



## ASSESSMENT OF RISK FACTORS IN CHILDREN WITH CHRONIC DIARRHEA AND WEIGHT LOSS AT A TERTIARY CARE HOSPITAL.

Zameer Ahmed Qambrani<sup>1</sup>, Shaista Ehsan<sup>2</sup>, Asif Nadeem Jamali<sup>3</sup>, Habibullah Siyal<sup>4</sup>, Sundas Parveen<sup>5</sup>, Fariha Maqbool<sup>6</sup>.

### ABSTRACT

**Introduction:** Diarrhoea is still the second leading reason for death among kids underneath the five years of age. Neither preventive measures nor therapeutic options are available. Objective: To assess the risk factors associated with chronic diarrhea & weight loss in the children of Pakistan. **Methods:** A purposive randomized controlled trial was conducted among the 110 children of District SBA / Jamshoro sindh, Pakistan with ages between 6 and 36 months and mean age 24 months having more than 4 episodes of acute watery diarrhea for more than 48 hours. **Results:** There were total 110 children's out of them 75(68.18%) were male and 35(31.82%) females. There were <12 months 40 (36.36%) of the children were below 01 year of age, 12-24 months 32 (29.09%) belonged to 12-24 months and 38 (34.54%) were between 24-36 months. Only 40 (36.36%) were undergoing breastfeeding or exclusively breastfed. 60 (54.55%) had an updated vaccinated status. 70 (63.64%) were low for birth weight. 80 (72.72%) families were consuming the municipal water supplies drinking and cooking. 75 (68.18%) were living in a joint family system. 30 (27.28%) of the mothers were literate with a minimum of primary education and above. 75 (68.18%) of the children had an early weaning history below 6 months of age. **Conclusion:** It was observed that children who had a history of low birth weight below 2.5 kg, under 12 months of age, not or under breastfed during their infancy, nursed on formula milk, unvaccinated status, those consuming un boiled water (municipal water) and those who had a history of early weaning below 6 months of age suffered more episodes of watery diarrhea.

**Keywords:** Diarrhoea, Chronic Diarrhea, Weight Loss, Children, Pakistan.

1. Senior Registrar, Pediatrics Department, LUMHS jamshoro.
2. Associate Professor Department of Pediatrics Ziauddin Medical University Karachi.
3. Assistant Professor, Pediatrics Department, PUMHS SBA.
4. Assistant Professor, Pediatrics Department, PUMHS SBA.
5. Postgraduate Trainee, Pediatrics Department, PUMHS SBA.
6. Student Final Year MBBS, PUMHS SBA.

**Corresponding author:** Zameer Ahmed Qambrani Senior Registrar, Pediatrics Department, LUMHS jamshoro.

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## INTRODUCTION

Diarrhoea is still the second leading reason for death among kids underneath the five years of age. Neither preventive measures nor therapeutic options are available. In youngsters, the foremost common reason for death is the second-most common cause of death in kids below the age of five is diarrheal disease that claims more than 525 000 lives yearly.<sup>1</sup> By utilizing pure water for drinking, appropriate sanitation, and good hygiene, a major amount of diarrheal illness may be avoided. There seem to be over 1.7 billion cases of paediatric diarrheal disease globally each year. Diarrhea is among the leading causes of malnutrition in kids before they reach the age of five. It is estimated that nearly 1.3 million children die of diarrhea each year globally<sup>2</sup> causing a higher death toll in the third world countries. Pragmatic steps have been taken to control the mortality by ensuring adequate rehydration measures after progressive water loss resulting from loose stools.<sup>3</sup> Furthermore the introduction of rotavirus vaccine in the EPI schedule has limited the deaths due to dehydration. In essence, there seem to be 3 types of diarrhoea: acute diarrhoea, chronic diarrhoea, & dysentery. Extended diarrhoea is described as diarrhoea of the an infectious origin with acute start and persisting for at a minimum of seven days; persistent diarrhoea is defined as diarrhoea continuing for the at a minimum of fourteen days. These two types of diarrhoea make up the overwhelming majority of occurrences.<sup>4,5</sup> Diarrhea of extended duration is associated with the stunted growth, mental retardation,

micronutrient deficiencies and increased risk of infections.<sup>4,6,7,8</sup> and administration of zinc has shown to have a protective role against acute diarrhea episodes<sup>9</sup>. Watery stools is the most common and sometimes bothersome presenting complaint by which mothers seek medical advice for their children<sup>10</sup>. Current WHO guidelines recommends oral rehydration therapy with breast feeding combined with oral zinc treatment as soon as the signs of dehydration develops<sup>11</sup>. Abuse of antibiotics other than their listed indications such a cholera and amoebic dysentery has led to evolution of antibiotic resistance. Therefore it is imperative to keep a check on the changing signs and symptoms of children during the acute phase so that timely intervention can be done to prevent dehydration.

