

# A Study of Mortality Pattern in Hospitalized under Five Year Age Children

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## Abstract

**Background:** To identify the major causes of morbidity in children under the age of five and to track seasonal fluctuations in disease occurrence. **Subjects and Methods:** All children admitted to the inpatient Department of Pediatrics between the ages of one month and five years, as well as those who died while receiving care at the hospital, were included in the study group. Data on several factors such as age, sex, reason of morbidity, and length of hospital stay were acquired from the record room's registers for our purposes. **Results:** Acute Respiratory Infections (ARI) were found to be the leading cause of morbidity in children under the age of five, the monthly trend of admissions was examined, and it was discovered that ARI admissions peaked from October to February. In terms of the most common causes of morbidity in children under the age of five, a monthly trend of disease was noted, with the highest number of diarrheal cases admitted in the months of April to July, but a low prevalence of diarrheal disease in the months of September to February. **Conclusion:** ARI is still the leading cause of death in children under the age of five, with 35.4 percent of hospitalizations owing to ARI. This is in line with a WHO report that states that ARI is responsible for 30-40% of visits to health facilities and roughly 20-40% of hospital admissions.

**Keywords:** Pediatrics, Retrospective and Morbidity.

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## Introduction

Childhood mortality is a substantial societal health burden and a critical public health issue. Under-five mortality was defined as a public health calamity in one Lancet series on child survival.<sup>[1]</sup> In response to the high rate of childhood death in Sub-Saharan African countries, the United Nations and the World Health Organization (WHO) have set a millennium development target of halving youth mortality by two-thirds by 2015. The under-five mortality rate (U5MR) was reported at 66/1000 live births in 2014, which is a 50% drop from the U5MR reported in 1990.<sup>[2]</sup> Because under-five children account for 20% of India's population, any unit change in mortality has a large impact on the population.<sup>[3]</sup> Identifying the factors that contribute to under-five mortality is critical for developing effective health programmes and policies. India has adopted and implemented to some extent a number of key worldwide efforts targeted at improving health outcomes in children in order to address this problem and health disparities. Childhood is a formative time in a person's life, during which they are exposed to a variety of inherent and external stimuli that influence their survival, health, and sickness. The state of a community's child health reflects its overall socioeconomic development and public health concerns. The state of a country's child health is represented in numerous morbidity and mortality measures, as well as their variations over time. India is home to 19 percent of the

world's children, and its morbidity profile, like that of any other country, changes with overall socioeconomic and environmental development, as well as child health care awareness and facilities in the community. As a result, thorough documenting of the same is critical for proper health-care planning. Although community data on patterns of childhood morbidity in India is limited due to a poor reporting system, vital events such as the most common causes of morbidity, age and sex-based distribution of the common causes of morbidity, and seasonal trends in the occurrence of common ailments such as Acute Respiratory Infections (ARI) and Acute Diarrheal Diseases (ADD) are critical in planning health-care services. A greater knowledge of the causes of childhood morbidity may lead to a more successful strategy for saving these children's lives. India's child health is at a fork in the road. Despite these attempts, the Indian child's standing remains far lower than that of a youngster in wealthy countries. Because morbidity indicators are reliable indicators of community health, studies that reflect morbidity patterns can provide useful information about disease trends, the impact of health programmes, and serve as a foundation for future planning and implementation efforts aimed at saving these precious lives. The goal of the study was to examine data on disease patterns in various paediatric age groups admitted to a tertiary care hospital, as the information could help health planners better understand disease epidemiology and allocate precious health resources to reduce juvenile

morbidity. To minimise child morbidity, the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) programme aims to enhance family and community health practises, particularly health-seeking behaviours.<sup>[4]</sup> The study's goal was to look at the major causes of childhood morbidity in children under the age of five who were admitted to a tertiary care hospital.

