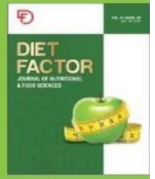




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Original Article

# Association of Hygiene and Hand Washing on Severity of Acute Diarrhea among Children Under Five Years of Age

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### ABSTRACT

According to the World Health Organization (WHO), almost four million children under the age of five die from diarrhea each year in Asia, Africa, and Latin America, with 80 percent of these deaths occurring in the first year of life.

**Objective:** To evaluate the frequency of hygiene and hand washing among children under the age of five years with acute diarrhea. **Methods:** A cross-sectional survey was done in the Department of Pediatrics, Mansora Hospital, Lahore. The duration of the study was 3 months. Children who were suffering from acute diarrhea, aged 1-5 years were selected. A questionnaire was used to take the history of the participants. Descriptive and inferential statistics are used to present the findings. **Results:** A total of 176 male and 126 female participants were included in this study. According to the study's findings, 184 out of 302 participants had a handwashing routine, 188 out of 302 used soap and water to wash their hands, and 43 out of 302 washed fruits and vegetables before eating. **Conclusions:** It is concluded that a majority of the participants were having good hand wash practices while only a few participants used to wash fruits and vegetables before eating which can be a reason for diarrhea among that age group.

## INTRODUCTION

The passage of three or more loose stools in a 24-hour period is characterized as diarrhea; diarrhea may be acute lasting less than two weeks or persistent lasting for two weeks or longer or chronic lasting more than four weeks [1]. Diarrhea is the cause for 18% of deaths in children age group and the most common cause of acute diarrhea in all children is Rota-virus. Diarrhea that persists for more than two weeks is chronic diarrhea; it is caused by intestinal infection mainly in developing countries [2]. Annually, 1.7–5 billion instances of diarrhea are reported [3], while the overall number of fatalities from diarrhea was 2.58 million in 1990, and 1.26 million in 2013 [4]. In Pakistan, the prevalence of childhood diarrhea is reported to be 51%. Microorganisms include bacteria, parasites, and viruses, the latter of which has been widely explored in recent years. Rotavirus is the most prevalent causal organism, accounting for 29 percent of all diarrheal deaths in children under the age of five, with 1/4th of children in the Indian Subcontinent suffering from it [5]. Percentages of children experiencing comorbidity (defined in this study as the presence of both diarrhea and ARI) were highest in developing countries including Pakistan [6].



In developed countries, diarrheal diseases also constitute an important cause of morbidity and mortality. According to the World Health Organization (WHO) (2008 data), nearly four million children under the age of five die from diarrhea each year in Asia, Africa, and Latin America, with 80 percent of these fatalities occurring in the first year of life [7]. Diarrhea is the world's sixth leading cause of death in children, taking the lives of 446,000 children each year. Furthermore, diarrhoea has a number of costs: it causes 72.8 million disability-adjusted life years, and it wreaks havoc on families' finances and the healthcare system by reducing children's physical and cognitive activity [8]. Nausea, vomiting, abdominal cramping, malnutrition, and dehydration are common symptoms of diarrhea [9]. Due to poor water, sanitation, and hygiene (WASH) conditions in families, an estimated 1.8 million people die each year in developing countries from diarrheal illnesses, with more than 80 percent of them being children under the age of five [10].

Pakistan's water and sanitation standards are catastrophic, with 97,900 people dying each year, including 54,000 children under the age of five. Water and sanitation-related problems affect a quarter of the individuals who visit hospitals in Pakistan. Lack of access to good drinking water and sanitary facilities decreases a child's chances of survival, and this is especially true for babies and children. Children born into houses with piped drinking water and improved bathroom facilities, on the other hand, are less likely to die [11].

If the drinking water source is far away, the risk of diarrhea is higher. The least amount of diarrhea is connected with septic tanks and tube wells. Diarrhea is connected with shared access to water, sanitation, and hygiene. The mothers should be given more freedom to make health-related decisions for their children, as children of empowered moms are less likely to suffer from diarrhea. Similarly, the data show that Water, Sanitation, and Hygiene (WASH) programs that target many WASH sectors rather than just one are more likely to succeed, as children who have access to multiple enhanced WASH components are less likely to get diarrhea than children who only have access to one [12].

The key to preserving the lives of children with diarrhea and pneumonia is an early and appropriate treatment. The majority of mortality among children under the age of five due to diarrhea and pneumonia can be prevented by using effective strategies with high coverage [13]. The purpose of this study was to see how often children under the age of five with acute diarrhea practiced hygiene and hand washing.

**METHODS**

A cross-sectional survey was done in the Department of Pediatrics, Mansora hospital. The study duration was 3 months. Children who were suffering from acute diarrhea, aged 1-5 years were selected. Children who suffered from any other health complication rather than acute diarrhea were excluded from the study. The following formula was used to calculate a sample size of 302:

$$n = Z^2 Pq / d^2$$

$$Z = 1.96, P = 0.73, q = 0.27, d = 0.05, n = 302$$

A questionnaire was filled out to verify the inclusion criteria. The questionnaire comprised of patient's complaints including vomiting, diarrhea duration, consistency, and frequency were taken. The past history and nutritional history were taken. The research was conducted in accordance with the laws and regulations established by the University of Lahore's ethics committee, and the rights of the research participants were protected. SPSS version 21 was used to evaluate and enter the data. Descriptive and inferential statistics were used to present the findings. For categorical data, frequencies and percentages were recorded, while for continuous variables, the mean and standard deviation were reported. Content validity was used to assess the tool's validity.

