Chattagram Maa-O-Shishu Hospital Medical College Journal
Volume 25, Issue 1, January 2026
https://doi.org/10.3329/cmoshmcj.v25i1.89852

Original Article

Common Indications of Infant Admission at a Tertiary Care Hospital

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Date of Submission : 19.08.2025
Date of Acceptance : 10.09.2025

www.banglajol.info/index.php/CMOSHMCJ

Abstract

Background: *Infants below one year are highly vulnerable to infections and malnutrition, influenced by biological, environmental and socioeconomic factors. Understanding disease patterns and associated determinants is crucial for targeted interventions. This study aims to assess the epidemiological pattern of common illnesses among infants below one year at Chattagram Maa-O-Shishu Hospital Medical College.*

Materials and methods: *A hospital-based cross-sectional study was conducted on 453 infants aged below one year in Pediatric Department of Chattagram Maa O Shishu Hospital from 1st January 2024 to 31st December 2024. Data were collected using a structured questionnaire covering demographic information, socioeconomic status, presenting symptoms, and final clinical diagnoses. Statistical analysis was done in MS Excel and IBM SPSS version 24.*

Results: *Among the 453 infants, 55% were male and 45% female. The majority were aged 1–3 months (37.1%) followed by 4–6 months (32%) and 7–12 months (30.9%). Mean ± SD = 5.28 ± 3.08 months. Most infants had normal birth weight (68%) and 58% were exclusively breastfed. Regarding maternal education, 22.1% had no formal education, 45% had primary education and 32.9% had secondary or higher education. In terms of socio-economic condition, 38% of families earned below 10,000 BDT monthly, 47% earned between 10,000–25,000 BDT and 15% earned more than 25,000 BDT. Urban residents accounted for 54.7% and 94.9% of the sample were Muslim. Common presenting symptoms included fever (62%) cough (47%) and diarrhea (36%). The leading diagnoses were respiratory tract infections (31%) followed by gastrointestinal disorders (25%) and associated with skin infections (15%).*

Conclusion: *Infants admitted to Chattagram Maa-O-Shishu Hospital exhibited a high burden of respiratory and gastrointestinal conditions, with socio-demographic factors such as maternal education and feeding practices influencing health outcomes. Strengthening maternal education and promoting exclusive breastfeeding are key strategies to improve infant health in urban and peri-urban settings.*

Key words: Acute Respiratory Infections (ARI); Infant; Low birth weight; Morbidity.

INTRODUCTION

Infants under one year of age represent one of the most vulnerable population groups in terms of health outcomes. During this critical period of rapid growth and immune system development, they are particularly susceptible to infectious diseases and malnutrition, both of which contribute significantly to global infant morbidity and mortality rates.[1] In 2021, the global infant mortality rate was approximately 27 deaths per 1,000 live births, with the highest burden observed in low- and middle-income countries, including Bangladesh.[2]

In Bangladesh, despite improvements in maternal and child health services over the past decades, under-five mortality remains a major public health issue, with a considerable proportion of deaths occurring during infancy.[3] Common illnesses such as Acute Respiratory Infections (ARI) diarrhea, pneumonia, and sepsis are leading causes of hospital admissions and deaths among infants.[4] These health outcomes are often compounded by poor living conditions, lack of immunization coverage, inadequate maternal education, and poverty, especially in slum and underserved urban populations.[5]

Socio-demographic and economic factors such as maternal education, household income, family size and area of residence have been shown to influence both the prevalence of disease and patterns of healthcare-seeking behavior[6]. Urban slums, in particular, present a higher risk for disease transmission due to overcrowding, inadequate sanitation and limited access to quality healthcare services.[7] Chattogram, the second-largest city in Bangladesh, is home to a large number of urban slum settlements with poor living conditions that directly impact child health.[8]

Chattagram Maa-O-Shishu Hospital Medical College serves as a key tertiary-level healthcare facility in the region, catering to a diverse population, including low-income and slum-dwelling communities. However, there is a lack of recent localized data that specifically focuses on the burden of disease and its socio-demographic determinants among infants below one year of age in this setting.

