

## Complementary Feeding Practices of Nepali Mothers for 6 Months to 24 Months Children

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### ABSTRACT

**Introduction:** Lack of knowledge and proper feeding practices contribute to higher childhood morbidity and mortality. The aim of the study was to evaluate the mother's knowledge and practices in terms of quantity, quality and timing of complementary feeding in infant and young child.

**Methods:** A hospital based cross-sectional study was conducted between June, 2010 to October, 2011, at Kanti Children's Hospital, Nepal, involving 1100 mothers of children from 6 to 24 months of age who attended outpatient department of this hospital, applying systematic sampling technique using semi-structured questionnaire.

**Results:** Eighty-seven percent of mothers had knowledge about the duration of exclusive breast feeding but only 33.0% practiced it and 21.0% breast fed their children up to 3 months. Eighty-seven percent of mothers knew when to start complementary feeding and 53.27% of mothers used the marketed weaning food. Lito alone was offered by 28.27% as complementary food. Though 36.6% had proper knowledge of frequency of complementary feeding, only 33.27% were actually practicing it and 9.9% were offering more frequent than recommended. About half of the mothers fed their child with the food of appropriate consistency and 66.0% fed with the appropriate amount. But only 15.82% mothers fed their children with ideal frequency, sufficient amount and ideal quality.

**Conclusions:** There was a knowledge and practice gap of duration of exclusive breast feeding and initiation and continuation of ideal complementary feeding. Rate of exclusive breast feeding was on declining trend.

**Keywords:** *complementary feeding; exclusive breast feeding; infant and young child feeding; ideal feeding.*

### INTRODUCTION

An appropriate diet is critical in growth and development of children especially in the first two years of life. World Health Organization (WHO) recommends exclusive breast-feeding (BF) for the first six months of age. Addition of complementary feeds at six months with continued BF till two years which if followed appropriately can decrease infant mortality by 19 percent and prevent malnutrition especially in developing countries like ours.<sup>1-3</sup> Nepal has been trying its best to achieve the

Millennium Development Goals (MDG) to reduce the childhood mortality by two thirds by 2015 though it has a long way to go.<sup>4</sup> Poor nutrition increases the risk of illness, and is responsible, directly or indirectly, for one third of the estimated 9.5 million deaths that occurred

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in 2006 in children less than five years of age.<sup>5-7</sup>

Complementary feeds bridge the energy, vitamin A and iron gaps which arise in breastfed infants at 6 month of age.<sup>8,9</sup> Early introduction of complementary feeds is associated with increased morbidity due to diarrheal diseases and development of malnutrition in areas with poor food or water hygiene.<sup>10,11</sup> On the other hand, too long delay in introducing appropriate complementary foods may lead to nutritional deficiencies of iron, zinc, calcium and sometimes vitamin A and riboflavin.<sup>12</sup> Cultural practices; beliefs and knowledge of parents regarding appropriate feeding practices influence CF.<sup>2</sup> There is scarcity of studies on knowledge and practices about CF.<sup>7,13-15</sup> Knowledge of these factors will be helpful in planning interventions to improve feeding practices.<sup>16,17</sup>

## METHODS

A hospital based cross-sectional study was conducted between June, 2010 to October, 2011, at Kanti Children's Hospital, Nepal, involving mothers of children from 6 to 24 months of age who attended outpatient department of this hospital, applying systematic sampling technique excluding mothers of child less than 6 months and more than 24 months and using semi-structured questionnaire. During the study period, 1100 mothers were interviewed. Children seeking emergency care, those with known anomalies and the ones who failed to provide consent were excluded. Statistical analysis was done with Statistical program for social studies (SPSS) version 19. Percentage, proportions and contingency tables were used for description of the data.

## RESULTS

Out of the total 1100 respondents, around two third (61.60%) were below 26 years. The mean age was 24.9 years with the standard deviation of 4.107 with range of 15 to 44 years. The range was 6 months to 24 months with the mean of 12.84 months with the SD of 5.52. Nuclear family system was more common than joint family (64.3% vs 35.7%) and most of the respondents were from city (55.3%) followed by town (24.1%) and rest were from rural areas (Table 1).

