

Original Research Article

Knowledge, attitude and practices about complementary feeding among mothers of children aged 6 to 24 months in tertiary care centre of Kumaun region, India

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ABSTRACT

Background: Well-being of child is directly related to the nutritional status of the baby. Malnutrition rate increases between 6 and 18 months- the period of complementary feeding. Complementary feeding is the introduction of semisolid or solid food in infant who is on breast feeding, when mother's milk is no longer enough to meet the nutritional needs. Understanding the social beliefs, knowledge, attitude and practices about complementary feeding among mothers is an important step prior to designing an intervention strategy to prevent malnutrition in children. Aim of the study was to assess the knowledge, attitude and practices regarding complementary feeding among mothers.

Methods: Prospective study including 200 mothers with children between 6 to 24 months of age in GMC Haldwani, from December 2017 to May 2018.

Results: Present study shows 60.5% mothers initiate their breast milk soon after delivery. The initiation of complementary food at the age of 8 months, 6 month and 4-5 months were 64 (32%), 104(52%) and 32 (16%) respectively. 68% mothers did not properly clean their children hands and utensils before feeding Use of janam ghutti 64% and dilution of cow milk 79% was the major part of complementary feeding.

Conclusions: Mother's knowledge regarding timing of complementary feeding is inadequate and practices are inappropriate. Majority of them are not aware of the current recommendations. It is essential to give accurate information and education about complementary feeding to prevent malnutrition and improve the health status of children.

Keywords: Attitude, Complementary feeding, Knowledge, Practices

INTRODUCTION

Complementary feeding refers to food which complements breast milk and ensures that the child continues to have enough energy, protein and other nutrients to grow normally. After six months of age, breast milk alone is not enough to make an infant grow well. The World Health Organization (WHO) and United

Nations Children's Fund (UNICEF) recommend exclusive breastfeeding (EBF) for six months, i.e. 180 days and addition of complementary foods at six months of age with continued breastfeeding till at least two years.^{1,2}

If complementary foods are not introduced or are given inappropriately at this age, the growth of infants may

falter. Insufficient quality of complementary foods, poor child feeding practices, and high rates of infection have a detrimental impact on health and growth during these important years. During the period of complementary feeding (CF), the young child gradually becomes habituated to eating family foods.

Complementary foods bridge the gap in energy, vitamin A, and iron intake, which occurs in breast-fed infants at six months of age. Too early or too late introduction of CF may lead to nutritional deficiencies of iron, zinc, calcium, and vitamins.³

Therefore, CF needs to be nutritionally adequate and safe and appropriately fed to meet the energy and nutrient needs of the young child. Proper breast feeding, and complementary feeding practices can prevent under five mortality by 19%.⁴ Appropriate complementary feeding depends on accurate information and skilled support from the family, community and healthcare system.

Inadequate Knowledge about appropriate food and feeding practices is often a greater determinant of malnutrition than the lack of food. Knowledge of mothers about these factors will be of help in planning interventions to improve feeding practices. The nutritional status of young children is noted to be influenced by their dietary intake which in turn is determined by the knowledge, attitudes, and practices (KAP) of breastfeeding and complementary feeding by mothers.

As there is a paucity of literature on the complementary feeding practices in this region, the present study was undertaken to find out the practices of complementary feeding among the children aged six months to two years. The result of this study would help in educating and counselling the prospective mothers about complementary feeding.

METHODS

It was a Prospective cross-sectional study, conducted at Department of Pediatrics, Government Medical college, Haldwani, Uttarakhand. This study enrolled 200 mothers of children aged between 6 to 24 months attending immunization center and pediatric OPD of above tertiary care center from December 2017 to May 2018.

Inclusion criteria

Mothers of children between 6 to 24 months of age based on convenience attending for OPD. Mothers of selected children who were willing to participate in the study were interviewed for collecting data after informed consent.

