▪ *Original Article*

Breast feeding pattern in teaching districts of a health sciences university in eastern Nepal

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Abstract

Background: Adequate nutrition early in life has an important role in determining infants' growth and development, and in preventing many adult diseases. Over 2/3rd of under-5 child deaths in the world is associated with inappropriate feeding practices and occurs during infancy. Yet, only 1/3rd of world's infants are optimally fed. **Objectives:** To investigate breast feeding patterns and its relation to sociodemographic factors; and to identify factors associated with initiation, continuation, and maintenance of breast-feeding. **Methods:** Cross-sectional, semi-structured questionnaire based study. 508 mothers of infants attending health center were interviewed about feeding patterns and socioeconomic variables. Data were analyzed using appropriate statistical methods. **Results:** 55.9% infants were breastfed within first hour of life and 90% within the first day. Rapid decline in exclusive-breastfeeding was seen with infant's age (78.6% at 1 month, 37.3% at 1-3 months, 35.4% at 3-6 months). Factors significantly associated with exclusive breast- feeding were maternal age and education, family income and type. 17.9% infants were given pre-lacteals where as 92.9% received Colostrum. Major factors associated with early initiation of breast-feeding were maternal age and education, family type and mode of delivery. **Conclusion:** The results show that national guidelines, public messages, and educational campaigns need to be strengthened to achieve desired goals regarding breast feeding.

Keywords: breastfeeding, pre-lacteals, colostrums, formula feeding, sociodemographic factors

Introduction

Infants experience many dietary changes in their first year of life; in most cases starting exclusively with breast milk they gradually go through the transition from a completely liquid diet to one including a variety of solid foods.

Adequate nutrition in the early years of life has an important role in determining infants' growth and development, and in preventing adult diseases in later life.[1, 2]

Breastfeeding is the ideal form of infant feeding and is crucial for lifelong health and well being. It also has practical and psychological advantages. It is an unequalled way of providing ideal food for the healthy growth and development of infants; it is also an integral part of the reproductive process with important implications for the health of mothers. [3]

As a global public health recommendation, infants should be exclusively breastfed for the first 6 months of life to achieve optimal growth, development and health. Thereafter to meet their evolving nutritional requirements; they should receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to 2 years or beyond. [3, 4]

Human milk is the best food for the babies and provides all the nutrients needed for about the first 6 months (26 weeks) of life. Moreover, it contains nutrients that serve the unique needs of the infant, such as certain essential polyunsaturated fatty acids, certain milk proteins, and iron in a readily absorbable form. Human milk also contains immunological and bioactive substances, absent from commercial infant formulas, which confer protection from bacterial and viral infections and may aid gut adaptation and development of the newborn.[5]

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However, insufficient prenatal breastfeeding education, short postpartum hospital stay, limit of professional support, maternal employment, lack of broad social support and powerful marketing of infant formulas are the barrier to breastfeeding.[6]

According to Nepal Family Health Survey of 1996, breastfeeding is nearly universal in Nepal, with 98% of children breastfed some time after birth. Only 18 percent are breastfed within an hour of birth with 3 out of 5 babies being breastfed within 24 hours of life. Although exclusive breastfeeding is recommended for 6 months of life, 10 percent babies are already on food other than breast milk, and only 60 percent of children are on breast milk exclusively. [7]

The survey reported a disturbing trend with regards to breastfeeding; there was very little difference in the breastfeeding practice whether it is a delivery assisted by medically trained professional, or a traditional birth assistant, or by no one. While the overall percentage of infants who started on breastfeeding within 24hours was low, i.e. around 60 percent, it was further less, i.e. about 40%, when a trained birth attendant (TBA) conducted the delivery.

In a related finding the percentage of breastfeeding was higher among infants delivered at home than those delivered at health facility.

The majority of mothers in Nepal have been breastfeeding their infants, but there are a number of problem areas, such as late initiation, discarding the colostrum, lack of exclusive breastfeeding, and too early or too late introduction of complementary food.

