

Infant feeding practices of mothers in an urban area in Nepal

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Abstract

Background: Child health in developing countries including Nepal is a matter of serious concern as the prevalence of malnutrition among children continues to be high with 48.6% of children under five in Nepal being underweight. Since infant feeding practices adopted by mothers play a major role in influencing health of these children, there is a need to study the infant feeding practices prevalent in different areas in order to have pragmatic approaches to solve this problem.

Materials and methods: A cross sectional study was conducted among mothers who attended the immunization clinics of 18 wards of Pokhara municipality area. They were interviewed with a semi-structured questionnaire on various aspects of infant feeding.

Result: A total of 168 mothers were interviewed and prevalence of breastfeeding was 99.4% (167). Only 43.5% of the mothers initiated breastfeeding within one hour of birth and 60.5% were practicing exclusive breastfeeding at 5 months. Almost 40% of the mothers started complementary feeding before the recommended age of 6 months and 22.5 % delayed introduction of complementary feeding beyond the recommended age.

Conclusion: Breast feeding practices adopted by mothers of Pokhara urban area are still lacking in terms of late initiation of and early starting of complementary feeding. There is a need to educate the mothers regarding proper infant feeding practices.

Key words: infant feeding, breastfeeding, weaning

Child health in developing countries is a serious concern with a large number of children still suffering from malnourishment. An estimated 43.6% of under 5 children in South Asia are underweight and ¹ in Nepal the prevalence is 48.3%². There are various factors that lead to high prevalence of malnutrition in children and among them infant feeding practices is one of the most important. Whether it is breastfeeding or complementary feeding, the practices adopted by mothers or caretakers have direct effect on child health.^{1,3}

World Health Organization (WHO) recommends that children should be exclusively breastfed during the first 6 months of life as breast milk alone is sufficient to meet the nutritional requirements of children till then. United Nations International Children's Emergency Fund (UNICEF) has launched the Baby Friendly Hospital Initiative (BFHI) in 1998 to strengthen maternity practices to support breastfeeding. One of the important components of this is initiation of breastfeeding, which should be done immediately after birth. The frequency, timing and duration of breastfeeding are also important. Variations in these parameters can have impact on child health.³

Complementary feeding is another very important component of infant feeding. After 6 months, mother's milk is not sufficient for the growing child and complementary feeding should be started, timely and in adequate amounts. Frequency and amount of top feeds given during the weaning period to children are important variables in the pathogenesis of malnutrition. Inappropriate feeding practices during this period, is the major cause of malnutrition.³

Since the prevalence of malnutrition is still high among the children in Nepal, it is imperative that further research be carried out to find out the infant feeding practices of mothers specific to Nepal and the factors that determine these practices.

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This would contribute to the database that can be used for formulation of pragmatic policies for improving child health in Nepal. The present cross-sectional study was carried out to fulfil such a need.

Materials and methods

Pokhara is divided into 18 municipal wards. An immunization clinic is conducted once a month in each of these wards. The clinics are a result of collaboration between Pokhara municipality, UNICEF and Manipal College of Medical Sciences each providing manpower, drugs and technical input respectively. An average of 30 attendant-children pair visit immunization sessions each month in these clinics. Since primary immunization in Nepal is completed by one year, majority of the children attending these clinics are infants.

The present study was carried out from April 2003 to June 2003. All the wards of Pokhara municipality were included in the study. A semi-structured questionnaire was designed and pre-tested. The sampling method employed was systematic sampling. Every second mother-child pair attending the immunization clinic was included in the study. If the selected mother was already included in the study then the mother next to her was interviewed. Before starting the interview the mothers were explained about the study and verbal consent was taken from them. Interview was conducted by three trained medical interns who were not directly involved in providing health services to the mothers. This point was emphasized when we were taking consent from the mothers.

In the pre-testing phase it was evident, that the information obtained from informants other than the mothers were not reliable therefore other informants were excluded from the study. If the informant selected turned out not to be the mother or fulfilled other criteria for exclusion then the informant next to her was included.

Other exclusion criteria were children too ill for mothers to take time respond, and un-cooperative mothers who expressed their unwillingness to participate. Since many women were expected to be illiterate the interview method was preferred over self administered questionnaire method. Analysis was performed using SPSS 10.1. The results were presented as proportions and Chi square test was used for statistical significance.

Results

A total of 168 mother-child pairs responded and the response rate was 99%. The mean age of mothers

was 23.5 ± 3.9 . Over one third of the mothers were illiterate and majority of them were housewives (Table 1). The mean age of children was 5.6 ± 4.7 months and the majority was less than 6 months of age. Their mean birth weight was 3.1 ± 0.58 Kg (Table 1).