## MATERIALS AND METHODS

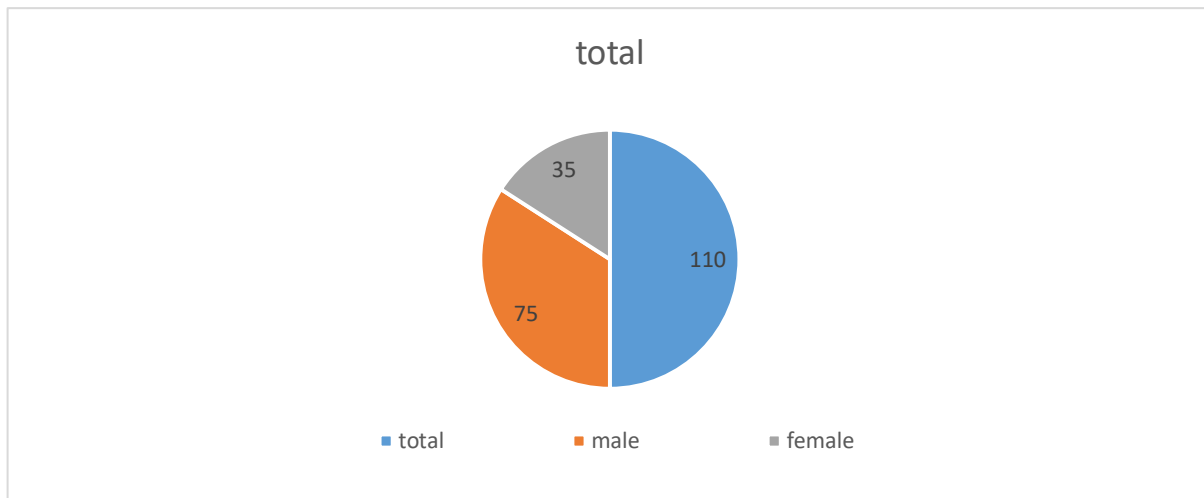
The study was conducted in District Nawabshah Pakistan April 2021 till December 2021. Cases of acute watery diarrhea were screened after relevant history and examination in pediatrics out-patient department of District Nawabshah/Jamshoro, sindh Pakistan through purposive random sampling. Frequent passing of 3 or even more watery diarrhea as well as a recent increase in firmness within the past 24hrs were cited as that of the norms and standards of diarrhoea. Simply those youngsters were included who had symptoms of less than 36 hours after formal approval of the ethical review

committee of the hospital and informed consent of the parents in accordance with the Helsinki guidelines. Vaccination status was verified, anthropometric measurements were recorded and multiple logistic regression models were employed to establish the association of independent variables. P-values under 0.05 were regarded as important.

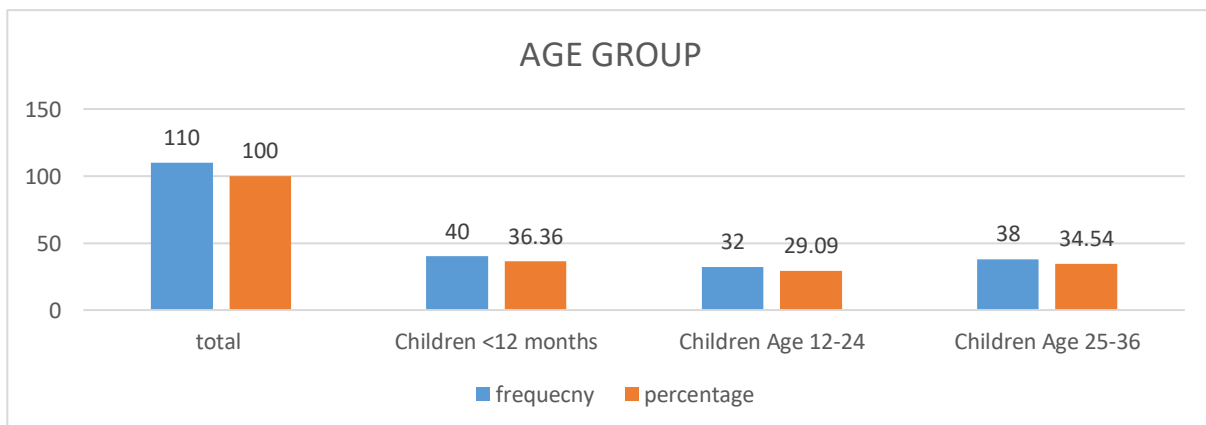
**RESULTS**

There were total 110 children’s out of them 75(68.18%) were male and 35(31.82%) females as shown in chart no 1. There were <12 months 40 (36.36%) of the children

were below 01 year of age, 12-24 months 32 (29.09%) belonged to 12-24 months and 38 (34.54%) were between 24- 36 months. Only 40 (36.36%) were undergoing breastfeeding or exclusively breastfed. 60 (54.55%) had an updated vaccinated status. 70 (63.64%) were low for birth weight. 80 (72.72%) families were consuming the municipal water supplies drinking and cooking. 75 (68.18%) were living in a joint family system. 30 (27.28%) of the mothers were literate with a minimum of primary education and above. 75 (68.18%) of the children had an early weaning history below 6 months of age. Table 1.