This study aims to assess the epidemiological pattern of common illnesses among infants below one year at Chattagram Maa-O-Shishu Hospital Medical College. It further seeks to explore the influence of socio-demographic and economic factors on disease presentation, aiming to provide actionable insights for improving child health interventions in the region.

MATERIALS AND METHODS

This cross sectional study was done at the Outpatient Department of Chattagram Maa-O-Shishu Hospital. Patient's illness history and presenting clinical signs and symptoms were evaluated by the attending medical officer and a clinical diagnosis was made. A total of 453 sick infants (1 to 12 months of age) were included as study subject. Written consent was taken from the respondents. And ethical clearance was provided from the hospital. Data entry and analysis was done in MS Excel Version 2010 and IBM SPSS software version 24.

RESULTS

Table I Socio-Demographic Profile of Infants (n=453)

Variable	Frequency (n)	Percentage (%)
Age Distribution		
1–3 months	168	37.1
4–6 months	145	32.0
7–12 months	140	30.9
Mean ± SD = 5.28 ± 3.08 months		
Gender		
Male	249	55.0
Female	204	45.0
Birth Weight		
Normal (≥2.5 kg)	308	68.0
Low Birth Weight (<2.5 kg)	145	32.0
Maternal Education		
No formal education	100	22.1
Primary education	204	45.0
Secondary or higher	149	32.9
Family Income (Monthly)		
<10,000 BDT	172	38.0
10,000–25,000 BDT	213	47.0
>25,000 BDT	68	15.0
Feeding Practices		
Exclusive breastfeeding	263	58.0
Mixed feeding	159	35.0
No breastfeeding	31	7.0
Location		
Urban	248	54.7
Rural	205	45.3

Among the 453 infants included in the study, the largest age group was 1–3 months (37.1%) followed by 4–6 months (32.0%) and 7–12 months (30.9%). Mean and Standard Deviation of age is 5.28 ± 3.08 months. The male-to-female ratio was slightly skewed, with males accounting for 55.0% of the sample. Regarding birth weight, 32.0% of infants were classified as low birth weight (<2.5 kg) while the majority (68.0%) had normal birth weight.

In terms of maternal education, 22.1% of mothers had no formal education, 45.0% had completed primary education, and 32.9% had secondary or higher education. Most families 47.0% reported a monthly income between 10,000–25,000 BDT, while 38.0% earned less than 10,000 BDT. A small proportion 15.0% reported earnings above 25,000 BDT.

Exclusive breastfeeding was reported in 58.0% of infants, while 35.0% received mixed feeding and 7.0% were not breastfed at all. The residential distribution showed that 54.7% of the infants were from urban areas and 45.3% were from rural settings.