**Table 1. Socio-demographic Characteristics of respondents.**

Characteristics	Frequency	%
	(n = 1100)	
<b>Child Age In months</b>		

6-8	284	25.8
9-11	257	23.4
12 or above	559	50.8
Mean age + SD	12.84 + 5.529mo	
<b>Sex</b>		
Male	699	63.5
Female	401	36.5
<b>Mother's age</b>		
< 20	128	11.65
21-30	884	80.36
31-40	88	7.99

<b>Type of family</b>		
Nuclear	707	64.3
Joint	393	35.7

<b>Education of mother</b>		
No education	208	18.9
primary education	166	15.1
some secondary	342	31.1
SLC Intermediate	279	25.4
Bachelor and above	105	9.5
<b>Education of father</b>		
No education	99	9.0
primary education	147	13.4
some secondary	335	30.5
SLC Intermediate	359	32.6
Bachelor and above	160	14.5

<b>Profession</b>		
House wife	782	71.1
HW with Agriculture	153	13.9
Business	70	6.4
Service	61	5.5
Skilled work	24	2.2
Labour	10	0.9
<b>Profession of father</b>		
Unemployed	8	0.7
Agriculture	99	9.0
Business	204	18.5
Skilled work	337	30.6
Service	340	30.9
Labour	36	3.3
Foreign employee	76	6.9

Most of the mothers (87.3%) had knowledge about the duration of exclusive breast-feeding and the time to start complementary feeding. Only 12.7% mothers had no ideas about when to start complementary feeding as

well as the duration of exclusive breast-feeding. It was observed that 6 out of 10 mothers did not know about the frequency of feeding to their child as per age of their child. Only 36.6% mother knew about the frequency of feeding required to their child (Table 2).

**Table 2. Mother's knowledge related characteristics of infant and young child feeding.**

Characteristics	Frequency (n = 1100)	%
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**Knowledge to start complementary feeding**

Yes	960	87.3
No	140	12.7

**Knowledge about duration of exclusive breast feeding**

Yes	960	87.3
No	140	12.7

**Knowledge of frequency of complementary feeding**

Yes	403	36.36
No	679	63.4

One fifth (16.69%) had practice of exclusive breast feeding less than 3 months and 1 in every 14 mother breast fed her child exclusively for less than one month. However, it was observed that 8.9% mothers had practice of exclusive breast feeding more than 6 months. The commonest reason for prolonged exclusive breast feeding was their perception of breast milk being enough for their children and few (1.81%) did not know why they were practicing so.

Almost 90.0% mothers offered their colostrum to their child as first feed and 11.0% mothers used infant formulas as first feed to their child. Whereas very negligible number had offered the cow/buffalo milk and water as first feed to their child (Table 3). More than half (56.81%) of mothers fed their child less than prescribed frequencies per day. Whereas one among 10 mothers fed more frequent than required and only one third mothers fed their children as per recommendation. Likewise half of the mothers fed their child either thin or thick food and 4 among 5 mothers feed their child appropriate amount. In computing the ideal feeding only 15.82% of mothers fed their child ideally means normal amount with appropriate consistency and appropriate frequency in a day (Table 4).

**Table 3. Practice related characteristics of Infant and young child feeding.**

Characteristics	Frequency (N = 1100)	%
<b>Duration of exclusive breast feeding (n = 1100)</b>		
< 1 month	67	6.19
1 month	50	4.54
2 months	66	6.00
3 months	156	14.18
4 months	102	9.18
5 months	198	18.00
6 months	364	33.19
> 6 months	97	8.90
<b>First feed offered to child (n = 1100)</b>		
Colostrum	961	87.36
Infant formulas	123	11.18
Cows/Buffalos milk	13	1.18
Water	3	0.28

**Complementary food offered (n = 1100)**

Lito	311	28.27
Cerelacs	74	6.72
Dal bhat	83	7.54
Lito, cerelac	210	19.09
lito ,dal ,bhat	280	25.46
Cerelac, dal bhat	51	4.63
All (lito,cerelac, dal bhat)	91	8.27