**RESULTS**

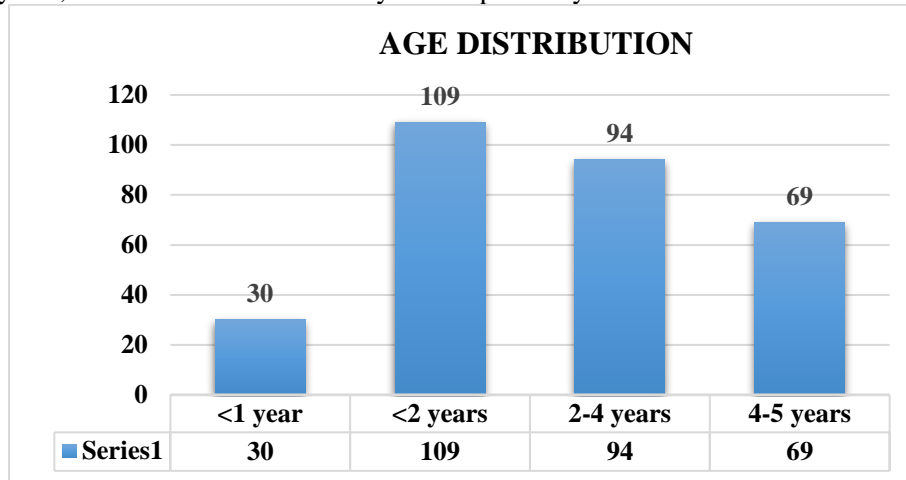
For this investigation, a total of 302 participants were chosen. This study included 176 male and 126 female participants. Informant mothers were 178 and informant fathers were 124 respectively. Participants from urban areas were 120 while that from rural areas were 182 as shown in Table 1.

Variables		Total
Male	Female	
176	126	302
Informant Mothers		178
Informant Fathers		124
Urban Area		120
Rural Area		182

**Table 1:** The gender, informants, and residential area distribution of diarrheal patients



Figure 1 shows the distribution of the participants according to their age. 30 participants were <1 year, 109 were <2 years, 94 were between 2-4 years, and 69 were between 4-5 years respectively.



**Figure 1:** Age Distribution of Participants

The past history of hospitalization of participants from diarrhea was taken from their informants. Results showed that 69 participants received rehydration fluid plus antibiotics, 4 received rehydration fluid, 4 received rehydration fluid plus antibiotics plus IV fluid while 225 were having no history of hospitalization (Table 2)

Past history of Hospitalization for Diarrhea				Total
Rehydration Fluid + Antibiotics	Rehydration Fluid	Rehydration Fluid + Antibiotics + IV fluid	No	
69	4	4	225	151

**Table 2:** Past history of Hospitalization for Diarrhea

Table 3 represents the hygiene practices of participants having diarrhea. Results showed that 184 out of 302 participants were having a hand wash routine, 188 out of 302 were used to wash their hands with soap and water, and 43 out of 302 were used to wash fruits and vegetables before eating.

Hygiene Practice of Participants with Diarrhea					
Hand wash routine		Hand wash with soap & water		Washing of vegetables and fruit	
Yes	No	Yes	No	Yes	No
184	118	188	114	43	259

**Table 3:** Hygiene Practice of Participants with Diarrhea

**DISCUSSION**

Hygiene conditions were the main factors for introducing diarrhea to the patient, most of the patients have a history of poor hygiene e.g. they did not wash their hands with eatable items. We have taken the history relating to washing of utensils eatable items, and cleaning of the area. Most of the patients have a history of improper hygiene. According to our results, the majority (184 out of 302) were having a hand wash routine while also the majority (188 out of 302) were washing their hands with soap and water.

In Nigeria, a study found a weak, but statistically significant, the link between the quality of the living environment, particularly water and sanitation facilities, and diarrhea in children under the age of five. The study suggests that improving living circumstances and providing access to clean water and sanitation could assist child mortality prevention initiatives in the country [14]. According to a study, there is a need to enhance food hygiene habits among mothers of children under five years of age, because diarrhea is linked to unsanitary eating circumstances. Children under the age of five are completely reliant on their moms. Children will suffer from diarrhea disease over and again if mothers do not enhance their food hygiene

practices [15-18]. WASH programs are gaining popularity worldwide as they are creating awareness among the masses to improve water, sanitation, and hygiene in order to prevent various diseases [16-20].

According to a study conducted in Pakistan, limiting children's exposure to water and sanitation hazards requires a diversified approach. Interventions such as improved water quality and source, toilet type, hand washing, and water filtration can significantly reduce children's risk. Pakistan's public policy should be more aggressive in implementing WASH programs to boost public health in general and child health in particular. To address the worrisome issue of child danger, policymakers must also work on improving Pakistan's socio-economic conditions. Women's education, raising hygiene awareness, and investing funding for infrastructural improvement should all be on Pakistan's national agenda for change. Individuals, businesses, local communities, and the media can all play a role in raising health and hygiene awareness. It is critical to safeguard vulnerable children living in high-risk areas [11].

## CONCLUSIONS

It is concluded that a majority of the participants were having good hand wash practices while only a few participants used to wash fruits and vegetables before eating which can be a reason for diarrhea among that age group.

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