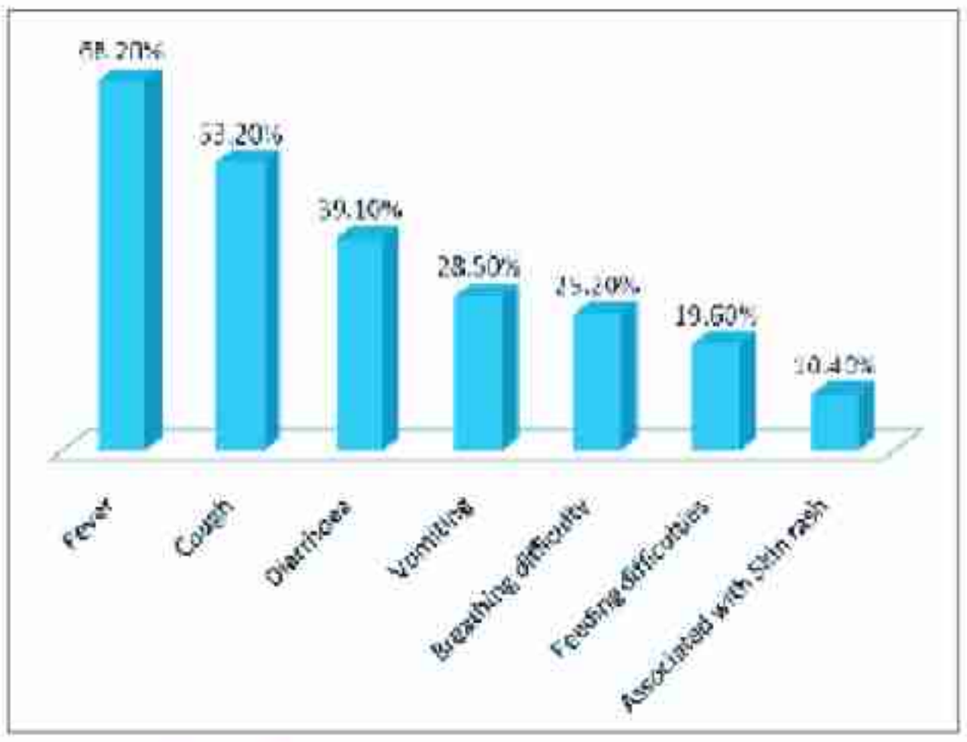

Figure 1 Presenting Symptoms of Infants

The most common presenting symptom among the infants was fever, reported in 68.2% of cases, followed by cough in 53.2% and diarrhoea in 39.1%. Other symptoms included breathing difficulty (25.4%) vomiting (28.50%) feeding difficulties (19.60%) and associated with skin rash (10.40%).

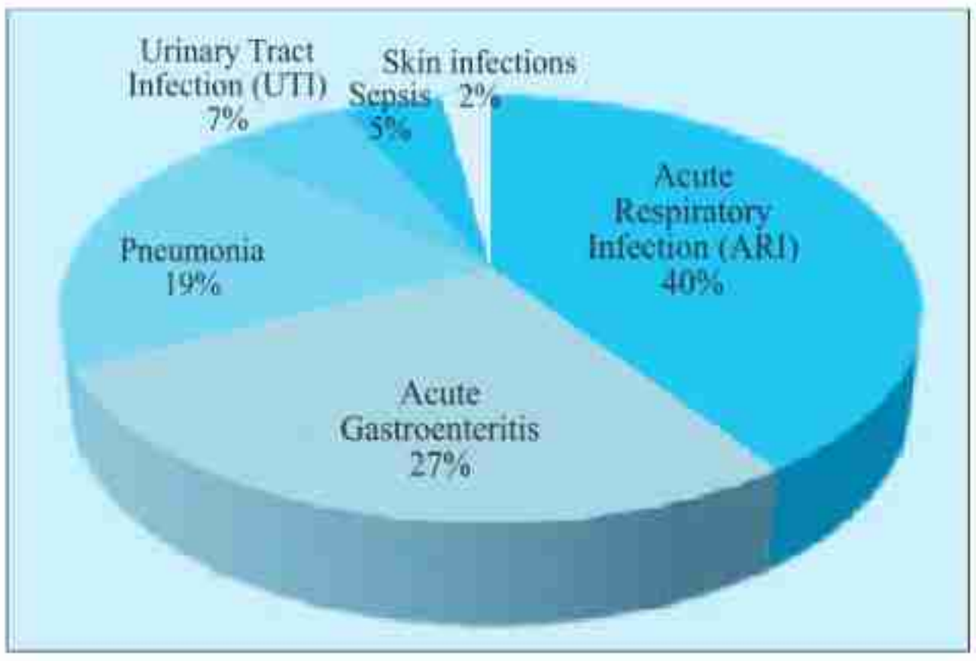

Figure 2 Clinical Diagnoses of Infants

The most frequently diagnosed condition among the infants was Acute Respiratory Infection (ARI) accounting for 40.4% of cases. This was followed by gastroenteritis (27.2%) pneumonia (19.2%) and sepsis (5%). Less common diagnoses included urinary tract infections (7%) and skin infections (2%).

