

**ASSOCIATION OF MATERNAL FACTORS TOWARDS ACUTE DIARRHOEAL EPISODES IN UNDER FIVE CHILDREN IN CHHINDWARA DISTRICT: A CROSS-SECTIONAL STUDY**PAWAN NANDURKAR<sup>1</sup>, RITESH UPADHYAY<sup>2</sup>, SHASHIKANT ARYA<sup>3</sup>, DILEEP DANDOTIYA<sup>2\*</sup>

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**ABSTRACT**

**Objective:** Diarrhea is widely documented as a major cause of childhood morbidity and mortality in countless developing countries, particularly in India. According to the World Health Organization (WHO) report, diarrheal diseases are still leading causes of mortality and morbidity in children below 5 years of age.

The present study done to estimate the association amid maternal factors and prevalence of acute diarrheal illnesses in children below 5 years of age in Chhindwara district.

**Methods:** This community-based and cross-sectional study conducted in the urban field practice area attached to Department of Community Medicine of Chhindwara Institute of Medical Sciences, Chhindwara, from January 2019 to December 2019 was aimed to estimate the connotation between maternal factors and prevalence of acute diarrheal diseases in children under 5 years of age in Indian locations. Study tools included a pre-structured questionnaire. Baseline information of education area was taken from the Urban Primary Health Centre in the catchment area of medical college, Chhindwara. Data were arrived in Microsoft Excel spreadsheet to perform analysis.

**Results:** In our study, 310 mothers who used to take bath daily of which 58 (19.9%) had diarrheal episodes, whereas out of 18 mothers who do not take bath daily, 11 (61.1%) had diarrheal episodes. Further, 292 mothers of children who castoff to wash their hands daily earlier the meals of which 58 (15.8%) children had diarrheal events, whereas out of 7 (38.9%) mothers who did not wash their hands before meals, 27 (12%) children had diarrheal incidents.

**Conclusion:** The present study indicated that maternal factors bear an important impact on morbidity caused by diarrhea.

**Keywords:** Diarrheal episodes, ADD, Maternal factors, Under 5 children, Risk factors.

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**INTRODUCTION**

Diarrheal illness is a serious health problematic international [1]. It is perhaps one of the most important reasons of sickness and death amongst infants and broods in developing countries [2]. Recent worldwide estimations suggest that diarrhea kills around 3.2 million under five children each year with a per child average of 3–4 acute chapters per year. Although simple and effective treatment measures are obtainable which can markedly reduce diarrhea associated morbidity and mortality, yet in developing countries due to poor hygienic practices in the communal, diarrhea continues to be a major public health problem [3]. Reduction of morbidity related with acute childhood diarrhea is an important public health goal in Indian children population [4]. The heroine of the family, especially the mother, is vital in health promotion, disease prevention, and patient care [5]. Based on the fact that information of mothers in developing states regarding diarrhea, its management and adequate feeding does is very limited. The rank of understanding maternal factors is connected to diarrheal diseases as pre-requisites to a culturally attuned defensive program [6–8]. In opinion of this, this community-based and cross-sectional epidemiological and single-center education conducted in urban field practice area attached to Department of Community Medicine of Chhindwara Institute of Medical Sciences, Chhindwara, India, was aimed to assess the role of maternal factors to diarrheal episodes in under five children in India.

**METHODS**

This community-based and cross-sectional study was carried out January 2019–December 2019 on consecutive 310 Children below

5 years of age in the study area. This study carried out in the in the urban field practice area attached to Chhindwara Institute of Medical Sciences, Chhindwara, India, was aimed to assess the role of maternal factors toward diarrheal episodes in under five children in India. Inclusion criteria composed of children below 5 years of age, children whose parents are willing to participate in the study and children whose parents are staying for the past 6 months in the study area. Whereas, children whose parents/caregivers not present at the time of interview and children suffering from persistent diarrhea, or any other severe illness were excluded from our study. Sampling method was systematic random sampling. Data collection was done using preformed questionnaire. Data were entered in Microsoft Excel spreadsheet and the data underwent analysis using descriptive statistics involving tables, graphs, and bar diagrams. The study was reviewed by the Institutional Ethics Committee of the CIMS medical college and approval was sought. A single interviewer interviewed mother of all the 310 children on a semi-structured, pre-designed, and pre-tested questionnaire. At the end of the interview, the mothers were handed over a health education pamphlet in local dialect pertaining to diarrhea to improve their knowledge and management skills in the future.

**OBSERVATION AND RESULTS**

From the above Table 1, it was observed that there were 310 mothers who used to take bath daily of which 58 (19.9%) had diarrheal episodes, whereas out of 18 mothers who do not take bath daily, 11 (61.1%) had diarrheal episodes. Thus, there was significant association between mothers taking bath daily and diarrheal episodes in the past 1 month ( $p < 0.001$ ).

**Table 1: Distribution of mother taking bath daily and diarrheal episodes in the past 1 month**

Mother taking bath	Frequency	Diarrheal episodes in the past 2 weeks		Total
		Yes	No	
Yes	No.	58	234	292
	%	19.9	80.1	100
No	No.	11	7	18
	%	61.1	38.9	100
Total	No.	69	241	310
	%	22.3	77.7	100

$\chi^2=18.156$ ; D.F.=1;  $p<0.001$  Significant

Table 2 shows that it was observed that there were 225 children who used to wash Their hands daily before meals, 27 (12%) had diarrheal episodes, whereas out of 85 children who did not wash their hands daily before meals, 22 (25.9%) had diarrheal episodes. Thus, there was a significant association between children hand washing before meals and diarrheal episodes ( $p<0.001$ ).