### Subjects and Methods

This study was a hospital-based cross-sectional study on under-five children, carried out in the Department of Pediatrics, World College of Medical Sciences Research and Hospital, Jhajjar Haryana, India during the period from January,2016 to December,2018. All children admitted to the inpatient Department of Pediatrics between the ages of one month and five years, as well as those who died while receiving care at the hospital, were included in the study group. Data on several factors such as age, sex, reason of morbidity, and length of hospital stay were acquired from the record room's registers for our purposes. On the day of admission, a detailed medical history was taken, including the length of the illness, the duration of pre-hospitalized therapy, the level of pre-hospitalized treatment, and the severity of the illness as measured by the Yale observational scale.<sup>[5]</sup> Number and percentage were used to analyse the

data.

### Results

Males had greater admissions for various causes of morbidity in all paediatric age groups, with a total of 50.8 percent admissions compared to 49.2 percent admissions for females. The number of admissions in the under-5 age group peaked at 26.9% in infancy up to 12 months of age, followed by 22.3 percent in the third and fourth years of life. Acute Respiratory Infections (ARI) caused the most morbidity across all age groups, accounting for 35.4 percent of overall morbidity, followed by Acute Diarrheal Diseases (13.8 percent). Acute Diarrheal Diseases were most common in infancy (0-12) months of age, while the age group most affected by ARI was 12-24 months of age.

**Table 1: Distribution of children admitted for various causes of morbidity in the under-5 age group by age and gender**

Age interval in Months	Male (%)	Female (%)	Total (%)
0-12	18 (51.4%)	17 (48.6%)	35 (26.9%)
12-24	13 (52.0%)	12 (48.0%)	25 (19.2%)
24-36	15 (51.7%)	14 (48.3%)	29 (22.3%)
36-48	14 (53.8%)	12 (46.2%)	26 (20.0%)
48-60	06 (40.0%)	09 (60.0%)	15 (11.5%)
Total	66 (50.8%)	64 (49.2%)	130 (100.0%)

**Table 2: Common Infectious Diseases-Related Morbidity in Children Under 5 Years of Age**

Age interval in Months	Total (%)	Acute Respiratory Infections (ARI)	Acute Diarrheal Diseases (ADD)	Urinary Tract Infections (UTI)	Typhoid Fever /PUO	Meningitis	Malaria	Sepsis
0-12	35 (%)	13 (37.1%)	7 (20.0%)	2 (5.7%)	1 (2.9%)	3 (8.6%)	0 (0.0%)	2 (5.7%)
12-24	25 (%)	11 (44.0%)	1 (4.0%)	1 (4.0%)	3 (12.0%)	2 (8.0%)	2 (8.0%)	0 (0.0%)
24-36	29 (%)	8 (27.6%)	3 (10.3%)	2 (6.9%)	1 (3.4%)	3 (10.3%)	1 (3.4%)	1 (3.4%)
36-48	26 (%)	10 (38.5%)	5 (19.2%)	2 (7.7%)	2 (7.7%)	1 (3.8%)	1 (3.8%)	1 (3.8%)
48-60	15 (%)	4 (26.7%)	2 (13.3%)	3 (20.0%)	1 (6.7%)	1 (6.7%)	1 (6.7%)	0 (0.0%)
Total	130 (%)	46 (35.4%)	18 (13.8%)	10 (7.7%)	8 (6.2%)	10 (7.7%)	5 (3.8%)	4 (3.1%)

**Table 3: Non-Communicable and Other Disorders-Related Morbidity in Children under the Age of 5 Years**

Age interval in Months	Total (%)	CNS Diseases	CVS Diseases	Severe Malnutrition (Grade IV)	Anaemia (Hb<7gm%)	Miscellaneous (Eye, Ear & Skin infections)
0-12	35 (%)	1 (2.9%)	0 (0.0%)	1 (2.9%)	1 (2.9%)	0 (0.0%)
12-24	25 (%)	1 (4.0%)	2 (8.0%)	1 (4.0%)	1 (4.0%)	1 (4.0%)
24-36	29 (%)	2 (6.9%)	3 (10.3%)	1 (3.4%)	3 (10.3%)	1 (3.4%)
36-48	26 (%)	1 (3.8%)	1 (3.8%)	1 (3.8%)	1 (3.8%)	0 (0.0%)
48-60	15 (%)	1 (6.7%)	0 (0.0%)	1 (6.7%)	1 (6.7%)	0 (0.0%)
Total	130 (%)	6 (4.6%)	8 (6.2%)	5 (3.8%)	8 (6.2%)	3 (2.3%)

