



## Effect of Breastfeeding on Illness in Children: A Cross-Sectional Hospital Based Study

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### Abstract

**Background:** Breast milk is the natural and complete diet for a newborn for the initial part of his life. It contains all the nutrients in adequate amounts essential for the physical and mental development of the child. Besides the health benefits, it also creates a bond of affection between the mother and her child.

**Objective:** To find out the relationship between the pattern of breastfeeding (exclusive/non-exclusive) and the episodes of illness in under five children.

**Methodology:** This cross-sectional study was conducted for a period of one month in GB Pant hospital. All children between 6 and 59 months and whose parents provided informed consent were included in the study. Information was obtained from the parents regarding the demographic details, pattern of feeding of children in the first 6 months of life (if they were exclusively breastfed or not), type and number of episodes of illness in the previous 4 months, immunization status, mode of delivery, duration of stay in the present hospitalization (recorded from the discharge file at the time of discharge from the hospital).

**Results and Conclusion:** Statistically significant difference was found in the number of episodes of illness between the children who were exclusively breastfed and those who were not. Breastfeeding must be promoted so that there's a decline in the morbidity and mortality in children.

### Introduction

Breast milk is the natural and complete diet for a newborn for the initial part of his life. It contains all the nutrients in adequate amounts essential for the physical and mental development of the child. Besides the health benefits, it also creates a bond of affection between the mother and her child. It has been found to have life-term effects on psychosocial development of a child<sup>(1)</sup>. Newborn

children should be exclusively breastfed for the initial six months of their lives for optimal growth and development. Breastfeeding should be continued for 2 years of life in addition to receiving complementary foods to meet the additional nutritional requirements<sup>(2)</sup>. Artificial feeds cannot replace breast milk because of its unique composition and functions. The nutrients and the appropriate digestive enzymes are in an

ideal balance in breast milk. It contains substances that are essential for brain development, cognitive and visual functions. It also helps in gut maturation and also builds the immune system of the newborn<sup>(1)</sup>. Acute infections like otitis media, Haemophilus influenza meningitis and urinary tract infection occur less commonly with less severity in breastfed infants.<sup>(3)</sup> Even after termination of breastfeeding due to the effects of breast milk on the immune system of the infant, there may be prolonged protection from infections.<sup>(4)</sup>

Mortality and morbidity is of great concern in developing countries like India. Some simple but effective measures must be taken to decrease the mortality and morbidity in children. We conducted this study to find out if exclusive breastfeeding is truly effective in preventing illness in children.

### Objective

The objective of our study was to find out the relationship between the pattern of breastfeeding (exclusive/non-exclusive) and the episodes of illness in under five children.

### Methodology

This cross-sectional study was conducted for a period of one month, March 2018, in the GB Pant hospital which is the pediatric hospital associated with Government Medical College Srinagar. All children between 6 and 59 months and whose parents provided informed consent were included in the study. Information was obtained from the parents of children, mother or father whosoever was present with the child. They were asked

regarding the demographic details, pattern of feeding of children in the first 6 months of life (if they were exclusively breastfed or not), type and number of episodes of illness (in the previous 4 months including the present one, immunization status, mode of delivery, duration of stay in the present hospitalization (recorded from the discharge file at the time of discharge from the hospital). Children who had been delivered preterm or low birth weight and children with some serious illness like cancers, genetic or congenital disorders were excluded from the study.

Breastfeeding was considered to be exclusive when the child had taken only breast milk in the first 6 months of life and nothing else not even water with the exception of oral rehydration solution or vitamins or medicines.

Statistical analysis: Data was analysed using SPSS version 23. Non-parametric tests were used whenever the data did not follow normal distribution.

### Results

In the one month period we could collect data from a total of 100 children between 6 and 59 months of age. Out of 100, 60 were male and 40 were female, 66 were infants and 34 were between 13 and 59 months of age, 72 children were exclusively breastfed while 28 were not, 44 were born by normal vaginal delivery while 56 had been delivered by caesarean section as shown in table 2. All children in our study had received all vaccines in accordance with national immunization schedule as per their age.

