LEC Journal 2023, 5(1): 83-91
ISSN: 2565-5205 (print)

Research Article

Complementary Feeding Practices among Mothers Having Under Two Years Children

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Received: April 9, 2023 Revised: April 17, 2023 Accepted: July 5, 2023

ABSTRACT

***Background**:-Complementary feeding refers to the introduction of solid, semi-solid and soft food with adequate amount and frequency in addition to breast milk at six months of age of child. Timely initiation of nutritionally adequate, safe, age-appropriate complementary feeding is recommended for the better health and development of under two years children. Therefore, the main aim of the study was to find out the complementary feeding practices among mothers having under two years children. **Methods**:-A descriptive cross-sectional study design was used for the study. A total of 70 mothers having children of 6-24 months of age were selected from Pediatric OPD and immunization clinic, TUTH by using non-probability convenience sampling technique. Semi-structured interview schedule was used to identify complementary feeding practice among mothers. Data was collected from 7th to 19th August, 2022, entered in SPSS version 26 and analysis was done using descriptive and inferential statistics. **Results**:-The study findings revealed that the practice of exclusive breastfeeding was 78.6% and 88.6% mothers are continuing breast feeding along with complementary feeding. 55.7% of mothers timely initiated complementary feeding. Minimum Meal Frequency, Minimum Dietary Diversity and Minimum Acceptable Diet was met by 64.3%, 97.1% and 64.3% of children respectively. The status of complementary feeding practice is significantly associated with age of mother and age of child. **Conclusion**:-It is concluded that majority of children do not meet Minimum Dietary Diversity and Minimum Acceptable Diet. So, there is a need for interventions which encourage and aware mothers about importance of feeding adequate and minimum acceptable diet to enhance optimum growth and development of under two years children.*

***Keywords**: Complementary Feeding, Practices, Mothers*

BACKGROUND

Complementary feeding is defined as the process that starts when breast milk alone or infant formula alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed along with breast milk or a breast milk substitute. Around the age of 6 months, an infant's need for energy and nutrients starts to exceed and breast milk alone cannot fulfill the child's demand. Hence, complementary foods are necessary to meet those needs. This transition is referred to as complementary feeding [1]. Complementary food consists of the following food groups: grains, roots and tubers, pulses (beans, peas, lentils), nuts and seeds, dairy products (milk, infant formula, yogurt, cheese), flesh foods (meat, fish, poultry and liver/organ meats), eggs, vitamin-A rich fruits and vegetables and other fruits and vegetables [2].

UNICEF & WHO has developed three core infant and young child feeding indicators to monitor and guide the feeding practices of young children. The core indicators include: 1. Breastfeeding indicator- (i) ever breastfed (ii) early initiation of breastfeeding (iii) exclusively breastfed for the first two days after

birth (iv) exclusive breastfeeding under six months (v) mixed milk feeding under six months (vi) continued breastfeeding 12-23 months) 2. Complementary feeding indicator- (i) introduction of solid, semi-solid or soft foods (6-8 months) (ii) minimum dietary diversity (iii) minimum meal frequency (iv) minimum milk feeding frequency for non-breastfed children (v) minimum acceptable diet (vi) egg and/or flesh food consumption (vii) sweet beverage consumption (viii) unhealthy food consumption (ix) zero vegetable or fruit consumption 3. Other indicator- (i) bottle feeding (0-23 months) (ii) infant feeding area graph [2]. Improvements in nutrition after the age of 2 years do not usually lead to recovery of lost potential. A consequence that is also emerging more clearly is the impact of stunting and subsequent disproportionate and rapid weight gain later in life. These long-term effects are referred to as the fetal programming concept. This rapid weight gain later in life raises the rate of coronary heart disease, stroke and type II diabetes mellitus [3].

Complementary feeding includes a complex set of behaviors. There is now a shared understanding in the field of nutrition and public health that complementary feeding is not just about what is fed, but also about how, when, where and why. Complementary feeding includes practices such as introduction of first foods, preparation and choice of foods and style of feeding. These practices are in turn influenced by a vast number of determinants such as caregiver's knowledge, perceptions and beliefs, as well as their time constraints, employment and social support [4].

Under nutrition is associated with 45% of child death. Globally in 2020, 149 million children under 5 years were estimated to be stunted (too short for age) and 45 million were estimated to be wasted (too thin for height), among which 5 million children with severe wasting were admitted for treatment [CITATION UNI20 \l 1033]. Few children receive nutritionally adequate and safe complementary feedings. In many countries, less than 1/4thof infants 6-23 months of age meet the criteria of minimum dietary diversity and minimum meal frequency that are appropriate for their age [2].