**Reason for delayed complementary feeding n = 97**

Vomits everything	2	0.18
Milk is enough	71	6.45
Elder told to do so	3	0.27
Child did not accept other foods	1	
Don't know	20	1.81
<b>Preparation of complementary feeding (n = 1100)</b>		
Cereals	87	7.91
Cereals and pulses	866	78.73
Cereals pulses and ghee	146	13.27
Cereals pulses ghee and green vegetables	1	0.09
<b>Use of marketed complementary feeding</b>		
Yes	586	53.27
No	514	46.72

**Table 4. Frequency, consistency and amount of practiced complementary feeding.**

Characteristics	Frequencies	n = 1100	%
<b>Frequency of complementary feeding</b>			
Less than required	625		56.81
As required	366		33.27
More than required	109		9.90
<b>Consistency of complementary feeding</b>			
Thick	341		31.00
Thin	199		18.09
Appropriate	560		50.91
<b>Amount of complementary feeding</b>			
Inappropriate	266		24.18
Appropriate	834		75.82
<b>Ideal feeding status</b>			
Not ideal	926		84.18
Ideal	174		15.82

## DISCUSSION

Infant and young child feeding (IYCF) practices include early initiation of breast feeding within one hour of life, timely introduction of solid/semi solid foods from the age of six months increasing in amount and frequency over time along with breast feeding as demanded by child. The National demographic health survey 2011 concluded that complementary foods are not introduced in a timely fashion for all children in Nepal. Seventy percent of infants have been given complementary foods by age 6-9 months.<sup>18</sup>

It is encouraging to note that the percentage of mothers who knew the duration of exclusive breast feeding was 87.3% but only 33.0% were found to be actually practicing it. It shows the gap between knowledge and practice is high despite the fact that Nepal's Breast Milk Substitute Act 1992 (2049) promotes and protects breastfeeding and regulates the unauthorized or unsolicited sale and distribution of breast milk substitutes (Ministry of Health and Population, 2004b). One of the reasons for such big gap observed in our study could be due to cultural practice of initiating of complementary feeding. Among many cultures in Nepal the first time solid food given is solemnized with a formal ceremony called Pasneor the rice feeding ceremony.<sup>19</sup> Other reason could be busy mothers such as workers and students. Our result is comparable with global situation. Worldwide, it is estimated that only

34.8% of infants are exclusively breastfed for the first 6 months of life and majority of them receive some other foods or fluids in the early months of life.<sup>9</sup> But this result is less than the results of NDHS 2006 and 2011.<sup>7,18,19</sup>

Most mothers (87.3%) knew when to start complementary feeding but only 36.6% mothers knew about the appropriate frequency. The findings are similar to NDHS reports.<sup>18</sup>

A few mothers (6.2%) give exclusive breast feeding only for less than a month and 1/5<sup>th</sup> of the mothers (21.0%) less than three months which is very early than recommended by WHO. This early initiation of giving other foods might be due to the fact that mothers are engaged in other jobs or the belief of equally effectiveness of other formula feeds to the child. Similar findings were also observed by other studies conducted in Nepal and India.<sup>20-23</sup>

This study found that 87.3% of mothers used colostrum as first feed and the remaining percentage of mothers used infant formulas, cow/buffalos milk and water as first feed. Similar findings were reported by NDHS survey 2011 and the other studies done in urban as well as rural communities in Nepal.<sup>20,21</sup> Our finding of colostrum use as a first feed is much higher than reported by studies in Nigeria, a underdeveloped country like ours.<sup>24</sup> Another Nigerian study in semi urban setting found exclusive breast-feeding rate to be low (33.0%).<sup>25</sup>

Though, most of the mothers begin to feed their infants with colostrum, the percentage of mothers giving exclusive breast feeding goes decreasing with the age of child. This study found almost all (94.82%) mothers fed their infants with only breast milk till the age of one month which came down to 33.19% at the age of 6 months. This evidence shows that the trend of mix feeding is increasing. This phenomenon is true for the developed world as well. A Switzerland study showed that 94% of the infants were breastfed in the first months but by the age of 5 months, as much as half of the infants received formula milk.<sup>25</sup>

