

Clinicopathological Profile of Pediatric Outpatients at Bangladesh Shishu Hospital & Institute – A Cross-Sectional Study

DOI: 10.5281/zenodo.17538425

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Received: 19 Oct 2025

Accepted: 26 Oct 2025

Published: 06 Nov 2025

Published by:

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**ABSTRACT**

Background: Pediatric outpatient departments (OPDs) are critical for early diagnosis and management of childhood illnesses. Understanding the clinicopathological profile of pediatric outpatients is essential for guiding effective healthcare strategies and improving child health outcomes in resource-limited settings. **Aim of the study:** To analyze the clinicopathological profile of pediatric outpatients at Bangladesh Shishu Hospital & Institute, Dhaka, identifying prevalent diseases, clinical presentations, laboratory findings, nutritional status, and outcomes. **Methods & Materials:** A hospital-based cross-sectional study was conducted over six months, enrolling 310 children below 15 years attending the pediatric OPD. Demographic data, clinical complaints, provisional diagnoses, laboratory findings, and nutritional status were recorded. Outcomes were categorized as conservative management, hospital admission, or specialist referral. Data were analyzed using SPSS version 26, with $p \leq 0.05$ considered statistically significant. **Result:** The mean age was 5.41 ± 3.97 years, with 55.5% males and 62.6% from urban areas. Fever (41.3%) and cough/cold (32.9%) were the most common complaints. Respiratory tract infections (36.1%) and gastrointestinal disorders (25.2%) predominated. Laboratory abnormalities were observed in hemoglobin (43.2%), WBC count (32.9%), and ESR (38.1%). Nutritional assessment revealed 41.3% of children were underweight, stunted, or wasted. Most children (69.0%) were managed conservatively, while 23.2% required admission. **Conclusion:** Respiratory and gastrointestinal illnesses remain the leading causes of pediatric outpatient visits, with a substantial burden of malnutrition and laboratory abnormalities. These findings emphasize the need for targeted preventive, diagnostic, and management strategies to optimize pediatric healthcare outcomes in Bangladesh.

Keywords: Pediatric outpatients, Clinicopathological profile, Dhaka Shishu Hospital, Malnutrition, Respiratory infections.

(The Insight 2025; 8(2): 340-344)

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INTRODUCTION

Pediatric outpatient departments (OPDs) serve as vital entry points for children seeking medical care, offering early diagnosis, treatment, and preventive services [1]. Globally, children under 18 face a variety of health challenges and more than 500,000 children under 5 lost their lives to lower respiratory infections in 2021 [2]. Approximately 35.6% of children under five years of age experienced some form of morbidity, with fever being the most common condition, affecting 33.1% of children, followed by diarrhea 4.7% and acute respiratory infections 3.0% in Bangladesh [3]. Malnutrition remains a critical issue, responsible for nearly

45% of deaths in children aged 0 to 59 months in Bangladesh [4]. Clinicopathological profile mean the spectrum of clinical presentations as signs and symptoms, demographic features as age, sex, nutritional status, socio-economic background, and diagnostic or laboratory findings that accompany disease in outpatient settings. Such profiles are instrumental in identifying prevalent health issues, guiding diagnostic approaches, and informing treatment protocols. Understanding the clinicopathological profile of pediatric outpatients is crucial for tailoring effective healthcare strategies and improving child health outcomes [5]. The etiology of pediatric diseases is multifactorial, involving a

complex interplay of environmental, genetic, and socio-economic factors. Infectious diseases, malnutrition, and poor sanitation are prevalent in Bangladesh and contribute significantly to pediatric morbidity. Inadequate waste management and stagnant water sources facilitate the breeding of mosquitoes, leading to increased cases of diseases like dengue [6]. The impact of pediatric diseases extends beyond the individual child, affecting families and the broader healthcare system. Children suffering from chronic illnesses or severe infections often experience prolonged hospitalizations, leading to emotional and financial strain on families. Moreover, the healthcare system faces challenges in managing the high volume of pediatric cases, sometimes resulting in resource constraints and overcrowding in hospitals [7]. Analyzing the clinicopathological profiles of pediatric outpatients provides numerous benefits for both clinical practice and public health planning. By systematically documenting symptoms, diagnoses, and laboratory findings, healthcare providers can identify the most prevalent diseases and their patterns in the pediatric population. This allows for timely diagnosis and personalized treatment, improving patient outcomes and such analyses help in anticipating disease trends [8]. Variability in clinical assessment and diagnostic criteria can lead to inconsistencies in recorded data, affecting the reliability of the profiles. Underreporting of mild or subclinical cases is common, which may result in skewed prevalence estimates. Additionally, the focus on hospital-based populations may not accurately reflect the broader community, limiting the generalizability of findings [9]. Implementing comprehensive clinicopathological profiling in pediatric outpatients presents practical challenges. Resource limitations, including insufficient laboratory facilities and trained personnel, can impede thorough data collection [10]. The aim of this study was to analyze the clinicopathological profile of pediatric outpatients at Dhaka Shishu Hospital to identify prevalent diseases, their patterns, and underlying factors, thereby informing better clinical management and public health strategies.