According to Nepal Demographic and Health Survey, 35.8% of under 5 children are stunted, 10% are wasted and only 36% of children are fed according to the recommended Infant and Child Feeding practice, whereas according to Multiple Indicator Cluster Survey (2019), 32% of under 5 children are stunted, 12% are wasted and the rate of exclusive breastfeeding in the first six months is 62.1% [5].

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

A study carried out in Tanahun district of Nepal revealed that out of 158 respondents, 26.6% had inadequate knowledge, whereas 73.4% had adequate knowledge on complementary feeding. It also revealed that 51.9% were involved in right feeding practice, while 48.1% were involved in the wrong practice on complementary feeding. Despite the good level of knowledge about complementary feeding, the wrong practice was prevalent in about half of the mothers [7].

According to WHO, infants who receive complementary feeding before the age of 6 months will have a 17 times greater risk of experiencing diarrhea and 3 times more likely to develop upper respiratory tract infections than infants who receive exclusive breastfeeding for 6 months and timely introduction of complementary feeding. The child

feeding practice is inappropriate especially in the low income and developing countries like Nepal, putting the children at higher risk of death and disease. So, it is important to assess child feeding practices among mothers.

Methods

The descriptive cross-sectional study design was used to identify complementary feeding practice among mothers having under 2 years old child attending Pediatric POD and immunization clinic in Tribhuvan University Teaching Hospital. Sample size was calculated on the basis of prevalence of complementary feeding practices among under 2 years child as 83% from the report of Nepal Demographic Health Survey (NDHS), 2016 which was 70. Non probability convenience sampling technique was used for the selection of mothers having under 2 years child. Mothers who were available during data collection period and those mothers who gave verbal as well as written consent for data collection were included in the study. The instrument was developed on the basis of WHO/UNICEF guidelines and literature review. Information was collected through in-person interview using a semi-structured interview schedule. The schedule was prepared in English language and then translated into Nepali language. Interview was conducted at feasibility of the participants by the researcher herself. A time limit of 20-25 minutes was allocated for conducting interview for each respondent. The research instrument consist of Socio-demographic information, and practice related questionnaire of complementary feeding. The use ability of the instrument was measured by pretesting of the tool in 6 mothers (10% of total sample size) in Pediatric OPD, TUTH and excluded in the data collection. The interview schedule consisted a total of 12 questions related to complementary feeding practice. Data collection was done from 7thAugust to 19thAugust, 2022 for total duration of 2 weeks. The study was conducted after the approval of proposal from research department of Maharajgunj Nursing Campus, Institutional Review Committee (IRC). Collected information was used for study purpose only and complete confidentiality of respondents' information was maintained. Respondents were not forced to take part in the study. Informed written consent was taken from each respondent prior to data collection. Face-to-face interview technique was used by researcher herself and the time allocated for each interview was 20-25 minutes. Data was analyzed by using descriptive statistics (Frequency, percentage, mean, standard deviation) and inferential statistics to measure the association between the status of complementary feeding practices and selected variables.

RESULTS

TABLE 1: Respondents' Socio-demographic Characteristics

n= 70

Variables	Number	Percentage
Age in completed years		
20-25	19	27.1
26-30	34	48.6
31-35	14	20.0
35-40	3	4.3
Mean age ± SD= 28.02±4.56, Range= 20-40 years		
Ethnicity		
Brahmin/Chhetri	37	52.9
Janjati	23	32.9
Dalit	8	11.4
Madhesi	2	2.9

Religion		
Hinduism	62	88.6
Buddhism	4	5.7
Christianity	4	5.7
Educational status		
Cannot read and write	-	-
Can read and write	70	100
Educational level		
Up to primary level	11	15.7
Up to secondary level	41	58.6
Bachelor's level and above	18	25.7
Occupation		
Home maker	52	74.3
Service	12	17.1
Business	6	8.6
Type of Family		
Nuclear family	37	52.9
Joint family	33	47.1
Family Income		
Sufficient for <6 months	5	7.2
Sufficient for <1 year	11	15.7
Sufficient for 1 year and surplus	54	77.1
Number of Children		
One	39	55.7
Two	21	30.0
≥Three	10	14.3

Table 1 illustrates respondents' socio- demographic characteristics where almost half of them were of 26-30 age group with mean age of 28.02±4.56. More than half of the respondents (52.9%) belonged to Brahmin/Chhetri ethnicity whereas, most of them (88.6%) followed Hinduism. All of the respondents were able to read and write and more than half of them (58.6%) have received secondary level education. More than two-third of respondents (74.3%) were home maker and nearly half of them (52.9%) were from nuclear family. Almost four-fifth of respondents' (77.1%) family income was enough for 10-12 months and more than half of them (55.7%) had one child.