In order to promote and protect breastfeeding a National Committee was formed in 1992 under the chairmanship of the secretary of ministry of health. Two of the principle activities of the committee were to support the training of health professionals in proper breastfeeding and to identify "baby friendly" hospitals, those where ten steps to promote breastfeeding have been put into practice.

Similarly the data given in the National Newborn Health Strategy states that 98% children are being breastfed;31% are given breastfeeding within 1 hour of birth ,where as 65% are given mother' milk in first day and exclusive breast feeding for 6 months is 68 percent.[8]

The purpose of the present study was to investigate breast feeding patterns during infancy and their relation to parental education, maternal age and other various socio-demographic factors.

Methods

This was a hospital-based study conducted at the BP Koirala Institute of Health Sciences (BPKIHS) and in the teaching district hospitals adopted by the Institute which included Rangeli and Dhankutta District Hospitals. A total of 508 mothers meeting the inclusion criterion were interviewed during their visit to Pediatrics OPD, Well Baby Clinic and Immunization on a semi-structured proforma which included socio-demographic data of family, information on pregnancy & delivery, anthropometry of the baby, knowledge & attitude of mother regarding breast feeding, and feeding patterns of the baby. Mothers who have given birth to, single term healthy baby and weighing>2500gms at birth, were included for interview

Collected data was compiled and analyzed using SPSS statistical software and Ms-Excel. Descriptive data were reported as number of observations or percentage. Comparison between groups was performed by means of the student's t test. Logistic regression analysis was applied to the variables identified to have possible association with breastfeeding initiation, continuation and stoppage of breastfeeding.

Results

During the study period, 508 mothers were interviewed. 307 (60.4%) mothers were having infant below 6 months of age and there were 201(39.6%) mothers having infants above 6 months of age. Highest number of cases was in the age group 21-35 years with a range of 16-48 years. 48% mothers were primipara and 52% were multipara. Table 1 shows the socio-demographic profile of the mothers who were interviewed.

Table1: Socio-demographic profile

Variables	Categories	Frequencies	Percentage (%)
Mother's age (yrs)	<20	102	20.0
	21-35	396	77.9
	>35	10	1.9
Parity	Primigravida	244	48.0
	Multigravida	264	52.0
Religion	Hindu	420	82.6
	Kirat	50	09.8
	Buddhist	16	03.1
	Muslim	16	03.1
	Christian	6	01.1

Mother's Education	illiterate	107	21.0
	class1-5	63	12.4
	class6-10	164	32.9
	SLC and Above	174	34.2
Occupation	Housewife	368	72.4
	Working	140	27.5
Family income (NPR/month)	<5000	124	24.4
	5000-10000	134	26.4
	>10000	250	49.2
Family type	Nuclear	201	39.6
	Joint	296	58.3
	Extended	11	2.2

The table also shows that 20% mothers were of age 20 years or below and majority of them were in the age group 21-35 years. However, 10% mothers were above the age of 35 years. Most of them were Hindu by religion i.e. 82.6%. 72.4% mothers were housewife while 27.6% were working mothers. It was also found that 21% mothers were illiterate but there were 34.2% mothers who had formal education of school leaving examination and/or above. Majority of mothers belonged to the family with income above Rs 10000/ month. However, 24.4% mothers were from the family with income below Rs 5000/month. It was also found that majority of mothers were from joint family i.e. about 58%.

Table 2: Delivery details

Variables	Categories	Frequency	Percentage (%)
Place of delivery	Hospital	337	66.3
	Home	171	33.6
Mode of delivery	SVD	426	83.8
	LSCS	82	16.1
Delivery conducted by	Health personnel	354	69.6
	Family members	97	19.0
	TBA	57	11.2
Sex of Baby	Female	204	40.2
	Male	304	59.8

Table 2 shows, 66.3% babies were delivered at health facility whereas 33.6% of them were delivered at home; about 84% cases were SVD and 16% were delivered by caesarean section. About 70% deliveries were conducted by health personnel, 19% by home members and 11.2% deliveries were attended by TBAs. 40.2% infants were female and 59.8% of them were male.