**Children Age (n=110)** Children <12 months 40 (36.36%) Children Age 12-24 months 32 (29.09%) Children Ag 25-36 months 38 (34.54%)



	Yes		No	
	Frequency	percentage	Frequency	percentage
Children Undergoing breastfeeding or breastfed?	40	(36.36%)	70	(63.64%)
Children Vaccination updated?	60	(54.55%)	50	(45.45%)
Children with Low birth weight <2.5kg?	70	(63.64%)	40	(36.36%)
Children Using Municipal water supply?	80	(72.72%)	20	(18.18%)
Children with Joint family status?	75	(68.18%)	35	(31.82%)
Children of Mother's schooling?	30	(27.28%)	80	(72.72%)
Children with Early weaning below 6 months?	75	(68.18%)	35	(31.82%)

Demographic data of the children

## DISCUSSION

Among the biggest contributors to child death and disability globally is diarrheal disease, primarily brought on by contaminated food as well as water supplies. Inside the globe, 780 million people just lack a reliable source of drinking water, and 2.5 billion individuals simply lack hygiene. In undeveloped countries, diarrhoea brought on by an infection is typical. In Baltic States, kids under the age of 3 frequently experience multiple episodes of diarrhoea yearly. So each occurrence precludes a child of nutrition needed for growth. As a result, diarrhoea contributes significantly to malnutrition, & poor children appear to be particularly prone to having diarrheal disease. The study encompasses several significant risk factors responsible for acute watery diarrhea in children. It is witnessed that breastfeeding has a protective role against contracting diarrhea in children irrespective of their ages due to the preformed immunoglobulins and essential nutrients in the mother feed<sup>12</sup>, duration and symptoms worsened in non-

breastfed<sup>12, 13, 14</sup>. Since younger children have less chances to be exposed to micro-organism and hence they have a weaker humoral immune response to specific pathogens therefore they suffer greater frequency of stools than older children.<sup>15</sup> Zinc is now preferred and endorsed intended for management of infantile diarrhea in unindustrialized states reducing duration and severity of illness<sup>16, 17</sup>. But it has also been observed that zinc has less therapeutic effect in children younger than 6 months compared to older children<sup>18, 19, 20, 21</sup>. This analysis revealed an unambiguous connection in between volume in feces as well as the length of the sickness. This is because the innate and acquired immunity come into play to halt the number of stools. Thus, stool frequency is directly proportional to the microbial load inside the intestines irrespective of the overall general health of the children. The positive relation of the number of diarrheal episodes in the warm and humid months of the year can be justified can the breeding and growth of the various bacterial pathogens whereas

viral infections tend to be more common in the cooler months while protozoan usually dominate throughout the misty & extreme time of year<sup>22, 23, 24</sup>. Cryptosporidium parvum & Cyclospora cayetanesis tend to have a longer course and occur during the wet and cool season<sup>25</sup>. Stunted growth and muscle wasting had no association with duration of the illness but becomes a significant finding in children with a diarrhea extending across 14 days and other comorbidities such as malnutrition and severe illness. Such patients need to be given due attention for nutritional support in addition to correcting the dehydration status. Several studies have highlighted the protective role of adequate plasma zinc levels against watery diarrhea of any etiology<sup>26, 27, 28</sup>. Oral zinc has been recommended to all children dwelling in under-developed countries having symptoms of acute diarrhea<sup>11</sup>. It has been observed that infants suffer more from GI upsets and also are less responder to zinc treatment. Breastfeeding have shown promising results in limiting the incidence of watery stools in children of all ages. Long standing diarrhea may lead to abnormal mental development, weight loss and increased risk of infections<sup>30, 5</sup>. Thus prompt screening of the risk factors can save the children from the acute as well as their longterm well-being. practicing pure water to drink, utilizing improved sanitation techniques, as well as cleansing your hands with a soapy object could decrease your likelihood of getting an illness. Diarrhoea must be treated with oral rehydration solution (ORS), a concoction of purified water, sugar, and salt. In addition, a regimen of dissolvable 20 milligrams zinc pills taken for between 10 and 14 days in alongside conventional medical therapy shortens the duration of diarrhoea & enhances outcomes.

## CONCLUSION

It was observed that children who had a history of low birth weight below 2.5 kg, under 12 months of age, not or under breastfed during their infancy, nursed on formula milk, unvaccinated status, those consuming un boiled water (municipal water) and those who had a history of early weaning below 6 months of age suffered more episodes of watery diarrhea.

## RECOMMENDATIONS

Support government initiatives and financial commitments to help developing nations have more access to safe drinking water and sanitary facilities, as well as case management of diarrhoea and its consequences; conduct studies to create and evaluate fresh diarrhoea prevention and management techniques in this area; increase your ability to carry out preventative measures, such as bettering source water quality, domestic water treatment, and safe storage; Create fresh health strategies, like the rotavirus vaccine; and aid in the education of health professionals, especially in the community.

**Ethics approval:** The ERC gave ethical review approval

**Consent to participate:** written and verbal consent was taken from subjects and next of kin

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**Authors' contributions:** All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated in the work to take public responsibility of this manuscript. All authors read and approved the final manuscript.

**Conflict of interest:** No competing interest declared.

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