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A study on feeding practices of severe acute malnourished infants aged 06-24 months admitted in malnutrition treatment centre of Bikaner, Rajasthan

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Abstract

Infant feeding practices are critical determinants of survival, growth and development during infancy. Breastfeeding is required for child survival, birth spacing and prevention of childhood infections. Complementary feeding is essential from six months of age while continuing breastfeeding to meet the needs of the growing baby, hence the aim of present research was to study the feeding practices of severely acute malnourished infants aged 06 to 24 months admitted in the malnutrition treatment centre of PBM government hospital of Bikaner district, Rajasthan. A total of 84 mothers were interviewed who were randomly selected from the malnutrition treatment centre in this cross-sectional study. Results observed that out of 84 mothers, maximum mothers (66.29%) breastfed their child at the time of study period. Mothers who discontinued breastfeeding was due to insufficient milk secretion (59.38%). Only 22.62 per cent of mothers have breastfed their child within one hour. Only 32.14 per cent were exclusively breastfed their child. Around 36.90 per cent of mothers provided colostrum to their infants and others were discarded. Most common reason for discarding colostrum was due to advised by the elderly (50.94%). Maximum mothers gave pre-lacteal feed (72.62%). Majority of mothers still using *ghutti* and honey as a pre-lacteal feed. Most of the children (44.05%) had received complementary feeding during 6-9 months of age but many infants (39.29%) received before 6 months. Due to lack of knowledge regarding feeding practices and some cultural beliefs, awareness about the correct feeding practices was low. This indicates that improving knowledge of mothers about infant feeding practices will help in improving children's nutritional status.

Keywords: Malnutrition, infant feeding practices, exclusive breastfeeding, pre-lacteal feed, colostrum, complementary feeding

Introduction

Good nutrition is vital to ensure that the infant develops both physically and mentally to the fullest potential. Poor feeding practices are a major threat to social and economic development. According to the American Academy of Pediatrics, research shows that breastfeeding provides advantages with regard to general health, growth and development. Not breastfeeding significantly increases risk for a large number of acute and chronic diseases including lower respiratory infection, ear infections, bacteremia, bacterial meningitis, urinary tract infection, and necrotizing enterocolitis. Poor infant feeding practices and their consequences are one of the world's major problems and a serious obstacle to social and economic development. It is not only a problem of the developing world, but it also occurs in many parts of the developed world as well (Tundia *et al.*, 2018) ^[1].

Today, malnutrition is a major public health problem in India. Malnutrition is not only influenced by factors, such as poverty, lack of health care, unsanitary conditions, lack of food, but also by social, & cultural factors including poor caring practices & behaviour of mother regarding breastfeeding & complementary feeding practices. The link between malnutrition and infant feeding has been well established. In spite of implementation of national guidelines of Infant & Young Child Feeding (IYCF) practices in India, rate of exclusive breastfeeding and complementary feeding are still poor. According to NFHS 4, only 55 per cent of children were exclusively breastfed & only 43 per cent of children were started complimentary feeding between 6-9 months at national level (NFHS-4, 2015-16) ^[2].

Infant mortality and morbidity are important measures of a nation's health because of their association with a variety of factors such as maternal health, quality of medical care, socioeconomic conditions and public health practices (Habib *et al.*, 2015) ^[3]. Various studies in India have shown that respiratory and gastrointestinal tract infections are the leading cause of morbidity in infants. These infectious diseases are affected by several sociodemographic

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factors such as birth weight, gestational age, birth order, immunization status, daycare attendance and socio-economic status of the family (Sreedevi and Rao, 2009) [4]. Hence, the present study was done to assess the feeding practices of severely acute malnourished infants aged 06 to 24 months admitted in the malnutrition treatment centre.

Methods and Materials

The study was undertaken at Malnutrition Treatment Centre (MTC) of P.B.M government hospital of Bikaner district. Written permission was taken for the study from the department of pediatrics. The study was conducted for a period of four months.

Study design: It was a cross-sectional study.

Selection of subjects: Those infants who were diagnosed malnourished and admitted in the MTC at P.B.M. government hospital during the study period were included in the study. Mothers with infants aged 06 to 24 months were interviewed by the investigator for the present study.