## DISCUSSION

Diarrhea is one of the leading killer diseases among under 5 years' children, so it is an important public health problem in India. India already sets her goals to achieve the SDGs target to reduce under-five child mortality by 25 in 2030 (WHO and SDGs). To achieve Millennium Development Goal-4 (MDG) and reduce child mortality, the government of India innovated various program and schemes like the child survival and safe motherhood program (1992), target-free approach (1996), reproductive and child health program in 1997 and 2005, national rural/urban health mission between 2005 and 2012, national health mission in 2013 to-date, program related to immunization, and prevent diarrheal disease and acute respiratory infection. As a result, under-five mortality (U-5MR) reduced 55-29/1000 live births between 2011 and 2015. To prevent under-five mortality and to achieve the various targets (including SDGs and MDG), special attention needs to be put on the most prevalent diseases among under-five children including diarrhea[9].

In our study, infants form the largest group with diarrhea, especially those around 6 months of age. Exclusive breastfeeding in infancy is known to protect against diarrhea with maternally acquired antibodies helping to fight infective agents responsible for the disease. However, at this stage, there is a general decline in these antibodies and more so in those not exclusively breastfed, and hence the high risk of developing diarrhea. Besides, complementary feeds are usually introduced at this stage with an attendant increased risk of contamination, especially in the developing world like ours where safe water and basic sanitation is lacking. In our study, there was significant association between mothers taking bath daily and diarrheal episodes in the past 2 weeks. These results agree with the study undertaken by Curtis *et al.* [10] This study suggested that bathing daily and washing hands with soap can decrease the risk of diarrheal diseases by 42-47%. Further, our study recorded a significant association between mother hand washing before meals and diarrheal episodes in the past 2 weeks. Similar finding was observed by Saran *et al.* in which significantly higher odds of developing diarrhea among children were seen in those children whose mothers did not wash the hands properly before feeding their children[11]. The present study findings should be discussed considering some limitations. First, this study used self-reported retrospective information. Therefore, potential recall bias might have been presented in this study. Second, it remained not possible to include all important potential factors of diarrheal disease, particularly behavioral factors in the analysis due to the paucity of information in the data set. Targeted approach should be initiated to mitigate the badly-behaved of the poor health status of children by providing adequate healthcare among socioeconomically disadvantaged women and children. The policymakers and stakeholders

**Table 2: Distribution of mother hand washing before meals and diarrheal episodes in the past 1 month**

Children hand washing	Frequency	Diarrheal episodes in the past 2 weeks		Total
		Yes	No	
Yes	No.	27	198	225
	%	12.0	88.0	100
No	No.	22	63	85
	%	25.9	74.1	100
Total	No.	49	261	310
	%	15.8	84.2	100

$\chi^2=35.121$ ; D.F.=1;  $p<0.001$  Significant

should address adverse environmental conditions by the provision of latrine and improved housing facilities.

## CONCLUSION

Our study findings conclude that maternal factors bear a significant impact on morbidity caused by acute diarrheal episodes. Hygienic mothers are more exposed to the importance of better childcare and feeding practices, and therefore are more aware of disease causation factors and preventive measures. The present study indicated that there is an urgent need for effective intervention measures to curtail the incidence of diarrhea among children. Furthermore, health intervention programs, including exclusive breast feeding, which enhance children's physiological resistance against diseases, and maternal hygiene education should be strengthened to reduce the incidence of diarrhea. Our department hoped that the results of the study will provide guidance for policy makers in formulating strategies to improve child health in India.

## ETHICAL APPROVAL

The study was approved by the Institutional Ethical Committee of CIMS Chhindwara, Madhya Pradesh.

## CONFLICTS OF INTEREST

None declared.

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## REFERENCES

- Palacio-Mejía LS, Rojas-Botero M, Molina-Vélez D, García-Morale C, González-González L, Salgado-Salgado AL, *et al.* Overview of acute diarrheal disease at the dawn of the 21<sup>st</sup> century: The case of Mexico. *Salud Pública Méx* 2022;62:14-24.
- Bah D, Geburu G, Hakizimana JL, Ogbonna U, Sesay B, Bah B, *et al.* Prevalence and risk factors of diarrheal diseases in Sierra Leone, 2019: A cross-sectional study. *Pan Afr Med J* 2022;41:3. doi: 10.11604/pamj.2022.41.3.32403, PMID 35145595
- Xu M, Cao C, Guo H, Chen Y, Jia Z. Exploring the association between infectious diarrheal diseases and sea surface temperatures-coastal areas of China, 2009-2018. *China CDC Weekly* 2022;4:126.
- Behera DK, Mishra S. The burden of diarrhea, etiologies, and risk factors in India from 1990 to 2019: Evidence from the global burden of disease study. *BMC Public Health* 2022;22:1-9.
- Abdinia B. Knowledge and practice of mothers in the management of children's Diarrhea, in Northwest, Iran. *Arch Pediatr Infect Dis* 2014;2:1-4.
- Datta V, John R, Singh VP, Chaturvedi P. Maternal knowledge, attitude and practices towards diarrhea and oral rehydration therapy in rural Maharashtra. *The Indian J Pediatr* 2001;68:1035-7.
- Amare D, Dereje B, Tsesema M, Mullu G, Alene B, *et al.* Maternal knowledge and practice towards diarrhoea management in under five children in fenoteselam town, west Gojjam zone, Amhara regional state, Northwest Ethiopia, 2014. *J Infect Dis Ther* 2014;2:182.