Biomedical and Biopharmaceutical Research
Abbreviation: Biomed. Biopharm. Res.
Volume: 18: Issue: 02 |Year: 2021
Page Number: 54-58

A Study on Prevalence of Diarrhoea in Children and Its Risk Factors in West Bengal: A cross-sectional study

Dr. Umesh Kumar[1], Dr. Sharon Rainy Rongpharpi[2], Dr. Nitish Kumar Singh[3], Dr. Naresh Kumar Munda[4]

[1] Associate Professor, Department of Paediatrics, Faculty of Faculty of Jagannath Gupta Institute of Medical Sciences and Hospital, West Bengal.

[2] Associate Professor, Department of Microbiology, Faculty of Gouri Devi Institute of Medical Sciences & Hospital, Durgapur, West Bengal.

[3] Assistant Professor, Department of Forensic Medicine and Toxicology, Faculty of Faculty of Jagannath Gupta Institute of Medical Sciences and Hospital, West Bengal.

[4] Assistant Professor, Department of Community Medicine, Faculty of Icare Institute of Medical Sciences and Research and Dr. B C Roy Hospital, Haldia, India

Corresponding Author

Dr. Naresh Kumar Munda

Assistant Professor, Department of Community Medicine, Faculty of Icare Institute of Medical Sciences and Research and Dr. B C Roy Hospital, Haldia, India

Received: 21-03-2021

Accepted: 14-11-2021

Published: 22-12-2021

Abstract

Background: Diarrhoea is a leading cause of morbidity and mortality among children under five in developing countries. In West Bengal, diarrheal diseases remain a major public health concern, especially in rural and low-income communities. Objective: To assess the prevalence of diarrhoea among children in West Bengal and identify associated risk factors such as sanitation, hygiene, water source, and nutritional status. Methods: A cross-sectional study was conducted among 32 children aged 6 months to 5 years. Data were collected using a structured questionnaire administered to caregivers, focusing on diarrheal episodes within the past two weeks and associated environmental and health-related factors. Results: The prevalence of diarrhea was found to be 28.1%. Risk factors significantly associated with diarrhea included poor sanitation, unsafe drinking water, and malnutrition. Children from families with inadequate handwashing practices had higher rates of diarrheal illness. Conclusion: Diarrhea remains prevalent among children in West Bengal, with modifiable risk factors such as hygiene, water safety, and nutrition playing a significant role. Community education and infrastructure improvement are necessary to reduce disease burden.

KEYWORDS: Diarrhoea, Risk factors.

INTRODUCTION

Diarrheal diseases are among the top causes of morbidity and mortality in children under five, especially in low-resource settings. In India, despite improved public health interventions, diarrheal illness remains common due to unsafe water, poor hygiene, and inadequate sanitation[1].

In India, diarrheal diseases are a significant public health concern, especially among children under five, with an estimated 9% prevalence in the past two weeks preceding the National Family Health Survey (NFHS)-4 (2015-16). While India has made progress in reducing infant and child mortality, diarrheal diseases remain a leading cause of morbidity and mortality in young children. Key points about neonatal diarrhea in India: Prevalence:

Diarrheal diseases are a major issue in India, with approximately 9% of under-five children experiencing it in the two weeks preceding the NFHS-4 survey,

Impact: Diarrheal diseases can lead to malnutrition, growth faltering, and cognitive development issues in children. Regional Variations: The prevalence of diarrhea varies significantly across India, with some regions having much higher rates than others. For example, the prevalence was reported to be as high as 13.1% in the central region and as low as 4.2% in the northeast region, according to BMC Public Health. Government Initiatives:

The Indian government has implemented programs like the Integrated Child Development Scheme (ICDS) and the Intensified Diarrhea Control Fortnight to address this issue[2]. Factors Contributing to Diarrhea: Socio-demographic and environmental factors like sanitation, water quality, and hygiene practices play a crucial role in the prevalence of diarrhea. Mortality: Diarrheal diseases and pneumonia account for a significant portion of under-five deaths in India[3].

In West Bengal, both rural and urban slums experience frequent diarrheal outbreaks. Children are particularly vulnerable due to immature immune systems and malnutrition. This study aims to estimate the prevalence of diarrhoea in children and identify key environmental and behavioural risk factors, to support public health interventions.