METHODS & MATERIALS

This study was conducted in the Outpatient Department (OPD) of Bangladesh Shishu Hospital & Institute, Dhaka, Bangladesh. It was designed as a hospital-based cross-sectional study and carried out from January 2024 to December 2024. A total of 310 pediatric patients attending the OPD during the study period were enrolled using purposive sampling.

Inclusion Criteria

- Children aged below 15 years.
- Patients presenting to the pediatric OPD with clinical complaints requiring diagnostic or therapeutic evaluation.
- Parents or guardians willing to provide informed consent.

Exclusion Criteria

- Critically ill children requiring immediate hospitalization.

- Patients with incomplete clinical or laboratory data.

Data Collection

Data were collected using a structured and pretested questionnaire. Demographic details (age, gender, residence), presenting complaints, provisional clinical diagnoses, and nutritional status were recorded. Laboratory investigations, including hemoglobin, WBC count, ESR, serum electrolytes, and liver function tests, were performed as per the clinical indication. Nutritional status was assessed using WHO growth standards (weight-for-age, height-for-age, and weight-for-height). Outcomes of the outpatient visits were documented as conservative management, referral for admission, or referral to a specialist clinic. The study was conducted after obtaining ethical clearance from the Institutional Review Board of Dhaka Shishu Hospital. Informed written consent was obtained from the parents or guardians of all participants prior to data collection.

Statistical Analysis

Data were compiled and analyzed using SPSS software (version 26.0). Quantitative variables were presented as mean $\pm$ standard deviation (SD), while categorical variables were expressed as frequencies and percentages. Chi-square tests were applied for categorical comparisons where appropriate. A p-value ≤ 0.05 was considered statistically significant.

RESULT

Table 1 summarized the demographic characteristics of the 310 pediatric outpatients. The majority of children were aged 1–5 years (40.0%), followed by those aged 6–10 years (28.39%), <1 year (16.77%), and >10 years (14.84%), with a mean age of 5.41 ± 3.97 years. Male children predominated (55.48%) compared to females (44.52%). Most participants resided in urban areas (62.58%), while 37.42% were from rural regions. Fever was the most common symptom, observed in 41.29% of children, followed by cough/cold (32.90%), abdominal pain (18.06%), diarrhea (14.19%), vomiting (12.26%), skin rash (9.03%), and neurological symptoms (7.10%). Other complaints accounted for 11.61% of cases (Table 2). Respiratory tract infections were the predominant diagnosis (36.13%), followed by gastrointestinal disorders (25.16%), nutritional deficiencies (13.55%), neurological disorders (8.39%), dermatological disorders (6.45%), hematological disorders (5.81%), and other less common conditions (4.52%) (Table 3). Laboratory findings are presented in Table 4. Hemoglobin levels were abnormal in 43.23% of children, while 32.90% had abnormal WBC counts. Elevated ESR was observed in 38.06% of cases. Serum electrolyte abnormalities were noted in 23.87%, whereas liver function test abnormalities were least frequent (13.55%). Table 5 depicted the nutritional status of the children. Normal nutritional status was observed in 58.71% of participants. Underweight children accounted for 21.94%, stunted children 11.61%, and wasted children 7.74%. Table 6 reported the outcomes at the outpatient visit. A majority of children (69.03%) were managed conservatively at the outpatient department, while 23.23% were referred for admission, and

7.74% were referred to specialist clinics for further evaluation and management.

Table – I: Demographic Characteristics of Pediatric Outpatients (n = 310)

Characteristics	Frequency (n)	Percentage (%)
Age group (years)		
<1 year	52	16.77
1–5 years	124	40.00
6–10 years	88	28.39
>10 years	46	14.84
Mean±SD	5.41 ± 3.97	
Gender		
Male	172	55.48
Female	138	44.52
Residence		
Urban	194	62.58
Rural	116	37.42

Table – II: Presenting Clinical Complaints of Pediatric Outpatients (n = 310)

Clinical Complaint	Frequency (n)	Percentage (%)
Fever	128	41.29
Cough/Cold	102	32.90
Abdominal Pain	56	18.06
Diarrhea	44	14.19
Vomiting	38	12.26
Skin Rash	28	9.03
Neurological Symptoms	22	7.10
Others	36	11.61

Table – III: Clinical Diagnosis among Pediatric Outpatients (n = 310)

Diagnosis	Frequency (n)	Percentage (%)
Respiratory Tract Infections	112	36.13
Gastrointestinal Disorders	78	25.16
Nutritional Deficiencies	42	13.55
Neurological Disorders	26	8.39
Dermatological Disorders	20	6.45
Hematological Disorders	18	5.81
Others	14	4.52