All children had a total of 231 episodes in the past 4 months including the present one (table 1)

**Table 1:** Total episodes of different infections in children

Type of illness	Episodes in the past 4 months: number(%)	Present complaint: number(%)	Total episodes
Acute gastroenteritis	21(16%)	18(18%)	39(17%)
Lower respiratory infection	9(6.8%)	70(70%)	79(34%)
Upper respiratory infection	65(49.6%)	7(7%)	72 (31%)
Fever	35(27%)	2(2%)	37 (16%)
Urinary tract infection	1(0.8%)	1(1%)	2(0.9%)
Meningitis	0(0%)	2(2%)	2 (0.9%)
Total	131(100%)	100(100%)	231(100%)

Respiratory infections were the most frequent infections recorded overall and also was most frequently found as the present complaint responsible for hospital admission.

On trying to find out the association of number of episodes of illness suffered by children in previous 4 months and various other parameters, we got the results tabulated in table 2.

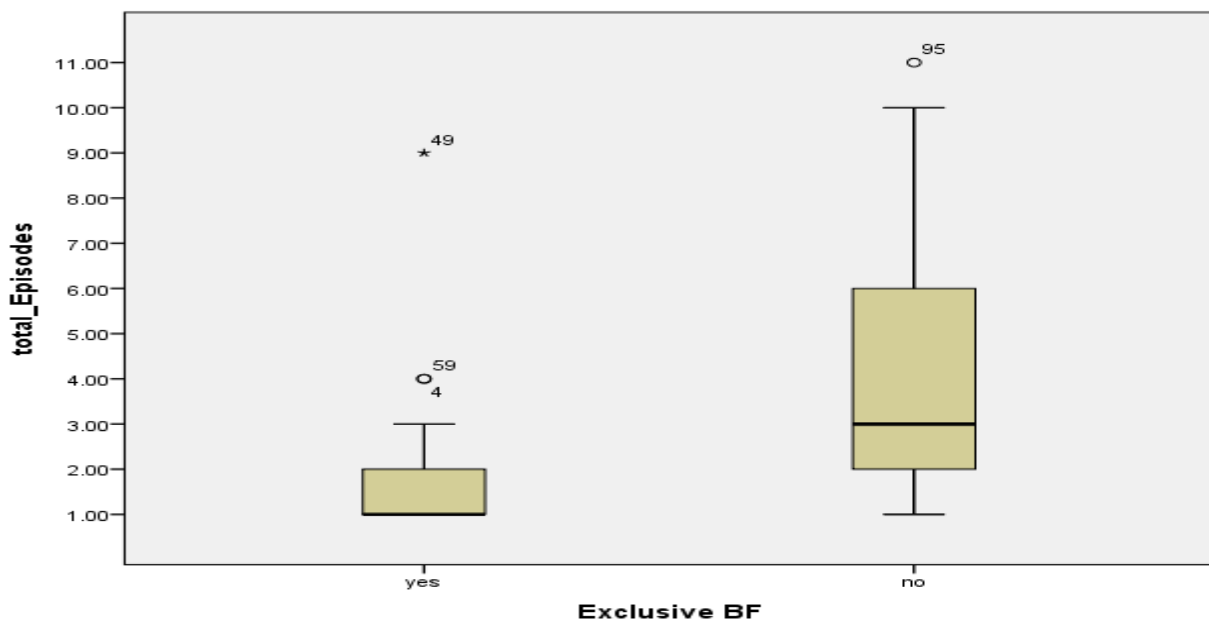
**Table 2:** Results of Mann-Whitney U test comparing the groups for total number of episodes of illness in the past 4 months

Factor		Number of children	Median (number of episodes of illness in the past 4 months)	p value on Mann Whitney U test
Sex	Male	60	2	>0.05
	Female	40	1	
Age-group	6-12 months	66	1	>0.05
	13-59 months	34	2	
Exclusive breast-feeding	Yes	72	<b>1</b>	<b>&lt; 0.05</b>
	No	28	<b>3</b>	
Mode of delivery	Vaginal	44	1	>0.05
	Caesarean section	56	2	
Total number of children		100		

