

## Prospective Observational Study to Determine the Clinic-Demographic Profile of Diarrheal in Pediatric Age Group

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### Abstract

**Aim:** To determine the clinical and demographic profile of diarrheal patients of pediatric age.

**Methods:** This prospective observational study was carried out in the Department of Pediatrics, Rama Medical College and Hospital, Hapur, India from September 2020 to November 2020. The sample size was 100 with 2 groups A and B having 50 patients each. Only those infants and children who fulfilled inclusion criteria such as those aged between 6 months - 5 years, suffering from acute diarrhea and presenting to the Pediatric Department at this set-up for treatment; were included in the study.

**Results:** The mean, age for group A patients was  $2.35 \pm 1.50$  years. A majority of 26 were toddlers. Similarly, for group B patients mean age was  $2.59 \pm 1.49$  years. Here also, 20 patients were toddlers. The remaining were infants and pre-school children. Out of 50 patients in group A, 26 (52%) males exceeded 24 (48%) females, with a male: female (M: F) ratio of 1.02: 1. Similarly in the case of Exclusive breast-feeding: Exclusive breastfeeding (EBF) for 6 months was given in a large no. of group A and B patients i.e. 27 (54%) and 27(54%) respectively. Few others were given for 4, 5, or 7 months. Almost 20 (40%) and 15 (30%) patients in groups A and B respectively had continued breastfeeding during the study. In the remaining 30 (60%) and 35 (70%) group A and B patients respectively, breastfeeding was carried out till 1, 1.5, or 2 years. In group A, a majority of 28 (56%) patients were not given bottle feeding while the remaining 22(44%) were given. Almost 31 (62%) patients were not given bottle-feeding whereas 19 (38%) were given in group B. Maximum patients 29 (58%) of A and 26 (52%) of B group had no dehydration whereas remaining 21 (42%) and 24(48%) patients had some dehydration respectively.

**Conclusion:** Fever and vomiting were the complaints nearly all often linked with diarrhea. A slight fewer than half of the children under research had some-dehydration.

**Keywords:** children, diarrhea, feeding, fever

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### Introduction

Diarrhea is defined as, 'passage of three or more loose or liquid stools per day or more frequent passage than is normal for the individual.[1,2]

It is one of the biggest public health problems globally. All children tend to suffer from diarrhea at some time during their childhood. WHO has estimated that

globally there are nearly 1.7 billion cases of childhood diarrheal disease every year and that it remains the 2nd leading cause of death in children under 5 years worldwide.[2]

Sometimes, diarrhea may co-exist with vomiting, fever, abdominal pain etc. depending upon its etiology. Diarrheal diseases can also lead to significant malnutrition and dehydration. Repeated attacks of diarrhea, infections, poor hygiene etc. may be responsible for such outcomes.<sup>3</sup> Basically, each diarrheal episode deprives the child of nutrition along with fluid loss, thus aggravating the severity of malnutrition and dehydration.

### Material and Methods

This prospective observational study was carried out in the Department of Pediatrics, Rama Medical College and Hospital, Hapur, India from September 2020 to November 2020,

### Methodology

The sample size was 100 with 2 groups A and B having 50 patients each. Only those infants and children who fulfilled inclusion criteria such as those aged between 6 months - 5 years, suffering from acute diarrhea and presenting to the Pediatric Department at this set-up for treatment; were included in the study. Here, patients were alienated into 2 groups according to the probiotic preparation being administered. Accordingly, their clinical and demographic profile was also noted and studied in 2 groups. Various parameters analyzed were age and gender distribution, chief complaints, feeding practices, nutritional status and estimation of dehydration.

### Statistical analysis

The data was accumulated and entered in a worksheet computer program and then exported to data SPSS version 25.0. For all tests, confidence level and level of

significance were set at 95% and 5% correspondingly.

### Results

The mean, age for group A patients was  $2.35 \pm 1.50$  years. A majority of 26 were toddlers. Similarly, for group B patients mean age was  $2.59 \pm 1.49$  years. Here also, 20 patients were toddlers. The remaining were infants and pre-school children. Out of 50 patients in group A, 26 (52%) males exceeded 24 (48%) females, with a male: female (M: F) ratio of 1.02: 1. Similarly in the case of Exclusive breast-feeding: Exclusive breastfeeding (EBF) for 6 months was given in a large no. of group A and B patients i.e. 27 (54%) and 27(54%) respectively. Few others were given for 4, 5, or 7 months. [Table 2] Almost 20 (40%) and 15 (30%) patients in groups A and B respectively had continued breastfeeding during the study. In the remaining 30 (60%) and 35 (70%) group A and B patients respectively, breastfeeding was carried out till 1, 1.5, or 2 years. [Table 3]

In group A, a majority of 28 (56%) patients were not given bottle feeding while the remaining 22(44%) were given. Almost 31 (62%) patients were not given bottle-feeding whereas 19 (38%) were given in group B. Maximum patients 29 (58%) of A and 26 (52%) of B group had no dehydration whereas remaining 21 (42%) and 24(48%) patients had some dehydration respectively. [Table 4]

In group A, a maximum of 29 patients had no dehydration and malnutrition while 26 had no dehydration but mild malnutrition. Some dehydration with no malnutrition was noted in 20 patients while 19 and 11 patients with some dehydration had mild and moderate malnutrition respectively as shown in Table 4. In group B patients with no dehydration; 20, 18 and 12 patients had no, mild and moderate malnutrition respectively.