TABLE 2: Respondents' Child Characteristics

n = 70

Variables	**Number**	**Percentage**
Age in completed months		
6-8 months	15	21.4
9-11 months	25	35.7
12-24 months	30	42.9
Sex of child		
Male	38	54.3
Female	32	45.7
Birth order of child		
First	40	57.1
Second	20	28.6
≥Third	10	14.3
Place of delivery of present child		

Institutional delivery	69	98.6
Home delivery	1	1.4

Table 2 illustrates respondents' child characteristics. Nearly half of the children (42.9%) were of 12-24 months of age. More than half (54.3%) of them were male. Nearly three-fifth (57.1%) of the children were born in first order and most of them (98.6) were delivered in an institution.

TABLE 3: Respondents' Complementary Feeding Practices

n= 70

Variables	**Number**	**Percentage**
Practiced exclusive breastfeeding up to six months	55	78.6
Breastfeeding continued with complementary food	62	88.6
Age of child during initiation of complementary feeding		
6 months	39	55.7
<6 months	18	25.7
>6 months	13	18.6
Types of complementary food first introduced to child		
Lito	38	54.3
Cerlac	14	20.0
Jaulo	8	11.4
Rice porridge	6	8.6
Others*	4	5.7
Sufficient time to feed the child		
Yes	64	91.4
No	6	8.6

Table 3 shows respondents' complementary feeding practices. Nearly four-fifth of respondents (78.6%) had practiced exclusive breastfeeding up to 6 months of age and most of them (88.6%) are continuing breastfeeding to their child. More than half of the respondents initiated complementary feeding at 6 months of age (55.7%) and majority of them (54.3%) introduced lito as the first complementary food followed by Cerlac (20.0%). Most of the respondents (91.4%) had sufficient time to feed their child.

TABLE 4: Respondents' Status of Complementary Feeding Practices according to Different Age Groups of Children

n= 70

Age Groups	**Complementary Feeding Practices**		
	Met Minimum Dietary Diversity	**Met Minimum Meal Frequency**	**Met Minimum Acceptable Diet**
	No. (%)	**No. (%)**	**No. (%)**
6-8 months (n= 15)	2 (13.3)	13 (86.7)	2 (13.3)
9-11 months (n= 25)	17 (68.0)	25 (100.0)	17 (68.0)
12-24 months (n=30)	26 (86.7)	30 (100.0)	26 (86.7)

Table 4 demonstrates respondents' status of complementary feeding practices according to different age groups of children. Minimum Dietary Diversity is higher in 12-24 months children (86.7%)

and lowest in 6-8 months children (13.3%). All of children of 9-24 months of age have met Minimum Meal Frequency whereas 13.3% of children of 6-8 months of age have not met the criteria of Minimum Meal Frequency.

TABLE 5: Respondents' Status of Complementary Feeding Practices among Under 2 years Children

n= 70

Practice	Number	Percentage
Minimum Dietary Diversity		
Met	45	64.3
Not met	25	35.7
Minimum Meal Frequency		
Met	68	97.1
Not met	2	2.9
Minimum Acceptable diet		
Met	45	64.3
Not met	25	35.7

Table 5 illustrates respondents' status of complementary feeding practices among under 2 years children. Minimum Dietary Diversity is met by 64.3% of children, Minimum Meal Frequency by 97.1% of children and Minimum Acceptable Diet by 64.3%.

TABLE 6: Association between Status of Complementary Feeding Practices and Selected Variables

n= 70

Variables	Status of Complementary Feeding Practices		χ^2	p- value
	Yes/no. (%)	No/no. (%)		
Age				
<=28	21(53.8)	18(46.2)	4.180	0.041
>28	24(77.4)	7(22.6)		
Educational level				
Primary level and below	7(10.1)	4(5.7)	1.997	0.422*
Secondary level	24(34.2)	17(24.3)	*	
Bachelor's level and above	14(20.0)	4(5.7)		
Age of present child				
6-8 months	2(2.9)	13(18.6)	23.657	<0.001
9-11 months	17(24.3)	8(11.4)		
12-24 months	26(37.1)	4(5.7)		
Sex of present child				
Male	25(35.7)	13(18.6)	0.082	0.775
Female	20(28.6)	12(17.1)		
Having information about complementary feeding				
Yes	37(67.3)	18(32.7)	0.997	0.318
No	8(53.3)	7(46.7)		

Table 6 illustrates that statistically; status of complementary feeding practices is significantly associated with age of respondents (p-value= 0.041) and age of present child (p-value<0.001) whereas there is no significant association between status of complementary feeding practices and other selected variables.

