

## ORIGINAL ARTICLE

**Contribution of Malnutrition and Lack of Breast Feeding in Persistent Diarrhea in Children Under 2 Years of Age**AMNA IHSAN<sup>1</sup>, SAIMA NAUREEN<sup>2</sup>, RIZWAN WASEEM<sup>3</sup>, TAYYABA NOOR<sup>4</sup>, JAVERIA FATIMA<sup>5</sup><sup>1</sup>Resident Pediatrics Department, Ghurki Trust Teaching Hospital, Lahore<sup>2</sup>Assistant Professor Pharmacology, Lahore Medical & Dental College, Lahore<sup>3,4</sup>Professor of Pediatrics, Lahore Medical & Dental College, Lahore<sup>5</sup>Senior Demonstrator Pharmacology, Fatima Jinnah Medical UniversityCorrespondence to Prof. Rizwan Waseem Email: [rizwan.waseem@imdc.edu.pk](mailto:rizwan.waseem@imdc.edu.pk),**ABSTRACT****Background:** Diarrhea episode lasting for greater than 14 days is known as persistent diarrhea.**Aim:** To find the current extent of factors leading to persistent diarrhea.**Methods:** It was a cross sectional study. 100 children with persistent diarrhea were included. Then parents were asked for contributing factors which were malnutrition and lack of exclusive breast-feeding up to the first four months of life. Data was analyzed on SPSS 22.**Results:** The mean weight of infants was 10.01±2.41kg. The mean duration of diarrhea was 15.51±1.31days. Malnutrition was found in 79(79%) infants. Lack of exclusive breast-feeding up to 4months of life was observed in 63(63%) cases.**Conclusion:** The most common contributing factor of chronic diarrhea in infants is malnutrition and secondly lack of breast feeding.**Keywords:** Chronic diarrhea, infants, malnutrition, exclusive breast feeding.**INTRODUCTION**

Diarrheal disorders in childhood are a major cause of morbidity and mortality in developing countries. In many areas of the world, children experience repeated episodes of diarrhea<sup>1</sup>. About 0.71 million deaths per year occur due to diarrhea globally making it 2<sup>nd</sup> most common cause of child deaths worldwide<sup>2</sup>. The diarrhea which lasts for greater than 14 days is known as persistent diarrhea. It accounts for about 3 -19% of all the diarrheal episodes and about 50% of diarrhea related deaths. It is estimated that diarrheal illnesses are responsible for 2 to 4 million childhood deaths worldwide each year. In 2002, the World Health Organization estimated that 13.2% of all childhood deaths worldwide were caused by diarrheal diseases, 50% of which were chronic diarrheal illnesses. Children at particular risk include those who are young, who suffer malnutrition, or who have an altered immune state<sup>3</sup>.

A Pakistani study conducted in 1995, showed that malnutrition was reported in 64% cases and lack of exclusive breast-feeding up to the first four months of life in 92%. Thus lack of exclusive breast feeding was the major finding<sup>4</sup>.

In 2017 an Indian study showed that malnutrition was reported in 85.7% cases and lack of exclusive breast-feeding up to the first four months of life in 54.3%. Thus malnutrition was the major factors<sup>5</sup>.

**MATERIALS AND METHODS**

It was a cross sectional study, conducted at the Department of Pediatric Medicine, Ghurki Trust Teaching Hospital, Lahore. Sample size of 100 cases is calculated with 95% confidence level and 10% margin of error. Demographic biodata was taken (name, age, sex, weight, and duration of diarrhea). Then parents were asked for contributing factors including malnutrition and lack of exclusive breast-feeding up to the first four months of life (as per operational definition). All this information was recorded on proforma. Data was analyzed on SPSS 22. Mean and standard deviation was calculated. Frequency and percentage was calculated for factors including malnutrition and lack of exclusive breast-feeding up to the first four months of life. Post-stratification, chi-square test was applied to compare factors in stratified groups. P-values≤0.05 was considered as significant.