Table – IV: Laboratory Findings of Pediatric Outpatients (n = 310)

Parameters	Normal		Not Normal	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Hemoglobin	176	56.77	134	43.23
WBC Count	208	67.10	102	32.90
ESR	192	61.94	118	38.06
Serum Electrolytes	236	76.13	74	23.87
Liver Function Test	268	86.45	42	13.55

Table – V: Nutritional Status of Pediatric Outpatients (n = 310)

Nutritional Category	Frequency (n)	Percentage (%)
Normal	182	58.71
Underweight	68	21.94
Stunted	36	11.61
Wasted	24	7.74

Table – VI: Outcome at Outpatient Visit (n = 310)

Outcome	Frequency (n)	Percentage (%)
Managed Conservatively (OPD treatment)	214	69.03
Referred for Admission	72	23.23
Referred to Specialist Clinic	24	7.74

DISCUSSION

The clinicopathological profile of pediatric outpatients encompasses demographic patterns, disease spectrum, and clinical presentations that reflect both community health trends and institutional case load [11]. In our cohort of 310 pediatric outpatients, the majority belonged to the 1–5 years age group (40.00%), with a mean age of 5.41±3.97 years. This age distribution mirrors reports from Nepal, where early

childhood was the most common age bracket presenting to pediatric OPDs (1–5 years: 42.89%) [12]. Male predominance (55.48%) was also consistent with several studies, reflecting healthcare-seeking bias toward boys [13]. The urban predominance (62.58%) may be related to easier accessibility to tertiary centers, as noted in other South Asian OPD-based studies [14]. Fever (41.29%) and cough/cold (32.90%) were the leading complaints, followed by gastrointestinal symptoms like abdominal pain (18.06%) and diarrhea (14.19%). This pattern is comparable to findings from Nigeria, where fever and respiratory symptoms dominated outpatient visits [15]. The relatively high frequency of abdominal pain and diarrhea in our study underscores the dual burden of infectious diseases affecting both the respiratory and gastrointestinal systems in Bangladeshi children. Respiratory tract infections (36.13%) and gastrointestinal disorders (25.16%) emerged as the leading diagnoses, in line with studies across Uganda and Africa that consistently report these as major causes of pediatric morbidity [16,17]. Nutritional deficiencies (13.55%) were also prominent, reflecting persistent undernutrition despite national nutrition programs. Comparable prevalence has been documented in outpatient surveys in India (11–15%) [18]. A striking finding was that 43.23% of children had low hemoglobin, consistent with a previous Bangladeshi study [9]. Elevated ESR (38.06%)

and WBC abnormalities (32.90%) were frequent, reflecting the inflammatory and infectious burden in this group. Comparable results were reported in a hospital-based Bangladeshi study where 46.8% of children had anemia [19]. Electrolyte abnormalities (23.87%) were less common but clinically relevant, especially in diarrheal presentations. Overall, 41.3% of children were undernourished (underweight, stunted, or wasted). This mirrors the 2019 Bangladesh Demographic and Health Survey, which reported 28% stunting and 22% underweight among under-five children [20]. These findings reinforce the need to integrate nutrition assessment and intervention into routine outpatient pediatric care. Most children (69.00%) were managed conservatively at OPD, while 23.23% required inpatient admission and 7.74% were referred to specialists. Slightly lower referral rates have been noted in previous study of Nepal, where 0.98% patients were referred [21]. The substantial admission rate in our study underscores the role of tertiary pediatric OPDs not only as primary care entry points but also as triage centers for more severe disease.

Limitations of the Study:

This study was conducted at a single tertiary care hospital, which may limit the generalizability of findings to the broader pediatric population in Bangladesh. The cross-sectional design captures only a snapshot of clinical presentations, precluding assessment of disease progression or long-term outcomes. Mild or subclinical cases managed at home were likely underrepresented, potentially underestimating disease prevalence. Additionally, resource constraints restricted extensive laboratory evaluations for all participants, and variability in clinical assessments could have influenced the accuracy of recorded diagnoses and nutritional assessments.

CONCLUSION

This study provides a comprehensive overview of the clinicopathological profile of pediatric outpatients at Dhaka Shishu Hospital, highlighting the predominance of children aged 1–5 years and a slight male preponderance. Respiratory tract infections and gastrointestinal disorders were the most frequent clinical diagnoses, while fever and cough/cold were the leading presenting complaints. Laboratory evaluations revealed notable hematological and inflammatory abnormalities in a subset of patients, and malnutrition, particularly underweight and stunting, remained prevalent. The majority of children were managed conservatively, with a smaller proportion requiring hospital admission or specialist referral. These findings underscore the continued burden of infectious diseases and nutritional deficiencies in the pediatric population and emphasize the need for targeted preventive, diagnostic, and management strategies to improve child health outcomes in Bangladesh.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee.

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