**Table 1: Gender distribution of patients**

Gender		Group A		Group B	
Number			Percentage	Number	Percentage
Male	26		52	29	58
Female	24		48	21	42
Total	100		100	100	100

**Table 2: Duration of exclusive breast-feeding among diarrheal patients**

Duration of exclusive breastfeeding (months)	Group A		Group B	
	Number	Percentage	Number	Percentage
4	10	20	4	8
5	10	20	10	20
6	27	54	30	60
7	3	6	6	12

**Table 3: Severity of malnutrition and degree of dehydration in group A**

Duration of exclusive breastfeeding	Degree of dehydration		Total no of patients
	No	Some	
No	14	6	20
Mild	12	7	19
Moderate	3	8	11
Total	29	21	100

**Table 4: Severity of malnutrition and degree of dehydration in group B**

Duration of exclusive breastfeeding (months)	Degree of dehydration		Total no of patients
	No	Some	
No	16	4	20
Mild	9	9	18
Moderate	1	11	12
Total	26	24	100

### Discussion

The present study covered the clinical and demographic profile of infants and children aged 6 months to 5 years and presenting with chief complaints of acute diarrhea to the Department of Pediatrics.[4] In our

study, analysis of the socio-demographic profile of the study population showed that a large no. of patients belonged to the toddler age group in groups A and B respectively. Accordingly, their Mean age S.D were (2.35 1.50) and (2.59 1.49) years in group A and B respectively. Infants and

preschool children were relatively lesser affected in both study groups. Gender distribution in our study showed male preponderance in both the groups as mentioned in table 1. Lee et al,[5] in their research total number of 27 children were assessed. Male: female ratio 1.1:1. Aluntas et al,[6] done their study on 70 children of which 52% female, 48% male. Infants and preschool children again had a greater number of males than females. Chen et al and Heuilan et al in their respective studies noted male predominance and the majority of the patients (84%) were between 6 months to 2 years.[7,8] Among the presenting complaints of diarrheal patients, vomiting, as well as fever, was noted in a majority. Similar observations were examined in the studies performed by Franc Avilla R et al, where 65% of patients had vomiting and 51% of study participants had fever associated with diarrhea.[9] This may be due to higher incidences of infective origin diarrhea among patients. Depending upon the loss of fluid, fewer patients in both, groups A and B, also presented with symptoms of refusal to feed and decreased urinary output each. Kumar M et al,[10] described after vomiting and fever, (47.7%) with decreased oral intake and 12 (27.3%) with decreased urine output along with loose stools were noted. Exclusive breastfeeding (EBF) for an ideal 6 months was noted in the highest no. of study participants in groups A & B. Remaining patients showed EBF for 4, 5, or 7 months. The total duration of 1.5 years of breastfeeding was noted in a maximum 32 (32%) group A and 40 (40%) group B patients while in almost 36% and 30% patients of group A and B, it was still continued during the study period. Reifen et al,[11] performed research on 3 children with prolonged, watery diarrhea ongoing in premature infancy, they establish dissimilar histologic and ultrastructural features that they elected tufting enteropathy. Termination of enteral feedings reduce the quantity of diarrhea to fewer than 500 ml

per day in all 3 patients, 2 of 3 children accomplished standard enlargement velocity in equal height and weight within 6 months; equally, these children were still reliant on TPN at home at ages 8.5 and 6 years, correspondingly. In diarrheal patients of our study, nutritional status was also observed and the results showed that those 20 group A and 20 group B patients who had normal nutritional status had no dehydration as well. Similarly, moderate malnutrition noted in 11 groups A and 12 group B patients had some dehydration. This is similar to the observations from Francavilla R et al study where the control and placebo groups had the majority of patients with no dehydration i.e. 25 and 26 respectively.[9] Literature also suggests that malnutrition can predispose a child to diarrhea and severity may be slightly higher in those patients causing fluid loss and dehydration. The knowledge of resistance patterns of common etiological agents in the local area can help practitioners to choose an adequate antimicrobial drug to start empirical therapy in a patient with severe diarrhea without knowledge of a specific pathogen. This study can also be carried out at regular intervals to study any variations in the pattern of clinical profile of such patients. The effectiveness of treatment in these patients can also be studied in the future. Dehydration and malnutrition can also be prevented through patient education, availability of safe drinking water, adequate sanitation and hygiene.

### Conclusion

Fever and vomiting were the complaints nearly all often linked with diarrhea. A slight fewer than half of the children under research had some-dehydration. Almost half of the study population goes to the toddler age group. Proportional studies linked to contributory agents like bacteria, viruses should be specified more significance since they assist in disease preclusion tactics.

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