Inclusion criteria

1. Age between 06 to 24 months
2. Presence of malnutrition
3. Either gender male or female
4. Mother of subjects willing to cooperate during the study

Exclusion criteria

Registered infants aged 06 to 24 months of age whose parents did not consent to be part of the study.

Sample size: Total of 84 mothers willingly participated in the study.

Data collection procedure: A well-structured interview schedule was developed for obtaining the requisite information about all the subjects by personally interviewing mothers. The schedule was approved by the experts before implementation on the subjects. The purpose of the study and procedure were explained to them.

General information of the child like gender, age, religion, birth weight, caste, educational and occupation level of parents were collected through personal interview of respondent's mother. The data regarding feeding practices like breastfeeding, colostrum feeding, pre-lacteal feed, exclusive breastfeeding and complementary feeding was collected through interviewing of a mother. Questions were probed to the individual mother in a comfortable environment and the responses were recorded.

Statistical analysis

Data were entered in Microsoft Excel and analysed. The necessary tables were prepared and data were presented in percentages.

Results

General information about infants and their parents

Table (1) indicates the general information of the child and parents. It showed that mothers belonged to the age group of below 18 years (9.52%), 19-23 years (45.24), 24-29 years (32.14%), 30-35 (7.14%) and few above 35 years (5.95%)

respectively. It can also be inferred from table (1) that a higher percentage of the mothers were younger in age. Mahmood *et al.*, (2012) [5] also reported that most of the mothers were aged less than 30 years (78.04%) which is in the agreement of our results. In case of the infant's age, 53.57 per cent were found in the age group of 06-12 months, 38.10 per cent in the age group of 13-18 months and 8.33 per cent belonged to the age group of 19-24 months. It is very clear from table (1) that among 84 subjects, the highest percentage of the infants was in the age group of 6-12 months. This shows that children are highly malnourished in this age group during the study. Jena *et al.*, (2019) [6] also found that the most common age group affected by malnutrition was 6-12 months of infants.

In a present study, the total subjects of 84 comprised of 48.86 per cent male infant, while 51.14 per cent were female infants belonging to the age group of 6-24 months.

A baby's weight at birth is a strong indicator of maternal and newborn health and nutrition. In a present study, maximum subjects (46.43%) were born with low birth weight which is less than 2.5 kg, 33.33 per cent were having birth weight from 2.5 to 3.0 kg, only 4.76 per cent were having birth weight of >3 kg and 15.48 per cent don't have a birth weight record due to home delivery or was not able to recall the birth weight of their child. Same was recorded by Sethi *et al.*, (2016) [7] in Rajasthan, where 35 per cent of infants were having a birth weight of less than 2.5 kg, 44 per cent were having birth weight from 2.5 to 3.0 kg and 17.8 per cent of newborns were having a birth weight of >3.0 kg.

Majority of the subjects (88.10%) were from the Hindu community and only 11.90 per cent were from the Muslim religion. None of the subjects belonged to other religion of society. Choudhary *et al.*, (2015) [8] also found the majority of the cases i.e., 88 per cent were Hindus.

As regarding to caste of all the subjects (n=84), it was found that majority of the respondents (78.57%) belonged to scheduled caste followed by 17.86 per cent of OBC category (other backward class) and only 3.57 per cent of subjects belonged general caste, respectively.

Information about the education level of parents of the subjects was also gathered. Education of parents is very important in upbringing of a healthy child. Most of the fathers of infants i.e. 55.95 per cent were illiterate, 26.19 per cent were educated up to the primary level whereas, 14.26 and 2.38 per cent were educated up to secondary and higher secondary level. Only 1.19 per cent were educated up to the intermediate level. Educational level of the mothers showed that most of the infant's mothers were illiterate (82.14%), 13.10 per cent were educated up to the primary level and 3.57 per cent were studied up to the secondary level. Only 1.19 per cent were educated up to the higher secondary. None of the mother of the subjects was educated up to the intermediate and above. Mahmood *et al.*, (2012) [6] also found in their study that most of the mothers were illiterate (69.9%).

