



# **Disease Ecology of Diarrhea in South 24 Parganas District, West Bengal**

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Diarrhea remains a significant cause of morbidity and mortality in developing countries, particularly in the humid tropics. South 24 Parganas district in West Bengal, India, is heavily affected by this water-borne disease. This article aims to explore the causes, consequences, and epidemiological condition of diarrhea in the study area. By analyzing both primary and secondary data, we can gain valuable insights into the disease ecology and recommend effective prevention and control measures.

## **Introduction**

Diarrhea is a dominant water-borne disease in South 24 Parganas district. It is characterized by an abnormal frequency of watery stools, typically occurring three to four times a day. This district, located in the southern tip of West Bengal, comprises five subdivisions and 29 C.D. blocks. The main objective of this study is to understand the causes and consequences of diarrhea in the study area. By collecting and interpreting both secondary and primary data, we can gain a comprehensive understanding of the disease dynamics.

## **Diarrhea Morbidity and Mortality**

Diarrhea cases are highest in the western part of the district, although the frequency of the disease has decreased over time. Rainy seasons tend to have the highest reported cases, indicating a link between water contamination and disease outbreak. Unawareness about safe drinking water and sanitation practices contributes to the spread of diarrhea in the district. To control acute diarrheal disease, zinc supplementation, distribution of oral rehydration solution (ORS), and rotavirus vaccination have been introduced. The World Health Organization initiated a special program for diarrheal disease control among children in 1980, which was launched in India in 1985-86.

## **Objectives of the Study**

The study aims to achieve two objectives: understanding the epidemiological condition of diarrhea in South 24 Parganas district and studying the causes and consequences of the disease in the area under study. By analyzing the available data, we can gain insights into the temporal trends, prevalence rates, death rates, case fatality rates, and seasonal outbreaks of diarrhea in the district.

## Analysis of Diarrhea Incidences

By analyzing the temporal variation of diarrhea cases in 2023, we can observe a gradual decline in the number of incidences in the study area. Initially, the disease's frequency was high due to a lack of awareness about basic health and hygiene practices. However, after implementing necessary actions to reduce the number of cases, the frequency of diarrhea started to decline. Factors such as infrastructural development and improved healthcare services played a crucial role in reducing the disease burden.

## Subdivision-wise Distribution of Diarrhea Cases

Diarrhea cases have been reported in all subdivisions of the district, with the highest incidence observed in the western part. Lack of awareness about safe drinking water and poor sanitation practices contribute to the higher intensity of the disease in urban counterparts. Natural calamities, such as cyclones, can also lead to an increase in diarrhea cases. However, after implementing necessary actions to control waterborne diseases in the affected areas, the incidences have gradually decreased.

## Prevalence Rate of Diarrhea

The prevalence rate of diarrhea, measured as the percentage of the population suffering from the disease, has been gradually declining in the district. From 2001 to 2014, the rate decreased from more than three percent to below one percent. This decline can be attributed to increased awareness about the disease, improved sanitation practices, and access to clean drinking water.

## Death Rate and Case Fatality Rate

The death rate and case fatality rate are important indicators of the severity of diarrhoea in the study area. Over time, both rates have shown a declining trend. In 2004, the death rate reached its peak, but since then, it has gradually decreased. Similarly, the case fatality rate was highest in 2002 and has been decreasing since then. The decline can be attributed to improved healthcare facilities, increased awareness, and effective treatment strategies.

## Seasonal Outbreaks of Diarrhea

Diarrhea incidences in the study area are highest between May and September, coinciding with the rainy season. This suggests a link between water contamination and the disease outbreak. Awareness campaigns during this period can play a crucial role in educating the population about safe drinking water and hygiene practices.

## Sources of Drinking Water and Domestic Use

Tube wells are the main source of drinking water in the study area, followed by public health engineering department (PHE) taps. However, the quality of water from tube wells is not always safe due to potential contamination. For domestic use, people in rural areas primarily rely on ponds, while those in urban areas use tube wells and municipal taps. Canal water is also used for domestic purposes, especially in rural areas.

## Filtration of Drinking Water and Awareness

Despite the importance of safe drinking water, many respondents in the study area do not filter water before consumption. This lack of awareness contributes to the spread of waterborne diseases. Media, including television, radio, newspapers, posters, and banners, play a crucial role in creating awareness about the significance of safe drinking water. Health workers, friends, and local authorities also contribute to disseminating information on water purification methods.

## Sanitary Facility and Hygiene

Sanitary facilities, such as toilets, are essential for maintaining a hygienic environment and preventing the spread of diarrhea. The study revealed that different subdivisions have varying levels of access to proper sanitation facilities. Piped septic tanks and flush-type toilets are common in urban areas, while pit latrines and open spaces are more prevalent in rural areas. Improving access to proper sanitation facilities is crucial for reducing the disease burden.

## Conclusion

The study sheds light on the disease ecology of diarrhea in South 24 Parganas district, West Bengal. By analyzing relevant data, we have identified the causes, consequences, and epidemiological condition of diarrhea in the study area. It is evident that improving awareness about safe drinking water, sanitation practices, and hygiene can significantly reduce the disease burden. Implementing effective preventive measures, such as zinc supplementation, distribution of ORS, and rotavirus vaccination, can further contribute to controlling diarrhea in the district.