Exclusion criteria

- Mothers with children of aged less than 6 months or more than 24 months,

- Mothers with babies suffering from chronic illness
- Not give consent
- Care takers other than parents accompanying the children

Mothers were administered a detailed printed pre-tested questionnaire, which was filled in by the researcher herself. The questions were in their native language about age of starting complementary feed, their knowledge attitude and practices regarding type, quantity and quality of complementary feeds given.

They were asked about any specific social taboos, food intake during illness, method of preparation of infant's food and hygiene during preparation of food. Other variables addressed were age of the mother, educational status of mother, socio economic status of family and number of children.

The Performa was explained to mother in her native language and after her consent it was filled. Data analysis was performed through SPSS software. Frequencies and percentages were computed to present all categorical variables.

RESULTS

Among the selected 226 mothers, 200 consented to participate in the study giving a response rate of 88%.

Some of the reasons provided by the mothers for not participating in the study were lack of time, not interested in revealing details to the interviewer and objections by the family members to participate in the study.

Average age of the respondents was 27.87±5 years. Commonest age group was 26 to 30 years in which 47.5% respondents were found.

Majority of respondents, 64 (32%) had received primary education, 36 (18%) were illiterate 40 (20%) had received secondary education and 20 (10%) were graduates and 2 (1%) had professional degree. Father income of 81 (40.5%) families was Rs. 5000-10000.

Twenty-three respondents (11.5%) had >2-4 children, 96 (48%) had 1, 81 (40.5%) had 2 children.

Majority of babies having institutional deliveries 192 (96%) and nearly 107 (53.5%) babies belong to nuclear family. Majority of mother are housewife 149 (74.5%).

Table-2 reveals the mother's knowledge about the optimal breast-feeding practices. 121 (60.5%) mothers initiate their breast milk soon after delivery, 53 (26.5%) 1 day after birth, 19 (18.5%) mothers initiate their breast milk 2-3 days after birth while 7 (3.5%) mother had no idea about the initiating of breast-feeding practices.

94 (47%), 74 (37%), 16 (8%), 8 (4%) and 6 (3%) mothers reported that the exclusive breast feeding should be sufficient up to 6 months, 4-5 months, 2-3 months, up to 1 month and no idea respectively.

Table 1: Socio-demographic characteristics of study population n=200.

Variables	(frequency)	(%)
Age of mother		
< 20 year	2	1
21-25 year	36	18
26-30 year	95	47.5
31-35 year	51	25.5
>35 year	16	8
Mother religion		
Hindu	137	68.5
Muslim	63	31.5
Mother occupation		
Working	51	25.5
House wife	149	74.5
Mother education		
Illiterate	36	18
Primary	64	32
Secondary	40	40
Higher secondary	26	26
Graduate	20	20
Postgraduate	12	12
Professional	2	1
Family type		
Nuclear	107	53.5
Joint	93	46.5
Children in family		
One	96	48
Two	81	40.5
More than two	23	11.5
Institutional delivery		
Yes	192	96
No	8	4
Father income per month in rupee		
0-5000	10	5
5000-10000	81	40.5
10000-15000	53	26.5
15000-20000	35	17.5
>20000	21	10.5

The initiation of complementary food at the age of 8 months, 6 month and 4-5 months were 64 (32%), 104(52%) and 32 (16%) respectively.

The frequencies recorded for complementary food were 126(63%) twice a day and 74(37%) thrice a day.

The understanding and basic knowledge about preparation of complementary foods from home made and commercially availability were 124 (62%) and 76 (38%) respectively.

Table 2: Mothers knowledge about complementary feeding (total N=200).