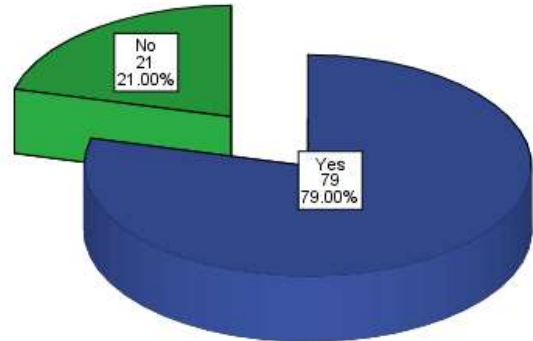
Received on 13-08-2022

Accepted on 23-12-2022

**RESULTS**

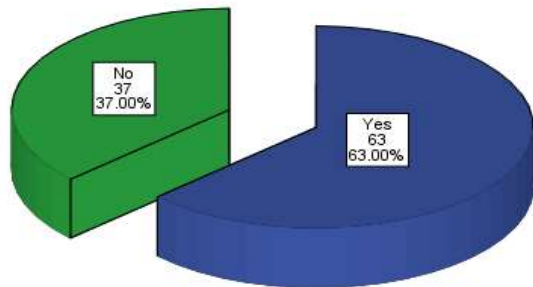
Malnutrition was found in 79(79%) infants (Fig 1).

Fig. 1: Distribution of malnutrition



Lack of exclusive breast-feeding up to 4 months of life was observed in 63 (63%) cases (Fig 2).

Fig. 2: Distribution of lack of exclusive breast-feeding up to 4months of life



The mean weight of infants was 10.01±2.41kg (Table 1).

Table 1: Descriptive Statistics of weight of infants

N	100
Mean	10.01
Standard deviation	2.41
Minimum	5.0
Maximum	15.0

Data was stratified for weight of infants. Malnutrition was observed in 70(83.3%) infants weighed 5-10kg while in 9(56.3%) infants weighed 11-15kg ( $p<0.05$ ). Lack of exclusive breastfeeding was observed in 61(72.6%) infants weighed 5-10kg while in 2(12.5%) infants weighed 11-15kg ( $p<0.05$ ) (Table 2).

Table 2: Comparison of contributing factors in weight strata

		Weight (kg)		Total	P-value
		5-10 (n=84)	11-15 (n=16)		
Malnutrition	Yes	70(83.3%)	9(56.3%)	79(79%)	0.015
	No	14(16.7%)	7(43.8%)	21(21%)	
Lack of exclusive breast feeding	Yes	61(72.6%)	2(12.5%)	63(63%)	0.011
	No	23(27.4%)	14(87.5%)	37(37%)	

## DISCUSSION

Reduced host immunity, to a large extent caused by malnutrition and micronutrient deficiencies, plays an important role in the development of persistent diarrhea<sup>6</sup>. Persistent diarrhea is common in populations with a high prevalence of stunting and wasting<sup>7</sup>.

In our study patients who were malnourished suffered persistent diarrhea more significantly than those who were not malnourished. It means malnutrition is a major contributing factor in persistent diarrhea. Patients who didn't had exclusive breast feeding for first four months of life were more prone to persistent diarrhea than those who were breast fed. However their extent of vulnerability was less than those who were malnourished.

Malnutrition and exclusive breast feeding are the factors which compromise immune status of a child. This may be one of the causes for the patients to suffer persistent diarrhea more commonly.

Malnutrition also affects body weight of the patient. Low body weight is directly proportional to frequency of malnutrition associated persistent diarrhea.

## CONCLUSION

Thus the most common contributing factor of chronic diarrhea in infants is malnutrition and secondly lack of breast feeding. Now we have got the local evidence and will plan the strategy to guide the mothers / parents to avoid such factors in order to prevent persistent diarrhea in infants <2 years of age.

**Conflict of interest:** Nil

## REFERENCES

1. Black RE, LOPEZ DE ROMA GO, Brown KH, Bravo N, GradosBazalar O, Creed Kanashiro H. Incidence and etiology of infantile diarrhea and major routes of transmission in Huascar, Peru. American journal of epidemiology 1989;129(4):785-99.
2. Bhutta ZA. Acute gastroenteritis in children. Nelson Textbook of Pediatrics 21th ed Philadelphia, PA: Elsevier 2019:1854-73.
3. Guarino A, De Marco G. Persistent diarrhea. Pediatric gastrointestinal disease 2004;4:180-93.
4. Ahmed M, Billoo A, Murtaza G. Risk factors of persistent diarrhoea in children below five years of age. JPMA 1995;45(11):290-2.
5. Durairaj P, Raju S, Thirumalaikumarasamy S. Clinical profile and risk factors for persistent diarrhoea in children under five years of age in an urban referral centre. International Journal of Contemporary Pediatrics 2017;4(6):1986-94.
6. Black RE. Persistent diarrhea in children of developing countries: Introduction. Actapaediatrica (Oslo, Norway: 1992) Supplement 1992;81(381):1.
7. Black RE. Epidemiology of diarrhoeal disease: implications for control by vaccines. Vaccine 1993;11(2):100-6.