DISCUSSION

A total of 453 infants were included, with a relatively even distribution across the three age categories: 1–3 months (37.1%) 4–6 months (32.0%) and 7–12 months (30.9%). The mean age was 5.28 months, suggesting a substantial representation from early infancy—a time considered biologically vulnerable due to immature immune responses and incomplete immunization coverage.[1] The slight male predominance (55.0%) in hospital admissions mirrors patterns seen in other pediatric studies in South Asia, where male children are often more likely to be brought to medical attention due to gendered health-seeking behaviors.[2]

Approximately one-third (32.0%) of the infants had low birth weight (<2.5 kg) a figure consistent with national estimates reported in the Bangladesh Demographic and Health Survey (BDHS) 2017–18, where 22–30% of infants were found to have low birth weight depending on socioeconomic status.[3] Low birth weight is an established risk factor for both short-term complications such as infections and long-term developmental delays.[4] Its high prevalence in this cohort highlights the persistent challenges in maternal nutrition, antenatal care and socioeconomic inequity.

Maternal education showed a strong association with health outcomes, with 22.1% of mothers lacking formal education. This finding is consistent with existing literature that links maternal education with child survival, health awareness, feeding practices and timely healthcare-seeking behavior.[5] Mothers with higher levels of education tend to better understand preventive care, recognize danger signs and engage with healthcare systems earlier.[6]

In terms of family income, nearly 38.0% of households earned below BDT 10,000 per month, placing them in the low-income bracket. This economic constraint likely contributes to delayed presentation, suboptimal nutrition, and inadequate access to preventive services like immunization and exclusive breastfeeding support. Urbanization has paradoxically widened health disparities in Bangladesh, as city slums often lack clean water, sanitation, and proper healthcare facilities.[7]

Feeding practices are a critical determinant of infant health. Exclusive Breastfeeding (EBF) was reported in 58.0% of infants, which is lower than the national average of 65% for infants under six months.[3] EBF is strongly associated with reduced risks of diarrhea, respiratory infections and mortality.[8] The relatively lower rates in this population suggest a need for intensified health education and lactation support programs, particularly targeting slum and low-income mothers who may face challenges such as early return to work, lack of family support and misinformation.

The urban-rural divide was relatively balanced (Urban 54.7%, Rural 45.3%) reflecting the hospital's wide catchment area. However, urban infants—especially from slum areas—face unique risks due to high population density, environmental pollution and limited healthcare access. Studies from urban Dhaka have shown higher rates of respiratory and gastrointestinal illnesses among infants from slum areas compared to non-slum areas.[9]

The symptom profile of infants revealed important epidemiological patterns. Fever (68.2%) was the most common symptom, followed by cough (53.2%) and diarrhoea (39.1%). These are classic presentations of common pediatric infections and align with findings from previous research in Bangladesh and similar contexts.[10] Fever, as a non-specific symptom, often indicates underlying bacterial or viral infections and its high prevalence reinforces the burden of communicable diseases in this age group.

https://doi.org/10.3329/cmoshmcj.v25i1.89852 Volume 25, Issue 1, January 2026

Cough and breathing difficulty were reported in more than half and one-quarter of the infants, respectively, suggesting a significant burden of respiratory illnesses. Young infants are particularly vulnerable to respiratory pathogens like Respiratory Syncytial Virus (RSV) influenza and bacterial pneumonia, which remain leading causes of hospitalization and death.[11] Studies in Dhaka and other urban centers confirm that poor air quality, overcrowded living spaces, and indoor pollution (e.g. From cooking stoves) exacerbate respiratory illnesses in slum populations.[12]

Diarrhoea was reported in 39.1% of the cohort, indicating the continued relevance of waterborne diseases. Unsafe drinking water, poor sanitation, and inadequate hand washing practices are major risk factors in urban slum settings.[13] The presence of vomiting (22.7%) and poor feeding (18.3%) suggests overlapping symptoms with gastrointestinal infections, further complicating diagnosis and management in clinical settings. Skin rash and feeding difficulties were less commonly reported but are important to monitor, especially in infants with compromised immunity or those who are not breastfed.