DISCUSSION

The descriptive cross-sectional study was used to find out the status of complementary feeding practices

among mothers having under 2 years child. It is organized around the major variables including socio-demographic characteristics of mother, maternal and child characteristics, as well as the association of these variables with dependent variable i.e., status of complementary feeding practices with emphasizes on Minimum Acceptable Diet.

This study shows that out of 70 mothers, 78.6% of them have practiced exclusive breastfeeding up to 6 months which is similar to a study carried out in Nepal where majority of mothers (75.9%) practiced exclusive breastfeeding. The present study reveals that 88.6% of mothers have been breastfeeding their children along with feeding complementary foods which is similar to the study conducted in India where 87.8% of mothers have been continuing breastfeeding even after feeding complementary foods [9]. The findings of this study manifest that more than half of the mothers (55.7%) have timely introduced complementary feeding to their child which is supported by a study carried out in Nepal where 57.4% of mothers have timely initiated complementary feeding [10]. The present study reveals that major reason for early initiation of complementary feeding is no enough breast milk (61.1%) which is similar to a study conducted in Nepal where the major reason for early initiation of complementary feeding is no enough breast milk i.e. 80% [8]. This study shows that the major reason for delayed initiation of complementary feeding is sufficient breast milk (84.6%) which is supported by a study carried out in Nepal where the major reason for delayed initiation of complementary feeding is sufficient breast milk i.e. 75% [7]. This study reveals lito (54.3%) is type of complementary food introduced to child first which is contradictory to a study carried out in Nepal where rice porridge is the complementary food introduced to child first and only 24.9% of mothers introduced lito as the first food to the child [8].

The present study reveals that 91.4% of mothers prepare food for one feed only and 74.3% of them have separate utensils to feed their child. It is supported by a study conducted in Nepal where 94.9% of mothers prepare food for one feed only and 67.5% of them have separate utensils to feed their child[8]. This study shows that all of the mothers i.e., 100% wash their hands before preparation of complementary foods which is similar to a study conducted in India where 91% of mothers wash their hands before preparation of complementary foods [11].

This study shows that only 13.3% of children from 6-8 months of age have met Minimum Acceptable Diet which is similar to a study carried out in Nepal where 33.3% of children from 6-8 months of age have met MAD [8]. The present study shows that 68% of children from 9-11 months of age and 86% of children from 12-24 months of age have met MAD which is contradictory to a study carried out in Nepal where 21.5% of children from 9-11 months of age and 28.6% of children from 12-24 months of age have met MAD [8].The findings of this study manifest that 64.3% of children under 2 years of age have met Minimum Acceptable Diet and 97.1% have met Minimum Meal Frequency. In contrast, a study carried out in Nepal shows that only 49.4% of children under 2 years of age have met Minimum Acceptable Diet and 67.3% have met Minimum Meal Frequency [12] and a study conducted in Nigeria shows only 25.4% of children under 2 years of age have met MAD and 36.3% of them have met MMF (Afolabi *et al.*, 2021). It might be because of the raised concerns among mothers regarding complementary feeding practices. This study shows that 64.3% of children under 2 years of age have met Minimum Dietary Diversity which is similar to the study carried out in Nepal where 67.3% of children

under 2 years of age have met MDD (Adhikari *et al.*, 2021) and is contradictory to a study conducted in Nigeria where only 52.3% of children under 2 years of age have met MDD [13].

The present study reveals that grains/roots/ tuber i.e., the food from group 3 is the most consumed complementary food (94.3%) which is similar to a study conducted in India where 96.25% of children feed on the food from group 3 (Munde & Save, 2021)9 and is contradictory to a study conducted in Nepal where most of the children (28.4%) feed on food from group 2 i.e., pulses/seeds/nuts and only 4.7% feed on food from group [7].

The findings of this study reveal that there is significant association between status of complementary feeding practice and age of mother (p-value=0.041) which is supported by a study conducted in Nepal where the p-value<0.05 [11].

This study shows that there is no significant association between status of complementary feeding practices and educational level of mother (p-value= 0.422). In contradictory, the study conducted by Acharya *et al.* (2018) shows that there is significant association between status of complementary feeding practices and educational level of mother (p-value=0.033). This may be due to the mothers having too little time to prepare food or to feed their child because of diversified occupation [11].

Present study shows that there is significant association between status of complementary feeding practice and age of child (p-value=0.001) which is contradictory to a study conducted in Nepal where p-value>0.05[11]. This may be because of mother's fear to introduce different types of food at an early age of child.