METHODS

This study was conducted in a tertiary hospital. After obtaining institutional ethical committee approval. It was Cross-sectional observational study conducted on 32 patients in the department of Paediatrics, at a tertiary care centre, from April / 2021 to October/2021

Total 32 participant were approached to project among them No one were excluded in this study and Total 32 Confirmed cases were included on the basis of fulfilling of the eligibility criteria.

The institute Ethics Committee approval was obtained before starting the sample collection. A written and informed consent was taken from the patient regarding the study in his/her vernacular language and English. In this study Patients were subjected to: A detailed history of sign & symptoms and its duration. Detailed history of systemic diseases and its duration, medication were noted. Patients were subjected to General physical examination.

Study Design:

Cross-sectional observational study

Study Setting:

Conducted in rural and semi-urban regions of West Bengal.

Sample Size:

32 children aged 6 months to 5 years

Inclusion Criteria:

- Children aged 6 months to 5 years
- Residing in West Bengal
- Caregivers willing to participate and provide informed consent

Exclusion Criteria:

- Children with chronic gastrointestinal disorders
- Recent hospitalization for unrelated illness

Data Collection Tools:

- Structured questionnaire to caregivers
- Assessment of:
  - Diarrhea occurrence in the past 14 days
  - Water source, handwashing habits
  - Nutritional status using weight-for-age

Statistical Analysis:

- SPSS v21 used

- Descriptive statistics and chi-square test for associations ($p<0.05$ significant)

RESULTS

In this study we found that Diarrhoea is associated with demographic profile of patient. 31.2 % of paediatrics are suffered of Diarrhoea their age group is 13–24 months age group followed by 25–36 months age group Its prevalence 21.9% .

Male are more prone to suffered of Diarrhoea as compared to female its prevalence 53.1% .62.5% Diarrhoea were predominance among rural residence (Table 1)

Demographic Factors Table 1

Variables	**Frequency (n=32)**	**Percentage (%)**
Age Group		
6–12 months	6	18.8
13–24 months	10	31.2
25–36 months	7	21.9
37–60 months	9	28.1
Gender		
Male	17	53.1
Female	15	46.9
Residence		
Rural	20	62.5
Semi-urban	12	37.5

Prevalence of Diarrhea:

- **Children with diarrhea in last 14 days:** 9 out of 32
- **Prevalence: 28.1%**

Risk Factors Table 2

Risk Factors	**Diarrhea Present (n=9)**	**No Diarrhea (n=23)**	**p-value**
Unsafe drinking water	7 (77.8%)	9 (39.1%)	0.04*
Poor handwashing practices	6 (66.7%)	6 (26.1%)	0.03*
Malnutrition (underweight)	5 (55.6%)	4 (17.4%)	0.02*
Lack of sanitary toilets	6 (66.7%)	8 (34.8%)	0.08
Breastfeeding < 6 months	3 (33.3%)	3 (13.0%)	0.17

*Statistically significant ($p < 0.05$

DISCUSSION

This study highlights a 28.1% prevalence of diarrhea among children aged 6 months to 5 years in selected areas of West Bengal. This is consistent with national estimates, particularly in rural and economically weaker populations[4].

Diarrheal disease is influenced by various demographic factors, including age, especially in young children, and socioeconomic status, with poverty and inadequate sanitation being significant risk factors. Maternal education

level and household economic conditions also play a role in the occurrence of diarrhea in children. In this study we found that Diarrhoea is associated with demographic profile of patient. 31.2 % of paediatrics are suffered of Diarrhoea their age group is 13–24 months age group followed by 25–36 months age group Its prevalence 21.9% .

Male are more prone to suffered of Diarrhoea as compared to female its prevalence 53.1% .62.5% Diarrhoea were predominance among rural residence (Table 1)

Here's a more detailed breakdown: Age: Children under five are most vulnerable: Diarrheal disease is a leading cause of death and illness in children under five globally. Age-specific vulnerability: Studies show that the incidence of diarrhea is highest among infants aged 6-11 months and lowest among children aged 24-59 months[5-8].