Knowledge in mother	frequency	%
Initiation of breast feeding after birth		
Soon after birth	121	61
1 day after birth	53	27
2-3 days after birth	19	10
No idea	7	3.5
Exclusive breast feeding		
Up to 6 months	94	47
4-5 months	74	37
2-3 months	16	8
Up to 1 months	8	4
Not given	6	3
Initiation of complementary feeding		
at 8 months	64	32
at 6 months	104	52
at 4-5 months	32	16
Frequency of Complementary feeding		
Twice a day	126	63
Thrice a day	74	37
Knowledge about complementary foods		
Home- made	124	62
Commercially available	76	36
Source of knowledge of commercially available complementary foods items		
Health professional	49	24.5
Family	104	52
Electronic Media	25	12.5
Relatives	22	11
Knowledge about iron rich food		
Yes	48	24
No idea	152	76
Knowledge about adding iodized salt		
Yes	114	57
No idea	86	43
How to increase calorie of food		
Yes	18	9
No idea	182	91
Continuation of breast feed after 6 months		
Yes	88	44
No	112	56

The main source of knowledge regarding complementary foods items were family 104 (52%) followed by healthcare professional, electronic media and relatives respectively. 48 (24%) mothers knew about the use of iron rich food, 114 (57%) use of iodized salt and 152 (76%) and 86 (43%) had no idea respectively. 91% (182) mothers had no idea that how to increase calorie of food and only 88 (44%) mother had knowledge of continuation of breastfeed after 6 months.

Table 3 reveals about the mother's attitude about the complementary feeding practices. 136 (78%) mothers reported that the different food groups should be selected

for complementary feeding for maintaining dietary diversity and variety of food for balanced food.

Table 3: Mother's attitude about Complementary feeding (Total n=200).

Attitude	N=200	%
Dietary diversity (different food groups)	136	78%
Complementary feeding practices and frequency during illness		
Decrease quantity and frequency of food during illness	96	48%
Withheld quantity and frequency of food during illness	28	14%
Maintain same quantity and frequency during illness	54	27%
Increase food quantity and frequency during illness	22	11%
Cultural and Social food taboos		
Mothers believes on food taboos	110	55%
Banana, Yogurt and Rice as a cold food	76	38%
Meat, Pulses, Nuts and egg are hot and hard to digest	68	34%
Preferences about complementary foods		
Home- made	98	49%
Commercially available foods	52	26%
Both (Homemade and commercially available)	50	25%
Mother's preferences about preparation of complementary foods		
Prepare separately CF for children	62	31%
Prepare combine as an adult food	138	79%
Preferred food in complementary feeding		
Roti/ bread	12	6%
Vegetables	11	5.5%
Cow milk	108	54%
Fruits / juices	8	4%
Khichdi / Daal - chaawal	61	30.5%

The mother's attitude about feeding during illness was also recorded. 48% (96) mothers reported the quantity and frequency should be decreased during illness. 14% (28) withheld the quantity and frequency, 27% (54) maintain same quantity and amount and only 11% (22) reported to increase the amount and frequency during child illnesses.

In the study the mother's believes about cultural and social food taboos were also inquired. 110 (55%) mothers believes on food taboos and are related to children illnesses if included in complementary foods, out of which 76 (38%) believes that Banana, yogurt and rice are cold in nature that can cause chest infection or cough if introduced in complementary feeding and 68 (34%) reported that meat, pulses, nuts and egg are hot and hard in nature to digest that can cause diarrhea or lose motion

in children if included in the complementary feeding of children.

Table 4: Mothers practices about complementary feeding (total n= 200).

Practices	frequency	%
Method of feeding by mother		
By making the child sit on lap	124	62%
By making the child sit on chair	48	24%
Leaving the child to roam around	28	14%
Uses of Janam ghutti		
Yes	128	64%
No	72	36%
Dilution of top milk in complementary feed		
Yes	158	79%
no	42	21%
Consistency of complementary food mostly		
Solid	74	37%
Liquid	58	29%
semisolid	68	34%
Use of oil / ghee		
Yes	69	38.5%
No	131	65.5%
Continuation of CF during fever/ vomiting/ diarrhoea		
Continued	64	32%
Discontinued	136	78%

Mother's food preferences and preparation were also recorded, 98 (49%) and 52 (26%) preferred homemade and commercially available complementary foods respectively while 50 (25%) preferred both homemade as well as commercially available complementary foods to feed the children.

