

# Clinical and Demographic Profile of Diarrheal Patients of Pediatric Age: A Cross-Sectional Study

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## Abstract

**Background :** 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. Thus, at the tertiary care center, a study was conducted with an aim to center on the clinical and sociodemographic profile of infants and children presenting with acute diarrhea. **Subjects and Methods:** It was a prospective, observational clinical study that began after obtaining approval from the Institutional Ethics Committee. It was conducted at the Department of Pediatrics, Gujarat Adani Institute of Medical Science, Bhuj, Kutch for a period of 2 years. The sample size was 200 with 2 groups A and B having 100 patients each. 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 assessment of dehydration. **Results:** Mean age $\pm$ S.D were (2.25 $\pm$ 1.40) and (2.49 $\pm$ 1.39) years in group A and B respectively. Exclusive breastfeeding (EBF) for 6 months was given in a large no. of group A and B patients i.e. 52 (52%) and 58(58%) respectively. Few others were given for 4, 5, or 7 months. Maximum patients 58 (58%) of A and 52 (50%) of B group had no dehydration whereas remaining 42 (42%) and 48 (48%) patients had some dehydration respectively. **Conclusion:** Fever and vomiting were the complaints mainly regularly linked with diarrhea. a bit fewer than half of the children under research had some-dehydration. Greater parts of the patients were completely breastfed for six months.

**Keywords:** Children, Dehydration, Diarrhea, Vomiting

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## Introduction

Diarrhea is distinct as, 'passageway of 3 or further loose or liquid stools per day or further common way than is regular for the human being.<sup>[1,2]</sup> The pediatric diarrhoeal disease still causes 800 000 deaths per year internationally.<sup>[3,4]</sup> Nonetheless, diarrhea-linked mortality is lessening worldwide by 4 % annually; though, the decline in occurrence is diffident. It is measured that annual diarrhea accounts for about 2.5 billion cases in children less than 5 years old, affecting up to 60 % of travelers to some low-income areas.<sup>[5,6]</sup> Furthermore, dissimilar diarrhea-related severe sequelae have been described, including Guillain-Barre syndrome, hemolytic uraemic syndrome (HUS) and reactive arthritis.<sup>[7]</sup> Diarrhoea can last numerous days and can depart the body lacking the water and salts that are essential for endurance. Formerly, for the majority of people, severe dehydration and fluid loss were the chief causes of diarrhea deaths. Currently, further reasons such as septic

bacterial infections are probable for a rising amount of all diarrhea-linked deaths. 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>[8]</sup> Basically, each diarrheal episode deprives the child of nutrition along with fluid loss, thus aggravating the severity of malnutrition and dehydration. Thus, at the tertiary care center, a study was conducted with an aim to focus on the clinical and sociodemographic profile of infants and children presenting with acute diarrhea. The results from this study will help in a better understanding of acute diarrhea in the pediatric age group of a particular geographical region.<sup>[9]</sup>

## Subjects and Methods

It was a prospective, observational clinical study that began after obtaining approval from the Institutional Ethics Commit-

tee. It was conducted at the Department of Pediatrics, Gujarat Adani Institute of Medical Science, Bhuj, Kutch for a period of 2 years. The sample size was 200 with 2 groups A and B having 100 patients each. Written consent of the patient's parents or guardian was obtained on an informed consent form in their respective vernacular language. It was followed by data collection a case record form. 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. Those with comorbid conditions or admitted to the PICU were excluded. 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 15. 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  $2.25 \pm 1.40$  years. A majority of 51 were toddlers. Similarly, for group B patients mean age was  $2.49 \pm 1.39$  years. Here also, 42 patients were toddlers. The remaining were infants and pre-school children. Out of 100 patients in group A, 51 (51%) males exceeded 49 (49%) 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. 52 (52%) and 58 (58%) respectively. Few others were given for 4, 5, or 7 months. [Table 2] Almost 36 (36%) and 30 (30%) patients in groups A and B respectively had continued breastfeeding during the study. In the remaining 64 (64%) and 70 (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 54 (54%) patients were not given bottle feeding while the remaining 46 (46%) were given. Almost 60 (60%) patients were not given bottle-feeding whereas 40 (40%) were given in group B. Maximum patients 58 (58%) of A and 52 (50%) of B group had no dehydration whereas remaining 42 (42%) and 48 (48%) patients had some dehydration respectively. [Table 4]

In group A, a maximum of 28 patients had no dehydration and malnutrition while 24 had no dehydration but mild malnutrition. Some dehydration with no malnutrition was

noted in 13 patients while 14 and 15 patients with some dehydration had mild and moderate malnutrition respectively as shown in Table 7. In group B patients with no dehydration; 28 21 and 3 patients had no, mild and moderate malnutrition respectively. In patients with some dehydration, 12 patients had moderate malnutrition while 16 had mild and 20 had no malnutrition.

### 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.<sup>[10]</sup> 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  $\pm$  S.D were  $(2.25 \pm 1.40)$  and  $(2.49 \pm 1.39)$  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,<sup>[11]</sup> in their research total number of 27 children were assessed. Male: female ratio 1.1:1. Aluntas et al,<sup>[12]</sup> 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.<sup>[13,14]</sup> 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 Francavilla R et al, where 65% of patients had vomiting and 51% of study participants had fever associated with diarrhea.<sup>[15]</sup> 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,<sup>[16]</sup> 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,<sup>[17]</sup> 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

**Table 1: Gender distribution of patients**

Gender	Group A		Group B	
	Number	Percentage	Number	Percentage
Male	51	51	56	56
Female	49	49	44	44
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
04	18	18	10	10
05	22	22	18	18
06	52	52	58	58
07	8	8	14	14

**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	28	13	41
Mild	24	14	38
Moderate	6	15	21
Total	58	42	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	28	12	40
Mild	21	16	37
Moderate	3	20	23
Total	52	48	100

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 28 group A and 28 group B patients who had normal nutritional status had no dehydration as well. Similarly, moderate malnutrition noted in 15 groups A and 20 group B patients had some dehydration. Contradictory to that, only 6 in group A and 3 in group B had moderate malnutrition but no 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.<sup>[15]</sup> 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. Role of Information Education and Communication is extremely significant concerning diarrhoeal and therefore should be prioritized.

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