International Journal of Medical and Health Research
ISSN: 2454-9142
www.medicalsciencejournal.com
Volume 4; Issue 1; January 2018; Page No. 64-66

Diarrhea among children below 5 years of age: A clinical study

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Abstract
Background: Diarrhea has higher mortality and morbidity rate. It contributed to 9.9% of all deaths every year. The prevalence is more in children below 5 years of age.
Materials & Methods: It included 1050 children below of the age of 5 years of both genders. The confirmation of diarrhea was made if the children presented with three or more loose or watery stools within a 24-hour period. History of number of acute diarrheal defecations per day, and its association with socio demographic, environmental and domestic factors was evaluated.
Results: Out of 1050 children, boys were 550 and girls were 500. The difference was non-significant (P-0.5). Children with 1 year had 70 boys and 55 girls, 2 years had 100 boys and 90 girls, 3 years had 120 boys and 100 girls, 3 years had 120 boys and 100 girls, 4 years had 115 boys and 125 girls and 5 years had 145 boys and 130 girls. The difference was significant (P- 0.01). 410 mothers were illiterate and 640 mothers were literate. The difference was significant (P- 0.01). Water source of children who developed diarrhea had protected water source (340) and unprotected water source (710). The difference was significant (P- 0.01). The type of latrine used by parents was sanitary in 60%, kacha in 35% and others in 5%. Parents 68% parents wash hands before cooking and 32% do not. 55% wash their hand with soap after washing latrine while 45% do not prefer.
Conclusion: Diarrhea is a cause of morbidity and mortality in children especially below 5 years of age. Lack of knowledge of hand washing, use of unclean water, poor sanitation is precipitating factors.

Keywords: diarrhea, hand washing, stool

Introduction

Diarrhoea is defined as the passing of loose or liquid stools. It is three or more loose or watery stools within a 24-hour period, or a decrease in the consistency of the stool from that which is normal for the patient. It has higher mortality and morbidity rate. It contributed to 9.9% of all deaths every year. Between 2000 and 2010, the global burden of deaths in children younger than five years decreased by 2 million, of which pneumonia, measles, and diarrhoea contributed the most to the overall reduction [1].

Recent studies have shown the variability of the diseases across the country, 11.4% to 37% under 5 years age children. In developing countries, diarrhoea is most often a symptom of gastrointestinal infection caused by bacteria, viruses or parasites. Commonly, these pathogens are transmitted via the fecal-oral route, where the pathogens are excreted from the intestinal tract of a person or animal carrying the illness and are ingested by another [2].

Socioeconomic factors such as overcrowding and low maternal education, poor sanitation, contaminated water, failure to continue breast feeding until one year of age, using infant bottles which are difficult to clean, storing food at room temperature, failure to wash hands, failure to dispose of feces hygienically and inadequate food hygiene were associated with a high incidence of diarrheal diseases. Lack of vaccination in children is another cause of frequent diarrhea in children [3].

Despite the widespread use of oral rehydration therapy, the incidence of acute diarrheal diseases has not declined, although these efforts tend to decrease severity of acute diarrheal episodes and sharply reduce the number of subsequent deaths; this indicates that the causative agents of acute diarrhea and their environmental sources are still with us. On average, children under 5 years of age suffer 3 episodes of acute diarrhea per year [4]. The present study was conducted to assess the cases of diarrhea in children below 5 years of age.

Materials & Methods

The present study was conducted in the department of pediatrics. It included 1050 children below of the age of 5 years of both genders. The confirmation of diarrhea was made if the children presented with three or more loose or watery stools within a 24-hour period.

Parents were involved regarding the study and consent was taken. Ethical clearance was taken before starting the study.

General information such as name, age, gender was obtained. History of number of acute diarrheal defecations per day, and its association with socio demographic, environmental and domestic factors was evaluated. Results were tabulated and subjected to statistical analysis using chi- square test. P value <0.05 was considered significant.