62 (31%) mothers preferred that separate complementary food should be prepared while 138 (79%) mothers preferred that the routine food prepared for the rest of the family is fed to children as well as a complementary food and no separate food is prepared.

This table also shows predominance of cow's milk (54%) as major food item to complementary food. This was followed by rice-based preparations (30.5%) (e.g. khichdi).

Table 4 shows that use of janam ghutti 64% and dilution of cow milk 79% was the major part of complementary feeding.

65.5% mother did not use oil in complementary feeding and 78% mother discontinued baby feed during fever / vomiting / diarrhoea.

Table 5 shows the hygiene practices in food preparation and during feeding. 32% mothers did not wash their

hands after defecation. 68% mothers did not properly clean their children hands and utensils before feeding.

Table 5: Hygiene practices in mothers (n=200).

Hygiene practices	frequency	%
Clean hands and utensils before feeding		
Yes	168	84%
no	32	16%
Wash hands of children before feeding		
Yes	132	66%
No	68	34%
Cover foods after cooking		
Yes	124	62%
No	76	38%
Reheat leftover foods before serving		
Yes	94	47%
no	106	53%

Washing of the children's hands before feeding was not a popular practice among the slum mothers. 38% mothers did not cover foods after cooking. 53% mothers did not reheat the leftover foods before serving. 62% mother feed their child by sitting on her lap.

DISCUSSION

Optimum nutrition is essential for proper growth and development of infant. Review of literature revealed that there are wide variations in infant feeding influenced by various social and demographic variables.

In this study we sought to establish the age when complementary feed was started, duration of breast feeding, what items were given as complementary feed and various other aspects related to the subject. The knowledge regarding breast feeding was high; the initiation of breastfeeding soon after birth was universal.

For successful lactation, timely initiation of breastfeeding i.e. within ½ hour of normal delivery and within four hours of caesarean delivery is essential.

In present study 61% of the total mothers knew about this fact. Likewise, 47% mothers knew about correct period of exclusive breastfeeding. This dismal picture about breastfeeding is reflected in other studies also.

Karnawat et al did a study on knowledge and attitude of hospital employees of Jodhpur (Rajasthan) regarding infant feeding practices which revealed that nearly 66% doctors favored to initiate breastfeeding on first day while 60% paramedical and 96% class IV wished to start it on 2nd or 3rd day whereas in present study all mothers-initiated breastfeeding on first day.⁵

Taneja et al conducted a study on rural health centre in Delhi and found that most of the infants (90.6%) were breastfed up to 6 months of age but exclusive

breastfeeding was uncommon (26.4%) whereas in present study it was 47%.⁶

This study revealed that introduction of complementary feeding beyond eight months of age was found in 32 % of mothers only. These findings are nearly similar to the studies done by Vaahtera M et al.⁷

Current study revealed that 52% of total mothers were knowledgeable about correct age (i.e. six months) of start of complementary feeding. Taneja et al in their study found that 40.6% infant's top milk or semisolids were started before 4 months of age in addition to breast milk whereas in present study only 23% started complementary feeds by 6 months of age.⁶

They also reported that semisolid foods were started in only half the children at 6 month of age and even at 9 months of age, one-fourth of the infants were not receiving appropriate semisolid feed. Yadav et al in their study found that only 55% mothers introduced supplements to their infants between 6-12 months.⁸ In present study complementary feed (CF) was given thrice a day in 37%. This is similar to study by agrawal et al.⁹

Results of a study in north western Nigeria showed that only 28% of mothers washed their hands before preparing foods, and 19% always sterilized feeding bottles (20).¹⁰ Microbial contamination of CF is a major cause of diarrhoea, which is particularly common among slum children in Dhaka.