Breastfeeding

Breastfeeding was being done by 167 (99.4%) of the mothers. The proportion of mothers who initiated breastfeeding within one hour of birth was 73 (43.5%). Regarding pattern of breastfeeding, 26.9% of the mothers said they breastfed on demand. Almost 17% of mothers breastfed at regular intervals irrespective of the child's demands and 55.7% used both the methods. The frequency of breastfeeding during the day time varied from 3 to 12. Duration of suckling time at each feed varied from 4 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 5. Initiation of breastfeeding was not significantly related to most of the socio-demographic factors except type of family and family size. (Table 2)

The percentage of mothers who were practicing or had practiced exclusive breastfeeding till 3 months of age was 91.2%. At 5 months, proportion of mothers practicing exclusive breastfeeding was 60.5%. Exclusive breastfeeding was not associated with any of the socio-demographic variables included in the study.

The proportion of mothers who gave colostrum to the newborns was 85.7% and the rest of the mothers expressed their colostrums and discarded them. Mothers who positively stated that colostrums were good for their babies for various reasons were 82.7%. The most common reason quoted was protection from infections.

Complementary feeding

Out of 168 mothers, 57.1% of the mothers were practicing exclusive breastfeeding therefore only 71 (42.6%) had introduced complementary feeds (after excluding one mother with lactation failure).

Earliest age at which complementary feeding was started either for the present or the previous child was one month. Mothers who reported giving complementary food by 3 months were 9.9%, which rose to 29.6% by 5 months and 38% of the mothers reported starting at 6 months (Table 3). Highest age for starting of complementary feeding was 15 months.

Among milks, buffalo milk was the most commonly used item (88%) and 45.6% of the mothers diluted the milk before feeding. The proportion of the mothers who used glass or cup and spoon to feed milk was 76.4%. Out of 71 mothers, 17 (23.6%) said they used feeding bottle (10% of total breastfed children) and among them 25% said they never boiled feeding bottles and 33% said they boiled sometimes.

Most commonly used complementary food was home prepared gruel in the form of lito (rice and sugar

preparation) or jawlo (salty rice preparation with butter) and 21.1% of the mothers said that they gave tea to their children (Fig 1).

The frequency of complementary feeding ranged from 1 to 6 times; 41.7% of the mothers reported giving complementary foods 3 times a day, 47.3% said they fed only 1 to 2 times per day and 7% said they fed 4 to 5 times per day and the rest fed more than 5 times per day.

Table 1: Socio-demographic profile of mothers and children in the study group

Factor		n	%
Mother's age	< 20	37	22
	20 - 35	126	75
	> 35	5	3
Education	Illiterate	43	25.6
	1 - 12	116	69
	> 12	9	5.4
Occupation	Housewives	149	88.7
	Full time/ Part time	19	11.3
Child's age	<6 months	118	70.2
	6 - 12 months	41	24.4
	12 - 24	8	4.8
	>24 months	1	0.6
Gender	Male	99	58.9
	Female	69	41.1
Birth order	First	88	52.4
	2 - 3	70	41.6
	≥ 4	10	6

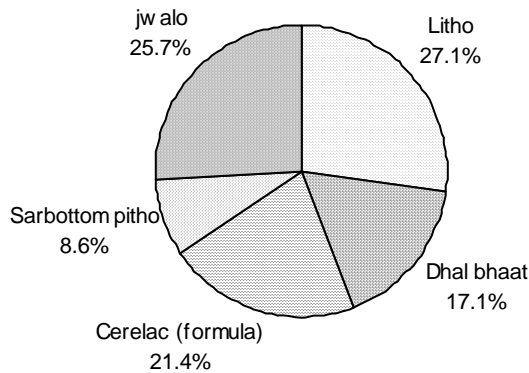
Table 2: Association of initiation of breastfeeding with socio-demographic factors

Factor	Chi Square value	P value
Mother's age	3.986	0.14
Ethnicity	0.146	0.70
Mother's education	0.880	0.64
Father's education	0.360	0.83
Income of the family	0.626	0.62
Family type	7.647	0.02
Family size	5.728	0.02
Gender	0.890	0.35
Birth order	3.129	0.08

Table 3: Age as reported by mothers at introduction of complementary food

Age at introduction of complementary food	n	%
<3 months	7	9.9
3 – 5 months	21	29.6
6 months	27	38.0
7 – 8 months	11	15.5
≥ 9 months	5	7.0
Total	71	100

Fig 1: Varieties of food used for complementary feeding



Discussion

The present study has shown that breastfeeding was almost universal at 99.4% in urban Nepal. This is similar to the findings of Osrin et al and the findings of Nepal Demographic and Health Survey 2001 (DHS)^{2, 4}. This is one of the positive factors besides late stoppage of breastfeeding with median duration of breastfeeding in Nepal at 34 months.^{2, 5}