Occupational level of the parents showed that most of the fathers (75%) of the subjects were working as labourers, 17.86 per cent were in private jobs followed by 5.95 per cent were self-employment and remaining (1.19%) were in farming. More than half of the mothers (60.71%) were housewives, 25 per cent were engaged in self-employment and 11.90 per cent were labourers while remaining (1.19% in both) was found in private jobs and farming.

Table 1: General information of the infants and their parents

Characteristics	No. of Subjects (n=84)	Percentage
Age of the infant's mother (in years)		
<18	8	9.52
19-23	38	45.24
24-29	27	32.14
30-35	6	7.14
> 35	5	5.95
Age of the infants (in months)		
6-12	45	53.57
13-18	32	38.10
19-24	7	8.33
Gender		
Male	43	51.19
Female	41	48.81
Birth weight of the child (in Kg)		
<2.5	39	46.43
2.5-3.0	28	33.33
>3.0	4	4.76
Don't know	13	15.48
Religion		
Hindu	74	88.10
Muslim	10	11.90
Caste		
General	3	3.57
Other backward class	15	17.86
Scheduled caste	66	78.57
Educational level of the parents		
Father		
Illiterate	47	55.95
Primary level	22	26.19
Secondary level	12	14.26
Higher secondary	2	2.38
Intermediate and above	1	1.19
Mother		
Illiterate	69	82.14
Primary level	11	13.10
Secondary level	3	3.57
Higher secondary	1	1.19
Intermediate and above	0	0
Occupational status of the parents		
Father		
Private job	15	17.86
Self-employment	5	5.95
Laborer	63	75.00
Farmer	1	1.19
Mother		
Housewife	51	60.71
Private job	1	1.19
Self-employment	21	25.00
Laborer	10	11.90
Farmer	1	1.19

Feeding practices of the infants

Table (2) shows the information related to the feeding practices of infants. Breastfeeding is the best method of infant feeding to meet the nutritional, metabolic and physiological needs of the baby. Out of 84 infants, 61.90 per cent were breastfed at the time of the study. Whereas, 20.24 per cent mothers reported that they were breastfed their child below 6th months and 17.86 per cent were above 6th months. The most common reason for discontinuing breastfeeding was found due to insufficient milk secretion (59.38%) and 28.13 per cent due to infant refused. Some mothers (9.37% and 3.12%) reported that they discontinued breastfeeding due to child's ill-health or mother weakness. Kumar *et al.*, (2015) [9] also

reported that inadequate milk secretion (68.85%) was the most common cause for discontinuing breastmilk.

Government of India (2006) [10] recommends that initiation of breastfeeding should begin immediately after birth, preferably within one hour. In a present study, only 22.62 per cent of mothers have breastfed their child within one hour. Findings of NFHS-4 (2015-16) [11] indicated that 28.4 per cent of children in Rajasthan were breastfed within one hour of the birth. About half of the mothers (48.81%) in a study were initiated between 1-24 hours followed by 17.86 per cent getting the first fed on a second day. Whereas, few infants (5.95% and 4.76%) getting their first fed on the third day or even after three days.

Breastmilk contains all the nutrients needed by children in the first six months of life and is an uncontaminated nutritional source. NFHS-4, (2015-16) [11] recommended that children be exclusively breastfed in the first six months of their life. But in a present study, only 32.14 per cent were exclusively breastfed their child while 67.86 per cent didn't exclusively breastfeed their child up to six months and started weaning food before 6 months. Acharya and Meena, (2015) [12] also found almost similar result regarding breastfeeding practice in Bikaner, Rajasthan and reported that only 38 per cent of the mothers did the exclusively breastfeeding until 6 months and started weaning food after 6 months.

Colostrum is nature's protection of the infant against childhood infections especially during the first year of life. They discarded the most precious component of breast milk due to the people's wrong belief (Samdarshi *et al.*, 2016) [13]. Every child should receive colostrum but in a present study, only 36.90 per cent mothers provide colostrum to their infants, while more than half of the mothers (53.10%) discarded it. Data showed that the most common reason stated by mothers for discarding colostrum was due to advised by the elders (50.94%) whereas, about 28.30 and 15.10 per cent mothers of the study thought that colostrum was not good for the child and unhygienic. While 5.77 per cent of mothers didn't breastfeed due to inability of a child to suck. Likewise, Singh *et al.*, (2017) [14] found that about 47.61 per cent discarded colostrum while 52.38 per cent of mothers provide colostrum to their infants. Narkhede *et al.*, (2011) [15] also found the main reason for not giving colostrum was advised by the elderly.

