher than the prevalence rate of exclusive breastfeeding in developing countries.<sup>1,9,17</sup>

WHO recommends that breast feeding should be done exclusively for six months of life as it is enough to meet

the nutritional requirements of children. A study done at Kathmandu by Manandhar et al reported exclusive breastfeeding rate of 46 percent at 6 months and this less percentage may be due to the fact that Kathmandu is more urbanized than the our study area.<sup>18</sup> Regarding pattern of breastfeeding, 45.5 percent of the mothers said they breastfed on demand which is recommended by the WHO for the child to have adequate nutrition.<sup>4</sup> The frequency of breastfeeding during the day time varied from 3 to 9. Duration of suckling time at each feed varied from 8 to 30 minutes with inverse relationship between frequency and duration. These findings are similar to the findings of Pokhara and NDHS 2006.<sup>8,10</sup>

Most of the mothers gave breast milk, plain water and commercially produced infant formula as liquids yesterday and milk such as tinned, powdered, or fresh animal and ripe mangoes as foods. Bottle feeding was done by 47.9 percent of the mothers which is lower than the study of Pokhara.<sup>13</sup> This is an undesirable trend especially considering the fact that majority of them reported (63 percent) not boiling the bottle regularly or boiling only sometimes.

According to WHO recommendations children between 6 to 8 months should be given complementary food 2-3 times a day in addition to breastfeeding, by 9 to 11 months they should be fed 3-4 times a day and by 12-24 months they should be fed in addition nutritious snacks.<sup>19,20</sup> In the study, frequency of complementary feeding was 3 times for 36.4 percent and more than 4 times for 62.7 percent. Of the respondents, 58 percent used iodized salt, 65.8 percent used Vit A as supplementation and 70.05 percent received Vit A within last six months.

Infant/child-feeding practices have some long-term beneficial effects in improving the nutritional status of children. Further in-depth studies are needed to explore feeding practices and nutritional status in rural areas.

## CONCLUSION

Breastfeeding and infant/young child feeding in the community are strongly influenced by people's knowledge, perception and belief about these issues. The present study showed late initiation of breastfeeding and practice of prelacteal feeds among home delivered mothers. The coverage of exclusive breast feeding up to the age of 6 or more was found low. This study of infant feeding practices in Bardia and Kailali districts reveal that there are improvements in certain areas like giving colostrums and exclusive breastfeeding especially in rural areas where home deliveries are frequent. There are also lacunae like too early or too late starting of complementary feeds to the children besides inadequate frequency of such feeds. The present study shows increased use of bottle feeding which would improve and become more detrimental for child health in Nepal. The information regarding the early initiation, advantages and

duration of breastfeeding and complementary practices needs to be provided for the community as a whole. Practices such as discarding the colostrums and early/late weaning should be discouraged. These factors ought to be regarded when formulating national policies and guidelines. Proper awareness regarding breastfeeding and infant/young child feeding in Nepal's practices should be given to health care workers and mothers and further research is needed in this field.

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## REFERENCES

1. Malla S, Shrestha, SM. Complementary Feeding Practices and its Impact on Nutritional Status of under Two Old Children in Urban Areas of the Kathmandu, Nepal. Journal of Nepal Health Research Council. 2004;2(1):1-4.
2. Hazir T, Snarath U, Agho K, Akram DS, Abbasi S, Dibley MJ. Determinants of inappropriate timing of introducing solid, semi-solid or soft food to infants in Pakistan: Secondary data analysis of Demographic and Health Survey 2006–2007. Matern Child Nutr. 2012;8(s1):78–88.
3. Subba SH, Chandrashekar TS, Binu VS, Joshi HS, Rana MS, Dixit SB. Infant feeding practices of mothers in an urban area in Nepal. Kathmandu Univ Med J (KUMJ). 2007;5:42–7.
4. Imdad A, Yakoob MY, Bhutta ZA. Impact of maternal education about complementary feeding and provision of complementary foods on child growth in developing countries. BMC Public Health. 2011;11(Suppl 3):S25.
5. Department of Health Services and Ministry of Health and Population. Annual Report 2008/2009. Nepal: Department of Health Service; 2009.
6. Black RE, Allen LH, Bhutta ZA, Caulfield LE, Onis M, Ezzati M, et al. Maternal and child under nutrition: global and regional exposures and health consequences. Lancet. 2008;371(9608):243–60.
7. WHO Programme of Nutrition. Complementary feeding of young children in developing countries: a review of current scientific knowledge. WHO/NUT/98.1 Geneva: World Health Organization, 1998. Available at <http://www.who.int/iris/handle/10665/65932>. Accessed 9 June 2018.
8. Osrin D, Tumbahangphe KM, Shrestha D, Mesko N, Shrestha BP, Manandharet MK, et al. Cross sectional community based study of care of newborn infants in Nepal. BMJ 2002;325(7372):1063.
9. Ministry of Health and Population (MOHP) [Nepal], New ERA, and ICF International Inc. Nepal Demographic and Health Survey 2011. Kathmandu, Nepal: Ministry of Health and Population, New ERA, and ICF International, Calverton, Maryland; 2012.
10. Ministry of Health and Population (MOHP) [Nepal], New ERA, and Macro International Inc. Nepal Demographic and Health Survey 2006. Kathmandu, Nepal: Ministry of Health and Population, New ERA, and Macro International Inc; 2007.
11. Deolalikar AB. Poverty and child malnutrition in Bangladesh. J Dev Soc. 2005;21(1–2):55-90.
12. Senarath U, Agho KE, Akram DE, Godakandage SS, Hazir T, Jayawickrama H, et al. Comparisons of complementary feeding indicators and associated factors in children aged 6–23 months across five South Asian countries. Matern Child Nutr. 2012;8(Suppl 1):89–106.
13. Pandey S, Tiwari K, Senarath U, Agho KE, Dibley MJ, South Asia Infant Feeding Research Network. Determinants of infant and young child feeding practices in Nepal: secondary data analysis of Demographic and Health Survey 2006. Food Nutr Bull. 2010;31(2):334–51.
14. Das N, Chattopadhyay D, Chakraborty S, Dasgupta A. Infant and young child feeding perceptions and practices among mothers in a rural area of West Bengal, India. Annals Med Health Sci Res. 2013;3(3):370–5.
15. Khanal V, Scott JA, Lee AH, Karkee R, Binns CW. Factors associated with early initiation of breastfeeding in Western Nepal. Int J Environ Res Public Health. 2015;12(8):9562-74.
16. Roy S, Dasgupta A, Pal B. Feeding Practices of Children in an Urban Slum of Kolkata. Indian J Community Med. 2009;34(4):362-3.
17. Cai X, Wardlaw T, Brown DW. Global trends in exclusive breastfeeding. Int Breastfeed J. 2012;7(1):12.
18. Manandhar K, Manandhar DS, Baral MR. One year follow up study of term babies born at Kathmandu medical college teaching hospital. Kathmandu Univ Med J (KUMJ). 2004;4(8):286-90.
19. Child Health Profile of Nepal, 2003.
20. Victora CG, Smith PG, Vaughan JP, Nobre LC, Lombardi C, Teixeira AM, et al. Evidence for protection by breast-feeding against infant deaths from infectious diseases in Brazil. Lancet. 1987;2(8554):319-22.

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