Less than half of the mothers (43.5%) initiated breastfeeding within one hour of birth which is lower than the findings of the previous study which showed 63% of the mothers breastfed within an hour of birth but better than reported by Nepal Demographic and Health Survey.^{2, 4} Initiation of breastfeeding was

associated with only two variables type and size of family, with smaller sized and nuclear families less likely to initiate early breastfeeding. It was not associated with other socio-demographic variables and this is similar to the findings of Paine et al in

Brazil where the intention to breastfeed was not related to the usual socio-demographic factors but this is in contrast to the findings of DHS 2001 where initiation of breastfeeding was related to mothers education.^{2, 6} This necessitates the exploration of other factors like maternal and paternal attitudes and beliefs that might be gaining greater importance for influencing breastfeeding patterns.

Exclusive breastfeeding was practiced by more than 90% of mothers in our study at 3 months which is much better than that reported in a previous study at 50%.⁷ At 5 months, exclusive breastfeeding was being done for more than 60% of the children. This is slightly less than that reported in DHS 2001 where two third of the children under 6 months were being exclusively breastfed. This could be due to the fact that DHS is representative of both the rural and the urban areas which is not true for our study. A study done at Kathmandu by Manandhar et al^{2, 8} reported

exclusive breastfeeding rate of 46% at 6 months and this less percentage may be due to the fact that Kathmandu is more urbanized than the study area.

Regarding pattern of breastfeeding, over 70% of the mothers reported breastfeeding on demand or used a combination of demand and regular feeding, former of which is recommended by the WHO for the child to have adequate nutrition.³ This is similar that reported from a developed country like Sweden⁹ where most of the mothers reported that they breastfed on demand. In our study hundred percent of mothers breastfed at night and this is better than the finding of Sweden study where 2% of the mothers did not breastfeed at night. Frequency of night feeds was similar in both studies at 1 to 5 times. Frequency of daytime feeds in our study was slightly higher with a mean of 7.3 times. These findings are also similar to DHS 2001 findings where frequency of feeds were more during day time than night with means of 8 and 5 times respectively. Our study has shown that the practice of discarding colostrum has declined from previous observation of 45% to 14.3%.⁴ This is also better than the findings of Nepal Demographic and Health Survey (DHS) 2001 when the colostrum use rate was only 69%.

Only 38% of the mothers in our study started complementary feeding at 6 months which is the ideal age of starting. Almost 30% of the mothers started complementary feeds at a much earlier age than recommended by the WHO. At 6 months, 77.4% of our study group had started complementary feeding for their babies which is less than 100% found in the previous study.⁷ By 7 months 22.6% of the mothers had still not started complementary feeding. This is a disturbing trend compared with the previous study⁷ as delay in complementary feeding has a considerable bearing on the nutritional status of the child at that age and may rapidly precipitate malnourishment, especially if associated with infection.

Most of the mothers gave buffalo milk to the babies during complementary feeding and majority of them gave milk using glass or cup with spoon. Our study shows that bottle-feeding was done by 10% of the mothers which is higher than that reported previously at 4%.² This is an undesirable trend specially considering the fact that majority of them reported not boiling the bottle regularly or boiling only sometimes.

Regarding the type of food given, it is discouraging to note that more than one fifth of the mothers reported giving formula feeds to the babies because

formula feeds have known to be diluted resulting in inadequate energy intake as well as increased risk of infection. This is higher than that reported by Manandhar et al with only 16% of the mothers giving formula feeds to their children⁸. This could be reflective of the better awareness among mothers in Kathmandu. One fifth of the mothers also gave tea to their children, which would decrease their appetite and further hamper their nutritional status.

Frequency of complementary feeding was 3 times a day for 41.7% of the babies which is in congruence with the finding of Gretel et al of ≥ 3 per day in Nepal case study.⁵ Less than half of the mothers in our study said they fed the babies only 1- 2 times a day which is inadequate according to WHO recommendations, which states that children between 6 to 8 months should be given complementary food 2 to 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 to 24 months they should be fed in addition nutritious snacks twice.³

Our study has limitation of being representative of only the urban area and hence cannot be generalized for the entire population of Nepal. Further in depth studies are needed to explore the infant feeding practices in Nepal.

Conclusion

This study of infant feeding practices in Pokhara reveals that there are improvements in certain areas like giving colostrum and exclusive breastfeeding but they are still far from ideal. 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 bottles and formula feeds and giving of tea that would prove more detrimental for child health in Nepal. These factors ought to be regarded when formulating national policies and guidelines. Proper awareness regarding infant feeding practices should be given to health care workers and mothers and further research is needed in this field.

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