There were 307 mothers having child of age 6 months or below. Among those mothers we investigated for the breastfeeding practices.

Table 3 shows early initiation of breastfeeding was done in about 56% babies and 89.4% babies were breastfed within first day of childbirth. 17.9% babies received pre-lacteals and colostrum feeding was done to 92.9% babies. Of the 307 babies 42.3% received exclusive breastfeeding; 39.8% were predominantly breastfed and 17.9% babies got partial breastfeeding.

Table 3: Breastfeeding Practices (N=307)

Variables	Category	Frequency	Percentage (%)
Commencement of feeding*	Within 1 hr.	284	55.9
	Within 4 hr	148	29.1
	Within 24 hr	22	04.3
	After 24 hr	54	10.6
Prelacteals*	Given	91	17.9
	Not given	417	82.0
Colostrum feeding*	Given	472	92.9
	Not given	36	07.0
Breastfeeding practice	Exclusive	130	42.3
	Predominant	122	39.8
	Partial	55	17.9
Feeding frequency (times/day)	<5	3	0.9
	5-10	93	30.3
	10-15	169	55.0
	>15	42	13.7
Feeding duration (mins./feed)	5-10	164	53.4
	10-15	83	27.0
	15-20	37	12.0
	>20	23	7.5
Feeding problems	Yes	46	14.9
	No	261	85.0

T* These practices were asked to all mothers (n=508)

Analysis

Baseline parameters were compared in between the groups.

Table 4: Comparison of Factors related to Early Initiation of Breastfeeding (N=508)

Factors		Group 1 (n=284)	Group 2 (n=224)	P value
Maternal age (mean±SD)		24.15 ±4.18	24.96 ±4.85	0.04*
Parity (mean±SD)		1.71 ±.85	1.84 ±1.02	0.12
Family income (mean±SD)		11572.18 ±8496.99	10091.52 ±8639.35	0.05**
Religion	**Hindu**	238	182	0.45
	Others	46	42	
Family type	**Nuclear**	98	103	0.00*
	Joint	186	121	
Mother's occupation	**Housewife**	207	63	0.08
	Working	77	182	
Maternal education	**Illiterate**	41	66	0.00*
	Literate	243	158	

Sex of baby	**Female**	118	86	0.52
	Male	166	138	
Mode of delivery	**SVD**	267	159	0.00*
	LSCS	17	65	
Place of delivery	**Home**	91	80	0.39
	Hospital	193	144	
Delivery conducted by	**Family members**	47	50	0.12
	Health personnel	118	86	

* Statistically significant Group 1- breastfeeding initiated early

** Borderline significant Group 2- breastfeeding not initiated early

It was found that factors related significantly with early initiation of breastfeeding were maternal age (p <0.04), family type (p value <0.001), maternal education (p value <0.001) and mode of delivery (p <0.00) (Table 4). Family income seems to be an important factor for early initiation of breastfeeding but it was not significant statistically (p<0.05).

Next, we took mothers having infant below 6 months of age and we compared the baseline parameters in those exclusively breastfeeding their babies to those with breastfeeding practices other than exclusive breastfeeding (Table 5). The following parameters compare factors in each group.