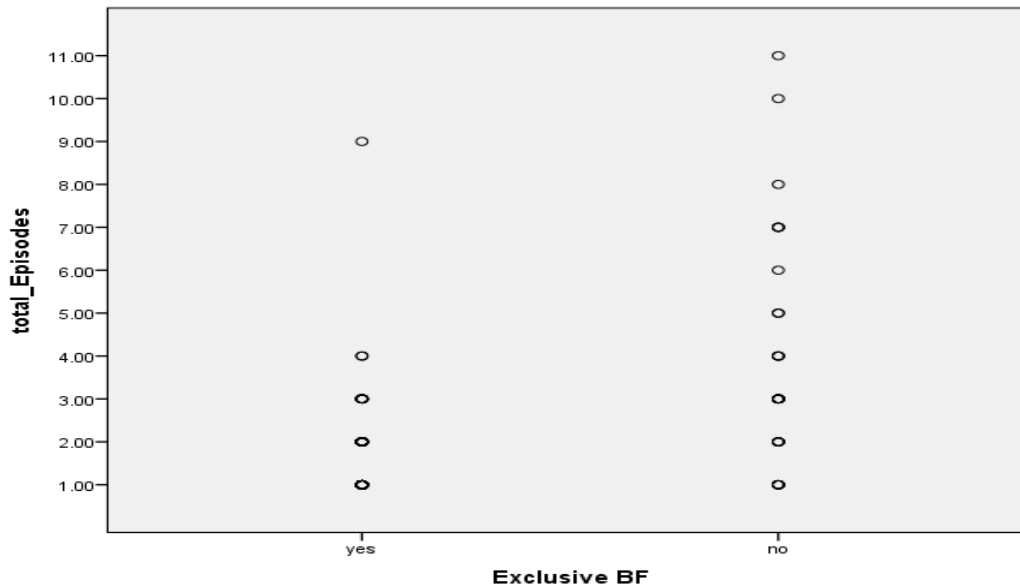
Although male children were found to have higher number of episodes of illness compared to females, the difference was not statistically significant. Similarly there was no statistically significant difference in terms of the number of episodes of illness between infants and other

children and between the children delivered vaginally or by caesarean section.

We found a statistically significant difference (*p* value <0.05) in terms of episodes of illness in the past 4 months between the exclusively breastfed children and those who were not (Figure 1).



**Figure 1:** Box-plot showing the difference in total episodes of illness in the past 4 months between the exclusively breastfed children and those who were not. Median in exclusively breastfed children=1, median in the non exclusively breastfed children=3



**Figure 2** Scatterplot showing exclusively breastfed children suffer less episodes of illness compared to those who are not exclusively breastfed.

**Table 3:** Results of Spearman’s correlation between total number of episodes of illness in the past 4 months and other factors

	Correlation coefficient	P value
Total episodes of illness and birth order	-0.52	>0.05
Total episodes of illness and mother’s education(years of schooling)	0.107	>0.05
Total episodes of illness and age*	0.154	>0.05

\*here age has been analysed as a continuous variable.

We found a negative correlation between birth order and total episodes of illness but the association is statistically not significant. We found weak correlation between illness episodes and mother’s education which was statistically not significant. Also the correlation of age as continuous variable with the illness episodes was weak.

We also found no statistically significant difference (p >0.05) in terms of the duration of hospital stay between the exclusively breastfed children and the children who were not exclusively breastfed on Mann Whitney U test.

**Discussion**

Maximum infections were of respiratory origin as also reported in previous studies<sup>(5)</sup>. The past infections were recalled by the parents and then reported. As such some of the episodes may have been missed or over-reported by the parents. Cohort studies would be better for perfectly documenting the number of episodes.

In our study we found that exclusively breastfed children have lesser episodes of illness compared to those who are not. This finding is scientifically proven and is also in concordance with other studies<sup>(6)</sup>.

In our study, 72 out of 100 children were exclusively breastfed which is a good finding but the rate of breastfeeding needs to be increased much beyond this level as this simple but effective measure can save a lot of lives and money as well. In a study conducted in United States it was found that if 90% of US families adhered to exclusive breastfeeding for first six months, the United States would have been saving \$13 billion every year and prevent 911 deaths in children.<sup>(7)</sup>

We did not find any association between episodes of illness in children and other factors like sex of the child, mother’s education, age of the child and the mode of delivery of the child. Although all these factors are very important but we could not find an association which may be because our

study was hospital based. Also we could not evaluate the effect of socio-economic status on the episodes of illness of children because the socio-economic status can be more appropriately determined by first hand view of the living conditions of the family for which community based studies are more appropriate.

### Conclusion

Exclusively breastfed children have lesser episodes of illness compared to the children who are not exclusively breastfed. Efforts must be made at increasing the rate of breastfeeding by educating the mothers regarding the benefits of breastfeeding for both mother and the child. Breastfeeding must be promoted so that there's a decline in the morbidity and mortality in children.

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