Anemia was the most common cause of morbidity in the paediatric age group, with 6.2 percent of children admitted owing to CVS illness and severe anaemia, and was the most prevalent (10.3 percent) condition in children aged 24-36 months. A total of 3.8 percent of the children admitted had severe malnutrition. CNS illnesses accounted for 4.6 percent of morbidity in children under the age of five, followed by miscellaneous (Eye, Ear, and Skin infections), which accounted for 2.3 percent. Because Acute Respiratory Infections (ARI) were found to be the leading

cause of morbidity in children under the age of five, the monthly trend of admissions was examined, and it was discovered that ARI admissions peaked from October to February. In terms of the most common causes of morbidity in children under the age of five, a monthly trend of disease was noted, with the highest number of diarrheal cases admitted in the months of April to July, but a low prevalence of diarrheal disease in the months of September to February.

## Discussion

Medical records can aid in determining the community's illness load and health-care needs, as well as the adequacy of health-care resources. This study was conducted in order to create data that can aid in understanding the health care needs of paediatric patients in tertiary health care settings, as well as assisting health managers in resource allocation planning. The male to female admission ratio in tertiary care hospitals was 1:03, according to the study. This finding is backed by a recent study by Singhi et al, who reported that in PGIMER paediatric emergency male to female admissions were 3:1.<sup>[6,7]</sup> Males were seen and admitted more frequently for various morbidities, accounting for 50.8 percent of hospital admissions compared to 49.2 percent for females. This could be due to the biological vulnerability of males to infection, but a more likely reason is the premium attached to male children in our society, or simply the gender bias in the region and the more health care seeking behaviour for male children as compared to females, leading to preferential treatment. In previous investigations, a male preponderance in emergency care was also well documented.<sup>[8,9]</sup> The most common morbidity was found to be ARI (35.4%), followed by Diarrheal illnesses (13.8%). Earlier studies from India have shown that diarrhoea and acute respiratory infections are the most common reasons for paediatric emergency services utilisation at a primary and tertiary care hospital,<sup>[10-12]</sup> and the findings of this study are similar. However, in contrast to these studies, while the most common causes of morbidity are ADD and ARI, ARI morbidity accounts for 35.4 percent of all paediatric admissions under the age of five. The largest hospitalisation due to diarrheal diseases was recorded in infancy, and the morbidity due to diarrheal diseases was observed to be 13.8 percent. The lower prevalence of diarrhoea in a tertiary care hospital is encouraging; it could signal that the "Acute diarrheal disease control programme," particularly the usage of ORS, has been successful. In terms of the prevalence of other nutritional problems in children under the age of five, the severely undernourished child requiring admission was found to be 3.8 percent. This finding is nearly identical to that found in the National Family Health Survey (NFHS-2),<sup>[5]</sup> which found a prevalence of severe malnutrition of 2.8 percent. In the current study, 6.2 percent of children under the age of five were determined to be extremely anaemic, necessitating hospitalisation, which is significantly higher than the NFHS-3 figure of 3% severely anaemic children.<sup>[13]</sup>

## Conclusion

The current study shows that ARI is still the leading cause of death in children under the age of five, with 35.4 percent of hospitalizations owing to ARI. This is in line with a WHO report that states that ARI is responsible for 30-40% of visits to health facilities and roughly 20-40% of hospital admissions. The winter months, from October to February, saw the highest number of admissions to the hospital owing to ARI. GI infections peaked in May and then peaked again in July. It's possible that the summer spike is related to a lack of drinking water and inadequate sanitation.

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