The most frequently diagnosed condition was Acute Respiratory Infection (ARI) affecting 40.4% of infants. This finding is consistent with national data showing ARI as the leading cause of pediatric outpatient visits and hospitalizations in Bangladesh.[3,5] Pneumonia, a more severe form of ARI, was diagnosed in 19.2% of infants and is of particular concern due to its potential to progress rapidly without appropriate treatment. In a meta-analysis of community-based studies, pneumonia was associated with the highest mortality rates among children under five, particularly in resource-limited settings.[14]

Gastroenteritis, found in 27.2% of cases, also remains a major health challenge. Despite efforts to improve sanitation and introduce rotavirus vaccines, diarrheal diseases persist due to widespread poverty and poor hygiene conditions. Oral Rehydration Therapy (ORT) remains a cornerstone of treatment, but delays in care-seeking and inappropriate home remedies continue to hinder effective management.[15]

Sepsis was diagnosed in 7.1% of infants—a serious systemic condition that often presents with non-specific symptoms such as fever, lethargy and feeding refusal. Early detection is crucial, especially in neonates and infants under three months, where immune defenses are limited. In a study conducted in rural Bangladesh, neonatal sepsis accounted for a substantial proportion of infant mortality, highlighting the need for improved neonatal screening and care.[16]

Less common diagnoses included Urinary Tract Infections (UTIs) skin infections and feeding difficulties. These cases, while individually less frequent, collectively represent a burden on healthcare resources and often require diagnostic confirmation through laboratory support, which may not be available in all settings.

The study findings reaffirm the significant impact of socioeconomic and educational factors on infant health. Infants from lower-income households were disproportionately affected by both respiratory and gastrointestinal diseases. Poor housing conditions, limited healthcare access, and inadequate nutritional support are underlying contributors to this disparity. Similar patterns have been reported in studies from India and Nepal, where slum-dwelling children had higher rates of malnutrition, diarrhea and pneumonia.[17]

Maternal education emerged as a protective factor. Infants whose mothers had secondary or higher education were less likely to be diagnosed with diarrhoeal diseases and other common childhood illnesses such as fever, cough, vomiting, feeding difficulties, and skin rash. These infants were also more likely to receive exclusive breastfeeding. This finding supports existing literature suggesting that maternal education empowers women to adopt healthier childcare practices, seek medical attention promptly and better understand health messages delivered through mass media or community health workers.[6]

Feeding practices also played a crucial role. Infants who were exclusively breastfed showed a lower incidence of diarrhea and respiratory illnesses, confirming the protective role of breast milk in building immunity and reducing pathogen exposure.[8] Mixed-fed or non-breastfed infants may be more exposed to contaminated feeding bottles or water sources, increasing the risk of gastrointestinal infections.[18]

The findings from this study hold important implications for healthcare providers, public health policymakers, and community health workers. Firstly, the high burden of respiratory and diarrheal diseases necessitates continued investment in child health programs focused on prevention, early diagnosis, and treatment. The government's Expanded Program on Immunization (EPI) has made progress, but there is a need to strengthen outreach in slum and peri-urban areas to improve vaccine coverage and maternal awareness.

Secondly, improving maternal education through community-based programs can significantly impact child health. Integrated approaches that combine health education, nutrition counseling, and livelihood support have proven effective in similar contexts.[19]

Thirdly, breastfeeding promotion should remain a priority. Hospitals should enforce the Baby-Friendly Hospital Initiative (BFHI) practices and provide lactation support, especially for working mothers or those with low education levels. Community-level health workers can play a critical role in dispelling myths and providing personalized guidance on infant feeding.[20]

Lastly, improving living conditions in urban slums—through better sanitation, water access and air quality—can reduce the incidence of preventable infections. Partnerships between the health sector, local government, and NGOs are vital in addressing these structural determinants of health.

LIMITATION

This study is strengthened by its relatively large sample size and inclusion of comprehensive socio-demographic and clinical data. It provides localized evidence from a major referral hospital in Chattogram, making it valuable for both hospital-based planning and community-level interventions.

CONCLUSION

However, limitations include the hospital-based design, which may over represent more severe cases and may not reflect community-level prevalence. Also, variables such as vaccination status, household sanitation conditions and maternal nutritional status were not collected, which could have enriched the analysis. Furthermore, seasonal variation was not accounted for, which may influence disease trends, especially respiratory infections.

DISCLOSURE

All the authors declared no competing interest.

