

Role of maternal factors towards diarrhoeal episodes in under five children in India

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Abstract

Background: Diarrhea is widely recognized as a major cause of childhood morbidity and mortality in many developing countries, particularly in India. According to World Health Organization (WHO) report, diarrheal diseases are still leading causes of mortality and morbidity in children under five years of age.

Objective: The present study attempts to estimate the association between maternal factors and prevalence of Acute Diarrhoeal Diseases in children below 5 years of age in Indian settings.

Methods: This community-based, cross-sectional epidemiological and single-center study conducted in the rural field practice area attached to Department of Community Medicine of Topiwala National Medical College, Mumbai, Maharashtra, India from March 2017 to February 2018 was aimed to estimate the association between maternal factors and prevalence of Acute Diarrhoeal Diseases in children below 5 years of age in Indian settings. Ethics approval was obtained from Ethics Committee for Academic Research Projects (ECARP). Research tools included a pre-structured questionnaire. Baseline information of study area was taken from the Primary Health Centre. Data was entered in Microsoft Excel spreadsheet to perform analysis.

Results: In our study, 340 mothers who used to take bath daily of which 61(17.9%) had diarrhoeal episodes, whereas out of 30 mothers who do not take bath daily, 15(50%) had diarrhoeal episodes. Further, 340 mothers of children who used to wash their hands daily before the meals of which 58(15.8%) children had diarrhoeal episodes, whereas out of 30 mothers who did not wash their hands before meals, 18(60%) children had diarrhoeal episodes

Conclusion: The present study indicated that maternal factors bear a significant impact on morbidity caused by diarrhea.

Keywords: Diarrhoea, morbidity, risk factors, maternal factors, under 5 children

Introduction

Diarrhoeal disease is a serious health problem worldwide ^[1]. It is perhaps one of the most important causes of sickness and death among infants and children in developing countries ^[2].

Recent global estimations suggest that diarrhea kills about 3.2 million under five children every year with a per child average of 3-4 acute episodes per year. Though simple and effective treatment measures are available which can markedly reduce diarrhea associated morbidity and mortality, yet in developing countries due to poor hygienic practices in the community, diarrhea continues to be a major public health problem [3].

Reduction of morbidity associated with acute childhood diarrhea is an important public health goal in Indian children population [4]. The role of the family, especially the mother, is vital in health promotion, disease prevention and patient care [5]. Based on the fact that knowledge of mothers in developing countries regarding diarrhea, its management and adequate feeding practices is very limited. The importance of understanding maternal factors as related to diarrheal diseases as prerequisites to a culturally attuned preventive program [6-8].

In view of this, this community-based, cross-sectional epidemiological and single-center study conducted in rural field practice area attached to Department of Community Medicine of Topiwala National Medical College, Maharashtra, India was aimed to assess the role of maternal factors towards diarrheal episodes in under five children in India.

Materials and Methods

This community-based, cross-sectional epidemiological and single-center study was carried out March 2017 to February 2018 on consecutive 370 Children below 5 years of age in the study area. This study carried out in the rural field practice area attached to Department of Community Medicine of Topiwala National Medical College, Mumbai India was aimed to assess the role of maternal factors towards diarrheal episodes in under five children in India. Inclusion criteria composed of children below five years of age, children whose parents are willing to participate in the study and children whose parents are staying for past 6 months in the study area. Whereas, children whose parents/caregivers not present at the time of interview and children suffering from persistent diarrhoea, or any other severe illness were excluded from our study. Sampling method was systematic random sampling. Data collection was done using preformed questionnaire. Data was 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 for Academic Research Projects (ECARP) of the medical college and approval was sought.

A single interviewer interviewed mother of all the 370 children on a pre-designed, pretested 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 future.

Results

Table 1: Distribution of mother taking bath daily and diarrhoeal episodes in past 2 weeks

Mother taking bath	Frequency	Diarrhoeal episodes in past 2 weeks		Total
		Yes	No	
Yes	No.	61	279	340
	%	17.9	82.1	100
No	No.	15	15	30
	%	50	50	100
Total	No.	76	294	370
	%	20.5	79.5	100

$X^2 = 17.359$; D.F. =1; $p < 0.001$ Significant

From the above Table 1, it was observed that there were 340 mothers who used to take bath

daily of which 61(17.9%) had diarrhoeal episodes, whereas out of 30 mothers who do not take bath daily, 15(50%) had diarrhoeal episodes. Thus, there was significant association between mothers taking bath daily and diarrhoeal episodes in the past 2 weeks ($p<0.001$).

Table 2: Distribution of mother hand washing before meals and diarrhoeal episodes in past 2 weeks

Children hand washing	Frequency	Diarrhoeal episodes in past 2 weeks		Total
		Yes	No	
Yes	No.	30	201	231
	%	13	87	100
No	No.	46	73	119
	%	38.7	61.3	100
Total	No.	76	294	370
	%	20.5	79.5	100

$X^2 = 37.171$; D.F. =1; $p<0.001$ Significant.

From the above Table 2, it was observed that there were 231 children who used to wash Their hands daily before meals, 30(13%) had diarrhoeal episodes, whereas out of 119 children who did not wash their hands daily before meals, 46(38.7%) had diarrhoeal episodes. Thus there was significant association between children hand washing before meals and diarrhoeal episodes ($p<0.001$)

Discussion

Diarrhoea is one of the leading killer diseases among under five 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 & 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 (RCH) in 1997 and 2005, national rural/urban health mission between 2005 and 2012, national health mission (NHM) in 2013 to-date, program related to immunization and prevent diarrheal disease and acute respiratory infection (ARI). As a result, under-five mortality (U-5MR) reduced 55 to 29 per 1000 live births between 2011 to 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 diarrhoea ^[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 diarrhoeal episodes in the past 2 weeks. These results agree with the study undertaken by Curtis V *et al.* ^[10]. This study suggested that bathing daily and washing hands with soap can reduce the risk of diarrheal diseases by 42-47%. Further, our study recorded a significant association between mother hand washing before meals and diarrhoeal episodes in past 2 weeks. Similar finding was observed by Saran M *et al.* in which significantly higher odds of developing diarrhoea among children were seen in those children whose mothers did not wash the hands properly before feeding their children ^[11].

The current study findings should be discussed considering some limitations. Firstly, this

study used self-reported retrospective information. Therefore, potential recall bias might have been introduced in this study. Secondly, it was not possible to include all important potential factors of diarrhoeal disease, particularly behavioral factors in the analysis due to the paucity of information in the dataset.

Targeted approach should be initiated to mitigate the problem of the poor health status of children by providing adequate health care among socio-economically disadvantaged women and children. The policymakers and stakeholders should address adverse environmental conditions by the provision of latrine and improved housing facilities.

Conclusion

In conclusion, this study indicated that maternal factors bear a significant impact on morbidity caused by diarrhea. 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. Also, 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. It is hoped that the results of the study will provide guidance for policy makers in formulating strategies to improve child health in India.

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Ethical approval: The study was approved by the Ethics Committee for Academic Research Projects.

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