Results

Table 1: Distribution of patients

Total- 1050		
Boys	**Girls**	**P value**
550	500	0.5

Table 1 shows that out of 1050 children, boys were 550 and girls were 500. The difference was non-significant (P-0.5).

Table 2: Age and sex wise distribution

Age group (years)	Boys	Girls	P value
1 years	70	55	0.01
2 years	100	90	
3 years	120	100	
4 years	115	125	
5 years	145	130	

Table 2shows that children with 1 years had 70 boys and 55 girls, 2 years had 100 boys and 90 girls, 3 years had 120 boys and 100 girls, 3 years had 120 boys and 100 girls, 4 years had 115 boys and 125 girls and 5 years had 145 boys and 130 girls. The difference was significant (P- 0.01).

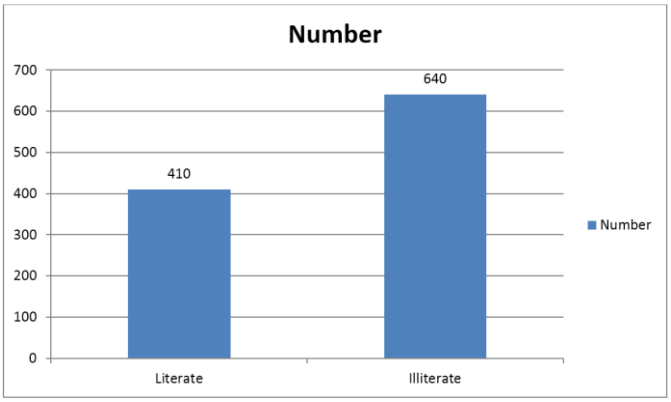

Fig 1: Education status of mothers

Fig 1 shows that 410 mothers were illiterate and 640 mothers were literate. The difference was significant (P- 0.01).

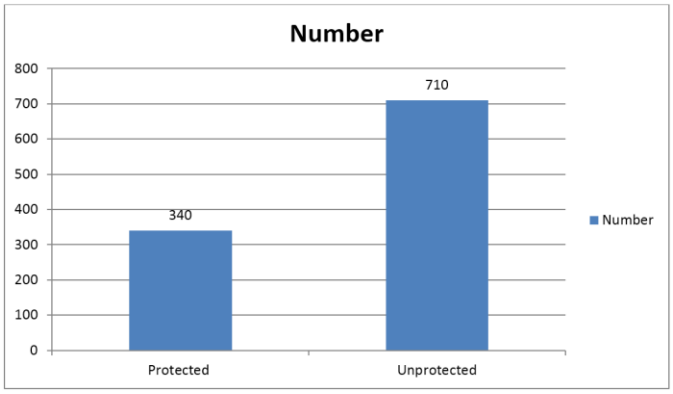

Fig 2: Water source of children

Fig 1 shows that water source of children who developed diarrhea had protected water source (340) and unprotected water source (710). The difference was significant (P- 0.01).

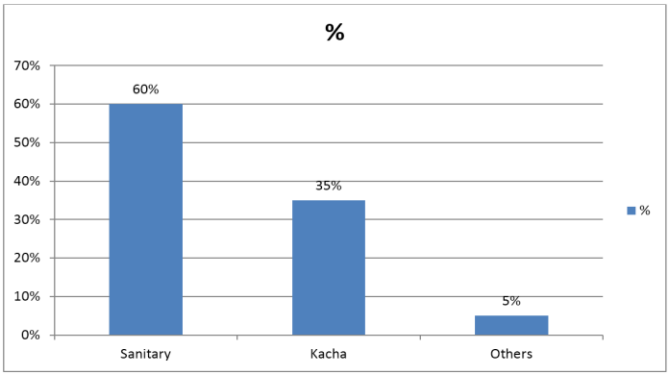

Fig 3: Distribution of parents by the type of latrine used

Fig 3 shows that type of latrine used by parents were sanitary in 60%, kacha in 35% and others in 5%.