REFERENCES

1. Black RE, Cousens S, Johnson HL, Lawn JE, Rudan I, Bassani DG et al. Global, regional, and national causes of child mortality in 2008: A systematic analysis. Lancet.2010;375(9730): 1969–1987.
2. Barua MK, Faruque M, Alam M, Haque MJ. Gender differentials in health care seeking behaviour of children in rural Bangladesh. J Health Popul Nutr. 2014;32(3):450–457.
3. National Institute of Population Research and Training (NIPORT), ICF. Bangladesh Demographic and Health Survey 2017–18. Dhaka, Bangladesh and Rockville, Maryland, USA: NIPORT and ICF. 2020.
4. Lawn JE, Cousens S, Zupan J. 4 million neonatal deaths: When? Where? Why? Lancet. 2005;365(9462):891–900.
5. UNICEF. Situation Analysis of Children and Women in Bangladesh 2020. Dhaka: UNICEF Bangladesh. 2021.
6. Victora CG, Barros AJ, Axelson H, Bhutta ZA, Chopra M, França GV et al. How changes in coverage affect equity in maternal and child health interventions in 35 Countdown to 2015 countries. Lancet. 2012;380(9848):1149–1156.
7. Rashid SF. Urban poverty and health inequality in Bangladesh. Lancet. 2006;368 Suppl:S21–22.
8. Lamberti LM, Fischer Walker CL, Noiman A, Victora C, Black RE. Breastfeeding and the risk for diarrhea morbidity and mortality. BMC Public Health. 2011;11(Suppl 3):S15.
9. Alam N, Ali T, Saha S, Yunus M, Streatfield PK. Health-seeking behavior in two slum areas of Dhaka City. J Health Popul Nutr. 2009;27(5):574–582.
10. Mahfuz M, Islam MM, Alam MA, Hossain MI, Nahar B, Chisti MJ et al. Prevalence and management of acute respiratory infection in under-five children in rural Bangladesh. PLoS One. 2021;16(7):e0254206.
11. Nair H, Simões EA, Rudan I, Gessner BD, Azziz-Baumgartner E, Zhang JSF et al. Global and regional burden of hospital admissions for severe acute lower respiratory infections in young children in 2010. Lancet. 2013;381(9875):1380–1390.
12. Haque MA, Yamamoto SS, Malik AA, Sauerborn R. Health impacts of climate change and air pollution in Dhaka, Bangladesh. Environ Health Insights. 2019;13:1178630219850210.
13. Ahmed T, Bhuiya A, Alam N, Chowdhury HR, Hoque MA, Salam MA et al. Health and demographic surveillance system: Matlab. Int J Epidemiol. 2002;31(4):997–1001.
14. Rudan I, Boschi-Pinto C, Biloglav Z, Mulholland K, Campbell H. Epidemiology and etiology of childhood pneumonia. Bull World Health Organ. 2008;86(5):408–416.
15. Munos MK, Walker CL, Black RE. The effect of oral rehydration solution and recommended home fluids on diarrhea mortality. Int J Epidemiol. 2010;39(Suppl 1):i75–87.
16. Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N, de Bernis L. Evidence-based, cost-effective interventions: How many newborn babies can we save? Lancet 2005;365(9463):977-988.
17. Srivastava A, Mahmood SE, Srivastava PM, Shrotriya VP, Kumar B. Nutritional status of school-age children – A scenario of urban slums in India. Arch Public Health. 2012;70:78.
18. Bhandari N, Bahl R, Taneja S, de Onis M, Bhan MK. Effect of community-based promotion of exclusive breastfeeding on diarrhoeal illness and growth: A cluster randomised controlled trial. Lancet. 2003;361(9367):1418–1423.
19. Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E et al. What works? Interventions for maternal and child undernutrition and survival. Lancet. 2008;371(9610):417–440.
20. UNICEF, WHO. Baby-Friendly Hospital Initiative: Revised, Updated and Expanded for Integrated Care. Geneva: WHO Press. 2009.

https://doi.org/10.3329/cmoshmcj.v25i1.89852 Volume 25, Issue 1, January 2026