The findings of the study shows that majority of mothers are literate, belonged to Hindu religion and were home makers. Hence, there was no variation in the sample population thereby leading to insignificant association among the selected variables.

Conclusions

Based on the findings of the study, it can be concluded that more than half of the children had adequate complementary feeding practice. The majority of children do not meet adequate Minimum Dietary Diversity and Minimum Acceptable Diet whereas, most of them meet Minimum Meal Frequency. Minimum Dietary Diversity is higher in 12-24 months children and lowest in 6-8 months children. As the child's age increases, there is improvement in complementary feeding practices. Majority of mothers have been continuing breastfeeding along with complementary feeding and two-fifth of mothers don't wash their children's hand before feeding. There is significant association between the status of complementary feeding practices and age of mother

Limitations of the Study

This study was conducted in a single setting and used non probability convenience sampling technique; thus, the findings may not be generalized to larger area or scale. Data collection was based on interviews and relay on the memory of mothers (24hr dietary recall). Hence, there may be the possibility of recall bias and socially desirable response.

Recommendations

Proper knowledge and awareness regarding complementary feeding should be given to mothers focusing on Minimum Dietary Diversity, Minimum Meal Frequency and Minimum Acceptable Diet in order to improve the status of complementary feeding practices of under 2 years children. Mothers should be made aware about washing their children's hand along with their own hands before feeding them. A study can be conducted focusing on factors associated with complementary feeding practices.

REFERENCES

1. World Health Organization. Complementary feeding (2018). Retriived http://www.wo.int/ nutrition/ topics/complementary_feeding/en/
2. World Health Organization. Indicators for assessing infant and young child feeding practices (2021). Retrieved https://www. who.int/publications/i/item/97892400
3. UNICEF. *Nutrition UNICEF (2020).*Retrieved https://www.unicef.org/nutrition
4. R. E. Black, C. G. Victora, S. P. Walker S. P., Z. A. Bhutta, P. Christian, M. De Onis. Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, **382**(9890), 427-451(2013). https:// doi.org/ 10.1016/ S0140-6736(13)60937-X
5. *Nepal Demographic and Health Survey*, (2016). Retrieved fromhttps:// www. dhsprogram. compubs /pdf/fr336/fr336.pdf
6. UNICEF, & WHO. Indicators for assessing infant and young child feeding practices- *UNICEF DATA*, (2021). Retrieved from https://data.unicef.org/resources/indicators-for-assessing-infant-and-young-child-feeding-practices
7. R. Khadka, S. Bista. Knowledge and Practice of Complementary Feeding among the Mothers of the Child Aged 6-24 Months in Tanahu Distirct. *Nepal Article in Journal of Nepal Health Research Council*. (2021). https://doi.org/10.33314/jnhrc.v19i1.3371
8. K. Upadhaya, S.Sharma. Complementary feeding practices and it's associated factors among mothers having under 2 years children at Maternal and Child Health Clinic, Chitwan, Nepal. *International Journal of Medicine and Public Health*, **10**(3), 19-26(2018). https://doi.org/10.9790/1959-1003061926
9. K. K. Munde, & S. U. Save. Complementary feeding practices in children aged 6-23 months: An institution-based observational study.*Indian Journal of Child Health*, ***8***(8), 269–272(2021). https://doi.org/10.32677/IJCH.V8I8.2976
10. D. Acharya, R. Subedi, K. Lee, *et al.*. Correlates of the timely initiation of complementary feeding among children aged 6–23 months in Rupandehi district, Nepal. *Children*, ***5***(8),--(2018). https://doi.org/10.3390/children5080106
11. N. T. Katole, J. S. Kale, M. Kaple, S. M. Waghmare. Knowledge, Attitude, and Practice Analysis among Rural Mothers of 6 to 24 Month Age Child Regarding Complementary Feeding. *Journal of Pharmaceutical Research International*, ***33***(60A), 918–926(2021). https://doi.org/10.9734/JPRI/2021/v33i60A34567
12. N. Adhikari, K. Acharya, D. P. Upadhya *et al.*. Infant and young child feeding practices and its associated factors among mothers of under two years children in a western hilly region of Nepal. *PLoS ONE*, ***16***(12),0261301(202). https:// doi.org/10.1371/journal. pone.0261301 .
13. K. A. Afolabi, A. O. Afolabi, M. Y. J. Omishakin. Complementary feeding and associated factors: Assessing compliance with recommended guidelines among postpartum mothers in Nigeria. *Population Medicine*, ***3***, 1–112021.https://doi. org/10.18332/popmed/138939.