Table 5: Comparison of Factors related to Exclusive Breastfeeding (N=307)

Factors		Group 1 (n=130)	Group 2 (n=177)	P value
Maternal age (mean±SD)		23.76 ±3.88	24.81 ±4.64	0.03*
Parity (mean±SD)		1.78 ±0.96	1.72 ±0.94	0.56
Family income (mean±SD)		9369.23 ±8207.70	13889.83 ±9671.47	0.00*
Religion	**Hindu**	120	131	0.00*
	Others	10	46	
Family type	**Nuclear**	51	50	0.04*
	Joint	79	127	
Mother's occupation	**Housewife**	97	132	0.99
	Working	33	45	
Maternal education	**Illiterate**	30	20	0.00*
	Literate	100	157	
Sex of baby	**Female**	60	72	0.35
	Male	70	105	
Mode of delivery	**SVD**	115	150	0.03*
	LSCS	15	27	
Place of delivery	**Home**	51	37	0.00*
	Hospital	79	140	
Delivery conducted by	**Family members**	26	17	0.01*
	Health personnel	104	160	

* Statistically significant
Group 1- exclusive breastfeeding

Factors like maternal age (p <0.03), family income (p <0.001), religion (p <0.00), family type (p <0.04), and maternal education (p <0.00) were significantly related. Also mode and place of delivery as well as delivery conducting person were found to affect the breastfeeding practice significantly.

Discussion

Despite all efforts to promote and practice appropriate infant and young child feeding practices, they are still faulty around the world. Sub-optimal feeding practices still prevail in many countries. South-Asian women are not a homogenous group and hence, differences are seen in their culture and religious practices and in the prevalence of breastfeeding among them.

Our study investigated breastfeeding patterns of infants during the first year of life in the Eastern Region of Nepal. Among the 16 districts of eastern development region, we got cases mainly from from Sunsari, Morang, and Dhankutta but there were few cases from other districts like Ilam, Siraha, Saptari and Jhapa. Because of relatively low participation and only few districts representing samples we got, we cannot exclude the possibility of a biased selection. Hence, caution should be exercised in drawing a definite conclusion from the present study.

Results from our study regarding initiation of breastfeeding, continuation of exclusive breastfeeding and timely introduction of complementary foods were far away from recommendations.

Regarding breastfeeding practices, only 55.9% babies were given breastfeeding within 1st hour of birth but about 90% babies received first breastfeeding within their 1st day of life. Our study documented higher rates and the explanation for the above findings could be because of the population group we surveyed where both literacy rate and socio-economic status seems better than other districts.

Like several other studies,[9,10] our study also documented that there is no difference in the timing of initiation of breastfeeding by sex of child.

Our study found higher rates of early initiation of breastfeeding among infants born to literate mothers. This finding corroborates with the findings of several other studies. [9- 12]

An interesting finding in our study was higher rates of early initiation of breastfeeding in younger mothers that could be because of improved educational status of newer generation mothers and the ongoing promotional health education on infant and young child feeding in recent years.

Our study also found, SVD born babies were more likely to receive breastfeeding within 1st hour of life.

Regarding pre-lacteals and colostrum feeding, our study found that pre-lacteals were given to 17.9% infants and colostrum was fed to more than 90% infants. A study from Nigeria in 1999 documented colostrums feeding to be 46%.[13] The rate is lower as compared to Nepal Demographic and Health Survey 2001 and 2006.

As stated from several other studies from our country,[9, 10, 14, 15] we also found breast feeding to be universal in Nepal and is maintained at a high level of more than 99% throughout the infancy.

WHO/UNICEF-2003, in global strategy on infant feeding, documented not more than 35% children below 6 months of age were exclusively breastfed for first 6 months of life. In a multicenter cohort study done by Bahl et al, the prevalence of exclusive breastfeeding in Ghana and India was about 21% at 6 weeks, which fell to about 4% at 22 weeks. Several other studies shows similar declining pattern in exclusive breastfeeding after discharge from hospital.[12, 16, 17] Our study showed only 42.3% children below 6 months received exclusive breastfeeding and it also showed rapid decline in exclusive breastfeeding with advancing age of infant.

Conclusion

Current rates of breastfeeding initiation and maintenance in infancy in eastern development region of Nepal are acceptable but exclusive breastfeeding rates are still far away from recommendation. National guidelines regarding infant and young child feeding, in accordance with international recommendations, should be promoted in the region, together with the educational programs keeping the socio-demographic and cultural structure of the concerned population.

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