Ideally, nothing should be given to infant up to 6 months of age but due to the wrong beliefs and culture, pre-lacteal feed is good to the newborn. It is one of the causes of infections in the newborn (Samdarshi *et al.*, 2016) [13]. A data on pre-lacteal feed in a present study revealed that only 27.38 per cent infants didn't receive any pre-lacteal feed but majority of mothers (72.62%) gave pre-lacteal feed to the child such as *ghutti* (34.43%), honey (21.31%), jaggery water (11.47%), sugar water (3.28%), plain water (6.56%), artificial milk (3.28%), animal milk (14.75%) and few mothers (4.92%) also gave *jaifal*, tea and carom seed water, respectively. Certain social customs prevalent among the lower socioeconomic group may be responsible for pre-lacteal feeding practices. This is consistent with the findings of Tundia *et al.*, (2018) [16] in Rajasthan, where 69.05 per cent mothers gave pre-lacteal feeds to their babies. The percentage of mothers of rural areas of Rajasthan provided pre-lacteal feeds as *ghutti* (30%) and honey (30%) as reported by Saroha *et al.*, (2015) [17]

Breastmilk is no longer enough to meet the nutritional needs of the infant; therefore, complementary foods should be added to the diet of the child after six months (NFHS-4, 2015-16) [11]. In the present study, it was found that most of the children

(44.05%) had received complementary feeding during 6-9 months of age, 39.29 per cent had received it before 6 months of age, 7.14 per cent between 9-12 months and some children (9.52%) also received after 12 months. These finding from the present study is similar to the study done by Pansari *et al*, (2017) [18] in the north-western part of Rajasthan, where about 38.6 per cent mothers introduced complementary feed before 6 months of age while 47.3 per cent introduced at 6 months of age.

Table 2: Feeding practices of infants

Characteristics	No. of Subjects (n=84)	Percentage
Practice of breastfeeding		
Yes, still feeding	52	61.90
Below 6 months	17	20.24
Over 6 months	15	17.86
Reasons for discontinuing breastfeeding		
Insufficient secretion of breast feeding	19	59.38
Infant refused	9	28.13
Child ill	3	9.37
Mother weak	1	3.12
Initiation of breastfeeding		
Within 1 hour	19	22.62
1-24 hours	41	48.81
Second day	15	17.86
Third day	5	5.95
After three days	4	4.76
Frequency of breastfeeding		
On demand	76	90.48
Fixed intervals	8	9.52
Exclusively breastfed		
Yes	27	32.14
No	57	67.86
Colostrum given		
Yes	31	36.90
No	53	63.10
Reasons for not giving colostrum		
Advised by elderly	27	50.94
Not good for child	15	28.30
Child could not suck	3	5.66
Unhygienic	8	15.10
Pre-lacteal feed given		
Yes	61	72.62
No	23	27.38
Type of pre-lacteal feed given		
Plain water	4	6.56
Sugar water	2	3.28
Jaggery water	7	11.47
Honey	13	21.31
Ghutti	21	34.43
Artificial milk	2	3.28
Animal milk	9	14.75
Other (jaifal, tea and ajwain water)	3	4.92
Age of initiation of complementary feeding		
< 6 months	33	39.29
6-9 months	37	44.05
9-12 months	6	7.14
Above 12 months	8	9.52

Conclusion

Socio-economic conditions, poor feeding practices together with high rates of morbidity from infectious diseases are the prime proximate cause of malnutrition. Some cultural practices like giving pre-lacteal feeds, discarded colostrum, late initiation of breastfeeding after birth, starting

supplementary foods early and avoiding exclusive breastfeeding are commonly found practices in communities around the world. The study shows that due to lacked knowledge regarding feeding practices and some cultural beliefs, awareness about the correct feeding practices was low. This indicates that improving knowledge of mothers about infant feeding practices will help in improving children's nutritional status.

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