Socioeconomic Factors: Poverty and sanitation: Poverty and inadequate sanitation facilities are major risk factors for diarrheal disease. Household wealth:

Wealthier households are often associated with better sanitation and hygiene practices, which can reduce the risk of diarrhea. Maternal education:

Lower levels of maternal education are associated with increased risk of diarrhea, possibly due to factors like poor hygiene practices or inadequate childcare. Other Demographic Factors: Region: Geographic location and seasonal variations can influence the prevalence of diarrheal diseases. For example, rainy seasons may see an increase in viral diarrhea. Household characteristics: Factors like household size, access to clean water, and proper waste disposal can also impact diarrheal prevalence[9-11].

In conclusion, a combination of age-related vulnerability in young children, socioeconomic factors like poverty and sanitation, and other demographic factors such as maternal education and regional variations all contribute to the burden of diarrheal disease globally[12]

Significant risk factors identified include unsafe drinking water, inadequate handwashing, and malnutrition—all modifiable with targeted interventions. Although access to sanitary toilets and early cessation of breastfeeding also showed some association, results were not statistically significant in this small sample[13].

The study's limitation is its small sample size and limited geographic coverage. However, the findings are consistent with broader public health studies in similar settings and highlight critical areas for intervention[14].

CONCLUSION

The prevalence of diarrhea among children in West Bengal remains high, with key modifiable risk factors being: Use of unsafe drinking water Poor hygiene practices Malnutrition Promote hand hygiene and sanitation education Improve access to safe drinking water Address child malnutrition through local nutrition programs Conduct larger studies for broader epidemiological understanding

SOURCE OF FUNDING: No

CONFLICT OF INTEREST

The authors report no conflicts of interest

SUBMISSION DECLARATION

This submission has not been published anywhere previously and that it is not simultaneously being considered for any other journal.

REFERENCES

1. The District Health Information Software. Diarrhea among under five children. Nairobi: DHIS; 2019. [Google Scholar]
2. Concern Worldwide. Nutrition survey conducted in the slums of Nairobi, Kenya. Nairobi; 2017. [Google Scholar]
3. Fischer H, Werner M, Wagenbach D, et al. Little ice age clearly recorded in northern Greenland ice cores. Geophys Res Lett 1998;25:1749–52. [Google Scholar]

4. KNBS. 2009 Kenya population and housing census. Nairobi; 2009. [Google Scholar]
5. Meningistie B, Berhane Y, Worku A. Prevalence of diarrhea and associated risk factors among children under five years of age in eastern Ethiopia: A cross-sectional study. J Prev Med 2013;3:446–53. [Google Scholar]
6. Wanjiru AM. Caregiver's knowledge, perceptions and practices on diarrheoal diseases among children under five years in Turkana County, Kenya. Kenyatta University; 2018. [Google Scholar]
7. Ansari M, Izham M, Ibrahim M, Ravi P. Mothers' knowledge, attitude and practice regarding diarrhea and its management in Morang Nepal : an interventional study. Trop J Pharm Res 2012;11: 847–54. [Google Scholar]
8. Hillow HS. Caregivers Knowledge and Practices in Management of diarrhoea among children aged 6-59 months in Ceelafweyn District, Sanag Region, Somaliland. Kenyatta University; 2018. [Google Scholar]
9. Woldu W, Bitew BD, Gizaw Z. Socioeconomic factors associated with diarrheal diseases among under-five children of the nomadic population in northeast Ethiopia. Trop Med Health 2016;44:7–14. [DOI] [PMC free article] [PubMed] [Google Scholar]
10. Corburn J, Karanja I. Informal settlements and a relational view of health in Nairobi, Kenya: sanitation, gender and dignity. Health Promot Int 2014;31: 258–69. [DOI] [PubMed] [Google Scholar]
11. County Government. Nairobi city county health sector strategic and investment plan. Nairobi; 2017. [Google Scholar]
12. Gupta A, Sarker G, Rout AJ, Mondal T, Pal R. Risk correlates of diarrhea in children under 5 years of age in slums of Bankura, west Bengal. J Glob Infect Dis 2015;7:23–9. [DOI] [PMC free article] [PubMed] [Google Scholar]