It was found in this study that around 9.0% mothers practiced exclusive breast feeding more than 6 months and the most common reasons given by them were enough milk production, acceptability of the mother's milk by babies, suggestion of the elders in the family and vomiting of other feeds by the baby. Another study conducted in another city of Nepal (Pokhara) reported that even higher percentage of mothers continued exclusive breast-feeding beyond six months.<sup>22</sup> The differences between the findings of those two studies could

be due to the difference in study population. The study done in Pokhara was community based however the reasons given for the continuing exclusive breast feeding beyond six months of age were the same as observed in our study.<sup>7,22</sup> Reasons for not breast feeding exclusively or stopping it early have not been identified in this study and are topics for further research.

It seems that the trend of using marketed weaning food is increasing. Study found that 53.27% of mothers used the marketed weaning foods. Similar phenomenon was observed by Aggarwal et.al in India. They reported that 19% of mothers used marketed weaning food.<sup>7</sup>

Though 87.3% of mothers had knowledge about the time of initiation of complementary food, 31.0% of mothers started complementary feed within 3 months of age and 8.9% of mothers did not start complementary feeding even at 6 months of age. Both practices are not only undesirable but also harmful to our children but unfortunately, are being still practised in the developing world.<sup>7,10,13</sup> It was found in our study that the reasons for late starting of complementary feeding were: milk is enough, elders told to do so, vomits everything and don't know why they did it but they did it. Similar type of finding was observed in another study done in India.<sup>7</sup> This study found that 33.27% of mothers were giving the feeds as per WHO guidelines and 9.90% were giving more often than prescribed frequency. Combining together 43.17% of mothers were giving feed at adequate frequency. When assessing the knowledge about the frequency of complementary feeding, it was found that more than 1/3<sup>rd</sup> (36.6%) had proper knowledge of frequency of complementary feeding. This shows that almost all the mothers having knowledge are practicing the complementary feeding. However, this finding is much less as compared to the reports by NDHS 2006.<sup>19</sup> This might be because of the different location of the study. Similar finding was observed in India by Agrawal et.al.<sup>7</sup> We have to be cautious about the observation on more frequent feeding than recommendation as it may be the cause of obesity in the future even in developing countries.

This study found that half of the mothers fed their child either thick or thin feeds and only 50.91% mother fed their children appropriate complementary feeding by

consistency. Consistency of CF is not mentioned in our NDHS 2006, however, the study done in India found the 25.5% to 30.0% mothers knew and practiced the recommended complementary feeding by consistency which is lower than our finding.<sup>7,14,18</sup> This variation might be due to the difference in study population and their demographic characteristics. It would have been more useful and informative if such characteristics were studied in our country too.

It is interesting to note that 3 among 4 mothers in our study had fed their baby the appropriate amount of feeding. This reveals that mothers in our part of world are more concerned about the amount of feed offered to their child. Though the amount of feed is sufficient, they may be still deficient in calories and nutritional values. These feeds are either thick or thin and don't have all the ingredients required to be the ideal complementary feeding. This might be one of the possible factors for high prevalence of under-nutrition, wasting and stunting despite the use of correct amount of feeding.

Ideal CF comprises of adequate frequency, sufficient quality, and quantity of the feed as per WHO recommendation. However, only 15.82% mothers were found be practicing ideal feeding in this study. Similar observation was observed in the study done in India.<sup>7,13</sup> Most of the studies have evaluated complementary feeding only in terms of frequency without considering the quality and amount of feed.<sup>7,13-15,18</sup>

## CONCLUSION

The ideal feeding was practiced only in a minority of children. There was a big gap between the knowledge of mothers about duration of exclusive breast feeding and their practices. However, the practices of giving colostrums was interestingly very high.

Some of the others use lito as a weaning food but the proper method of its preparation was known to a few mothers. Amount of complementary feeding given to children was enough in the majority of the children but it's consistency and frequency were found to be not appropriate as per recommendation in more than half of the children.

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