

## Original Research Article

# Exclusive breastfeeding and infection amongst children in Northern Kerala

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**Received:** 02 January 2020

**Revised:** 21 January 2020

**Accepted:** 22 January 2020

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### ABSTRACT

**Background:** Breastfeeding is regarded as a perfect, natural and protective food for newborns. Early initiation of breast feeding within first hour of birth along with exclusive breastfeeding for the first six months followed by continued breast feeding for up to two years is the most appropriate feeding strategy.

**Methods:** A cross sectional study was conducted among 89 children in the age group one year six months to five years in Malapuram district. Convenient sampling technique was used to interview mothers. Results were expressed as percentages and proportions. Chi square test was used to test the association between the variables.

**Results:** A total of 89 children were studied out of which 51.7% (46) were females. All the mothers are educated and Most of them are homemakers. Normal vaginal delivery was the common mode of delivery in 55.1% and colostrum was given to 97.8% children. Breast feeding was initiated within half an hour for 47 (52.8%) children. Only 62.9% of the children were exclusively breastfed for 6 months. Only 1 child was unimmunized and 96.6% of the children were fully immunized.

**Conclusions:** The children who were exclusively breastfed had less infections compared to children who were non-exclusively breast fed. It is had less infections, not handless infections.

**Keywords:** Breast feeding, Infections, Top feeding

### INTRODUCTION

Breast feeding continues to serve as an appropriate method through which newborns are offered essential nutrients necessary for optimal growth and intellectual development. It is regarded as the perfect, natural and protective food for newborns.<sup>1</sup> The World Health Organization suggests that early initiation of breast feeding within first hour of birth along with exclusive breastfeeding for the first six months followed by continued breast feeding for up to two years is the most appropriate feeding strategy.

Under any circumstances, breast milk is the ideal food for the infant. No other food is required by the baby until 6 months after birth.<sup>2</sup> Under normal conditions, Indian mothers secrete 450 to 600 ml of milk daily with 1.1 gm protein per 100 ml. The energy value of human milk is 70 kcal per 100 ml. A child who is breast fed has greater chances of survival than an artificially fed child. Prolonged breast feeding protects the infant from early malnutrition and some infections.<sup>2</sup> Lower risk of otitis, colic and UTI occurrence and lower frequency of doctor visits, and antibiotic prescriptions were reported in cases of longer duration of breast feeding.<sup>3</sup> Exclusive

breastfeeding has also been found to be protective against diarrhea and acute respiratory tract infections.<sup>4</sup>

Infant mortality rates in developing countries are 5-10 times higher among children who have either not been breast fed or breast fed less than 6 months.<sup>2</sup> Exclusive breast feeding for 6 months protects the child against the major childhood diseases like diarrhea, gastrointestinal tract infections, allergies and lymphoma.<sup>5</sup> According to national family health survey-3, about 20 million children in India do not receive exclusive breast feeding for the first six months. There is an increased chance for infections in children who are not exclusively breastfed during the first six months of their life. This study was done to find the association between exclusive breast feeding and the occurrence of infections in under five children in Vettathur panchayath of Malappuram district, Kerala.

**METHODS**

A cross sectional study was done among children in the age group 1.5 to 5years in the field practice area of MES Medical College Hospital in Vettathur panchayat during period October 2019 to November 2019.

**Working definitions**

Exclusive breast feeding means that the infants less than 6 months of age receives only breast milk, no other liquids or solids are given, not even water.

Top feeding means that infants who were given milk other than exclusive breastfeeding, ie cow’s, buffalo’s, goat’s, and formula milk, both breast and other milk (mixed fed), and those who were given water in addition to breast milk.<sup>6</sup>

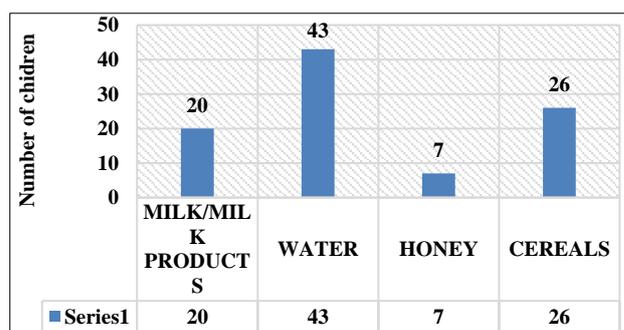
All children who were born preterm and those who were not willing to take part in the study were excluded. A sample size of 89 was calculated using the formula  $N=4pq/d^2$  where p is prevalence of gastroenteritis, 34%.<sup>6</sup> This study was conducted in Vettathur panchayat using convenient sampling. Children were identified during house to house visits. Data were collected by interviewing the mothers, hospital admission details and hospital visit charts were observed. It was carried out over a period of 30 days by a group of doctors and field staff. Information was collected using a pre designed questionnaire. The

inclusion criteria were to interview mothers of children coming in the age group of one and half years to five years. And excluded mothers who had preterm children and those who weren’t willing to participate in the study.. Data was entered in MS Excel file and analyzed using statistical software SPSS version 23. Frequencies were expressed in proportion and Chi square was done to determine association of variables. Informed consent was taken from individual mothers and Ethical clearance was obtained from Institutional review board.

**RESULTS**

Out of 89 children included in the survey, 48.3% (43) were males and 51.7% (46) were females. 41.5% (37) of families have a monthly income of less than Rs 5000 whereas 32.5% (29) of families have income between Rs. 5000 to 10000. Only 4 families have monthly income of more than Rs. 20000. 98.9% of mothers are educated up to high school and 39.3% of them have university degree/professional degree. Majority of mothers were homemakers while 2.2% of mothers were skilled workers.