In the present study, 32% mothers did not wash their hands after defecation. 68% mothers did not properly clean their children hands and utensils before feeding. Washing of the children's hands before feeding was not a popular practice among the slum mothers. 38% mothers did not cover foods after cooking

Present study highlights more frequent use (64%) of janam ghutti and animal milk dilution (79%) by mothers. Similarly, Karnawat et al reported in their study that 79% of class IV employees gave janam ghutti and jaggery as prelacteal feed.⁵ Ideally, we should discourage the use of janam ghutti, gripe water or any other prelacteal feeds because evidently they affect successful lactation and are potential source of infection.

Corroborating with our findings on dilution of cow milk, Taneja et al reported that the practice of diluting milk was nearly universal (95.3%).⁶ Most of the mother's resort to dilution of animal milk thinking that it will make milk easily digestible. Ideally mothers should not follow the practice of diluting animal milk because it will decrease the nutritional value of milk as well as increase the chances of infection

Cereal based food alone is not sufficient, in order to prevent micronutrient deficiency milk, legume, fruits, and vegetables should be integral part of complementary food

of children.¹¹ In present study food diversity present around 78 %.

CONCLUSION

This study showing most of the mother timely start their breast feeding but most mother unable to continue after 6 months. It is evident from above results that there is lack of knowledge, wrong attitude and faulty practices among mothers in some vital aspects of complementary feeding. Poor knowledge of mothers about universal need and importance of human milk, timely initiation of breastfeeding, duration of exclusive breastfeeding and total duration of breastfeeding and unnecessary practice of using *janam ghutti*; because these practices substantially contribute to lactation failure and subsequent man-made malnutrition. Likewise lack of knowledge about correct age of initiation, frequency and consistency of complementary feeding among all mothers and poor knowledge of mothers about diet of one-year old child and common practice of diluting animal milk again lead to perpetuation of malnutrition.

This study suggests an urgent need for honest efforts to increase girl child education, female literacy and dissemination of information through mass media and education of mothers during antenatal visits and immunization sessions about optimal breastfeeding and complementary feeding practices at the community level.

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REFERENCES

1. Kramer MS, Kakuma R. Optimal duration of exclusive breastfeeding. *Cochr Database Syst Rev*. 2002;1(1).
2. World Health Organization. Complementary feeding - Report of the global consultation Summary of Guiding principles Geneva. 2001. Available at: www.who.int/entity/nutrition/publications/infantfeeding/Complementary_Feeding.pdf
3. Pan American Health Organization. Guiding principles for complementary feeding of the breastfed child. Washington, DC: Pan American Health Organization. 2002:37.
4. Jones G, Stekette RW, Black RE, Bhutta ZA, Morris SS. How many child deaths can we prevent this year? *Lancet*. 2003;362:65-71.
5. Karnawat BS, Singh RN, Gupta BD, Chaudhary SP. Knowledge and attitudes of hospital employees regarding infant feeding practices. *Indian Pediatr*. 1987;24:939-48.
6. Taneja DK, Saha R, Dabas P, Gautam VP, Tripathy Y, Mehra M. Study of infant feeding practices and the underlying factors in a rural area of Delhi. *Indian J Community Med*. 2003;28:107-11.
7. Vaahetra M, Kulmala T, Hietanen A, Natekha M, Cullinana T, Salin ML, et al. Breast feeding and complementary feeding practices in rural Malawi. *Acta Pediatr*. 2001;90:328-32.
8. Yadav RJ, Singh P. Knowledge attitude and practices of mothers about breast feeding in Bihar. *Indian J Community Med*. 2004;29(3):130-1.
9. Aggarwal A, Verma S, Faridi MMA, Dayachand. Complementary feeding- reasons for inappropriateness in timing, quantity and consistency. *Indian J Pediatr*. 2008;75:49-53.
10. Matthew AK, Amodu AD, Sani I, Solomon SD. Infant feeding practices and nutritional status of children in North Western Nigeria. *Asian J Clin Nutr*. 2009;1:1222.
11. National family health survey (NFHS-3), 2005-06 report india. Available at: rchiips.org/nfhs/nfhs3.shtml

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