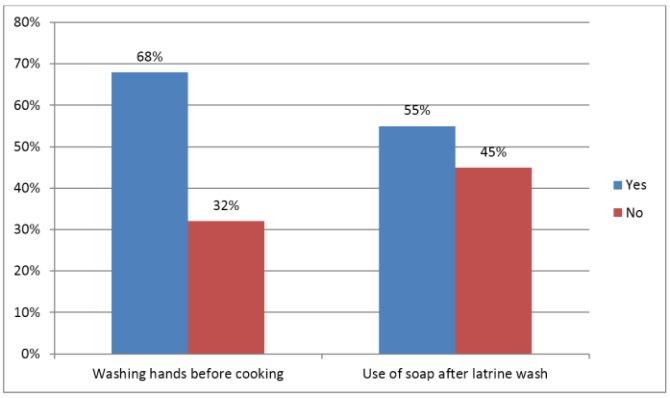

Fig 4: Distribution of parents based on personal hygiene

Fig 4 shows that parents 68% parents wash hands before cooking and 32% do not. 55% wash their hand with soap after washing latrine while 45% do not prefer.

Discussion

Among the major life threatening infectious diseases diarrhoea is one of the major preventable gastrointestinal health problem. Risk factors for diarrhea include malnutrition, poor gastrointestinal absorption, poor personal hygiene, environmental sanitation problems, unhygienic food preparation, improper sewage disposal and improper use of latrines, early discontinuation of breastfeeding, and unhygienic bottle-feeding. Prevalence of diarrhoea is quite alarming amongst our children who belong to low socioeconomic status [5].

In this study, out of 1050 children, boys were 550 and girls

were 500. We found that maximum children were of 5 years old (145 boys and 130 girls) followed by 4 years (115 boys and 125 girls), 3 years (120 boys and 100 girls), 2 years (100 boys and 90 girls) and 1 years (70 boys and 55 girls). This is similar to Teklemariam *et al*. [6] We found that 410 mothers were illiterate and 640 mothers were literate. In 710 children house the water source was unprotected. This is in agreement with Taretaken *et al*. [7]

We found that in 60% of cases, type of latrine used by parents were sanitary, 35% used kacha. 68% parents wash hands before cooking. Latrine availability was independent predictor of diarrheal diseases occurrence in this study. 55% wash their hand with soap after washing latrine while 45% do not prefer. This is in agreement to the results of Mengiste *et al*. [8] Solid waste disposal system used by the household and absence of drainage system of liquid waste disposal were significantly associated with the occurrence of diarrhoea. This could be the reason that solid and liquid waste disposal provides breeding for various insects which may carry diarrhoea pathogen from the refuse to food and water.

Bacterial, parasites and viruses are among the causative factors in infection of the intestines. Due to contamination of water or food with faeces, infection is aquired in children. Cholera is the etiologic factor for short duration diarrhea. If it continues for 2 weeks, it is called persistent diarrhea. The presence of blood in stool is known as dysentery. A number of non-infectious causes can result in diarrhea. These include lactose intolerance, irritable bowel syndrome, non-celiac gluten sensitivity, celiac disease, inflammatory bowel disease, hyperthyroidism, bile acid diarrhea, and a number of medications. In most cases, stool cultures to confirm the exact cause are not required. [9]

The best way to prevent it is to use of clean water for drinking, improved sanitation, and hand washing with soap. Vaccination against rotavirus is also recommended. ORS solution is usually preferred to prevent developing dehydration. Zinc tablets are also recommended. [10] In case of unavailability of ORS, homemade solutions may be used. In those with severe dehydration, intravenous fluids may be required.

Conclusion

Diarrhea is a cause of morbidity and mortality in children especially below 5 years of age. Lack of knowledge of hand washing, use of unclean water, poor sanitation is precipitating factors.

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