A total 44.9% of the children were delivered by cesarean section and the rest 55.1% by normal vaginal delivery. Majority of the children received colostrum’s soon after birth. 47 of them were put to breast within half an hour after birth and 24 of them within half to 2 hours.18 of them were given breast milk only after 2 hours. Out of 89 children, 62.9% (56) were not exclusively breastfed. Out of these 56 children, 20 of them were given milk or milk products and 26 got cereals and 43 were given water and honey as top feeds (Figure 1). Reason cited for this was that the children had increased appetite and the breast milk was insufficient.



**Figure 1: Distribution of study subjects according to consumption of top feeds.**

**Table 1: Association between top feeding and infection before 6 months.**

Anything other than breast milk	Infection before six months		Total	Calculated value	P value
	No	Yes			
No	12 (36.4%)	21 (63.6%)	33	7.042	0.008
Yes	7 (12.5%)	49 (87.5%)	56		
<b>Total</b>	19 (21.3%)	70 (78.7%)	89		

**Table 2: Association between top feeding and infection after 6 months.**

Anything other than breast milk	Infection after six months		Total	Calculated value	P value
	No	Yes			
No	6 (18.2%)	27 (81.8%)	33	0.238	0.626
Yes	8 (14.3%)	48 (85.7%)	56		
<b>Total</b>	14 (15.7%)	75 (84.3%)	89		

Regarding immunization status, majority of children (96.7%) were fully immunized, 2.2% were partially immunized and the rest were unimmunized. The majority of children (67.4%) suffered fever before six months of age and most of the hospital admissions were due to fever. 56.2% children had upper respiratory tract infection before attaining 6 months of age. Few cases of diarrhea (2.2%) were noted among children during this period. Fever was the most common illness and the reason for admission to hospitals among children more than six months of age. 33.7% of children suffered from upper respiratory tract infections. More cases of diarrhea (5.6%) were noted after the age of 6 months. Ear infections were also reported. All children who suffered from any disease were seen by a pediatrician.

Out of 56 children who were not exclusively breastfed, 49 (87.5%) of them got infection before 6 months of age. A significant association was noted between top feeding and infection before six months of age ( $p=0.008$ ).

Out of 56 children who were not exclusively breast fed, 48 of them (85.7%) gives history of infections after 6 months of age. Similarly, 81.8% of those who were exclusively breastfed had history of infections after 6 months of age. No significant association was found between top feeding and infections after 6 months of age ( $p=0.626$ ).

## DISCUSSION

The objective of our study was to assess the occurrence of infection among non-exclusively breastfed children in the age group of 1.5 to 5 years. In our study, 63% of the mothers prematurely started weaning their children by the age of 3 to 4 months. The most common reason given for this was insufficient breast milk. Madhu et al reported only 40% of the mother exclusively breastfed their children.<sup>7</sup>

A total 72.6% of our study population had fever, 5.6% had diarrhea, and 33.7% had upper respiratory tract infection after 6 months of age. We also observed that exclusively breast-fed children had less infections compared to the non- exclusively breastfed group. In a study conducted in Amritsar in 2015, among the 232 infants studied, it was found that 34% suffered from gastroenteritis. Among the affected infants, 34% were not exclusively breastfed. Exclusively breast fed infants had lesser morbidity and had shorter hospital stay as

compared to non-exclusively breast fed infants.<sup>6</sup> According to Patel et al, 67.7% of children suffered from diarrhea which is far higher than in our study and 77.6% suffered from upper respiratory tract infections.<sup>8</sup> In a study done by Kishore et al among under five children, 10% of them were exclusively breast fed and 25% of the children experienced at least one respiratory infection or gastrointestinal infection.<sup>9</sup> Madhu et al in their study found that though only 40% of the mothers exclusively breastfed their infants, only 14% of infants got any infection.<sup>7</sup>

In a study done in 8 low income countries, it was found that exclusive breastfeeding (0-6 months) was protective against diarrhea (0-2 months: RR 0.39, 95% CI 0.32, 0.49; 3-5 months: RR 0.83, 95% CI 0.75, 0.93) and acute lower respiratory tract infections (3-5 months: RR 0.81, 95% CI 0.68, 0.98).<sup>10</sup> A study done in Bangladesh revealed that the lack of exclusive breast feeding increased the odds of diarrhea, fever and acute respiratory tract infections. In addition, if exclusive breast feeding was terminated, the odds of becoming underweight also increased substantially.<sup>11</sup>

## CONCLUSION

In our study the children who were exclusively breastfed had less infections compared to children who were non-exclusively breast fed. These non-exclusively breastfed children also had higher incidences of infection even after 6 months of age. Exclusive breast feeding for the first 6 months of age has to be promoted for the optimal growth and development of children. Breast feeding should be continued up to 2 years of age along with nutritious complementary foods. All future mothers must be made aware of the importance of early and exclusive breast feeding. Importance of breast milk as the first food of human beings for his/her growth, development & health must be emphasized in school syllabus. Policies must be evolved for providing facilities for breast feeding in work places. It is necessary to establish and maintain community networks that promote breast feeding. Recall bias may be a limitation of this study as the mothers might have difficulty in remembering every episode of illness of their children at infancy.

## ACKNOWLEDGEMENTS

Authors would like to thank Ameena A., Ameena Rubi, Anis Mirdas and Anjana R.K. for the contribution during the process of data collection.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Gopalamenon N, Binub K, Ramachandran R. Exclusive breastfeeding and infection amongst children in Northern Kerala. *Int J Community Med Public Health* 2020;7:528-31.