

PREVALENCE OF EAR, NOSE, AND THROAT DISORDER AMONG SCHOOL GOING CHILDREN

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ABSTRACT

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Background: Ear, nose, and throat (ENT) disorders are common among school-going children and contribute significantly to morbidity, impaired hearing, and poor academic performance, particularly in low-resource settings. Despite this burden, data on the prevalence and pattern of ENT disorders among children in Bangladesh remain limited. **Objective:** To assess the prevalence and pattern of ENT disorders among school-going children attending a tertiary care hospital. **Materials and Method:** This cross-sectional study was conducted in the ENT Outpatient Department of Bangladesh Medical University from February to July 2025. A total of 84 school-going children aged 6–15 years were included using convenience sampling. Data were collected through a pre-tested semi-structured questionnaire and clinical examination by an ENT specialist. Descriptive statistics were used to determine prevalence, and the Chi-square test was applied to assess associations between ENT disorders and socio-demographic variables. A p -value < 0.05 was considered statistically significant. **Results:** Of the 84 children attending school who were examined, 38 (45.2%) presented with at least one ENT condition. Otitis media occurred most often (21.4%), and tonsillitis followed with 14.3%. The largest percentage of impacted children was observed in the 6–9-year age range, with a decline in older age categories, demonstrating a notable relationship with age ($p = 0.03$). ENT disorders were marginally more prevalent in males (47.8%) compared to females (42.1%), but this disparity was not statistically significant. **Conclusion:** Nearly half of school-going children had ENT disorders, most commonly otitis media. Younger children were more affected, with no significant gender difference. Early detection, screening, and awareness are essential to reduce complications.

Keywords: ENT disorders, School-going children, Otitis media, Tonsillitis, Rhinitis, Prevalence, Bangladesh.

INTRODUCTION

Diseases related to ear, nose, and throat (ENT) represent a significant outpatient challenge in pediatric patients. Even though death rates are low, the rate of complications continues to be high despite advancements in healthcare services¹. ENT disorders are prevalent in low socioeconomic environments because of substandard living conditions, inadequate hygiene, low literacy rates, and dependence on untrained caregivers, resulting in postponed or insufficient treatment².

The burden of ENT diseases is greatest in low-resource environments, where diagnostic errors result in a 67.4% misdiagnosis rate, inadequate record-keeping, and insufficient reporting³.

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ENT disorder among school going children

If not accurately diagnosed and treated, acute or sub-acute ENT issues can turn chronic, adversely impacting a child's overall health and developmental results, including academic performance⁴.

Worldwide, ENT disorders, particularly otitis media and hearing impairment, are prevalent among school-aged children and represent a significant public health issue⁵. Infections of the upper respiratory tract are prevalent ENT issues, characterized by frequent relapses and seasonal fluctuations. These infections may cause otitis media, sinusitis, and tonsillitis, leading to increased morbidity and are more common in children than adults⁶. Hearing impairment impacts 466 million individuals worldwide, with more than 34 million being children⁷. Deafness is a significantly limiting condition that impacts interaction, emotional health, and social involvement. Timely identification is essential to avoid speech delays, academic shortcomings, social withdrawal, and hindered overall growth, particularly in children⁸.

Regional studies from South Asia highlight the high burden of ENT disorders among school-going children. A survey conducted in schools in Eastern Nepal found that 13.2% of children aged 5–15 years had otitis media, and 12.5% suffered from hearing loss, particularly among those from lower socioeconomic backgrounds⁵. Similarly, studies from northern India have documented a high prevalence of chronic otitis media, otitis media with effusion, and impacted cerumen among school-aged children⁹.

In Bangladesh, survey reports indicate that ENT disorders are common among children, with chronic suppurative otitis media being particularly prevalent and strongly associated with low socioeconomic conditions, often leading to hearing impairment¹⁰. A hospital-based study from Bogura further demonstrated that ear diseases are a leading cause of pediatric ENT consultations, with impacted earwax and both acute and chronic suppurative otitis media being the most frequently diagnosed conditions, underscoring the need for improved awareness and early intervention strategies¹¹. Despite the recognized burden, data on the prevalence and pattern of ENT disorders among school-going children in Bangladesh remain limited. This study aims to assess the prevalence of ENT disorders in this population to facilitate early identification, guide preventive strategies, and support effective health planning at the community level.

MATERIALS AND METHOD

Study Design and Setting

This was a cross-sectional study conducted in the ENT Outpatient Department of Bangladesh Medical University (BMU). The study was carried out over a period of six months, from February 2025 to July 2025.

Study Population

The study population consisted of school-going children aged 6 to 15 years who attended the ENT outpatient department during the study period.

Sample Size and Sampling Technique

A total of 84 participants were included in the study. The sample size was determined based on feasibility and patient flow during the study period. Participants were selected using a convenience sampling technique. All eligible children attending the ENT outpatient department during the data collection period were approached for inclusion.

Inclusion Criteria

- School-going children aged 6–15 years
- Children attending the ENT outpatient department during the study period
- Children whose parents or legal guardians provided written informed consent

Exclusion Criteria

- Children with known congenital ENT anomalies
- Children with a history of previous ENT surgery
- Children with severe systemic illness or those unwilling/unable to cooperate during examination

Data Collection Tools and Procedures

Data were collected using a pre-designed and pre-tested semi-structured questionnaire and a clinical examination checklist. Socio-demographic information such as age and gender were recorded through caregiver interviews.

A comprehensive ENT examination was conducted for each participant by an ENT specialist. The examination included:

- **Ear examination:** Otoscopic evaluation to assess the external auditory canal and tympanic membrane for conditions such as otitis media, impacted wax, and other ear pathologies.
- **Nose examination:** Anterior rhinoscopy was performed to identify rhinitis, nasal obstruction, and other nasal pathologies.
- **Throat examination:** Inspection of the oral cavity and oropharynx was conducted to detect tonsillitis, pharyngeal inflammation, and other throat-related disorders.

ENT disorders were diagnosed based on clinical findings using standard diagnostic criteria. Each participant was categorized as having at least one ENT disorder or no ENT disorder at the time of examination.

Study Variables

- **Dependent variable:**
 - Presence of ENT disorder (Yes/No)
- **Independent variables:**
 - Age (categorized as 6–9, 10–12, and 13–15 years)
 - Gender (male/female)
- **Outcome variables:**
 - Types of ENT disorders (e.g., otitis media, tonsillitis, rhinitis, adenoid hypertrophy)

Data Management and Statistical Analysis

Data were checked for completeness and consistency before entry. Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) software.

- Descriptive statistics were used to summarize socio-demographic characteristics and the prevalence of ENT disorders.

- Results were expressed as frequencies and percentages and presented in tables.
- The Chi-square test was applied to assess associations between ENT disorders and age group and gender.
- A p -value < 0.05 was considered statistically significant.

Ethical Considerations

Ethical approval was obtained from the relevant Institutional Review Board of Bangladesh Medical University prior to the initiation of the study. Permission was also obtained from the hospital authority. Written informed consent was obtained from parents or guardians, and verbal assent was obtained from participating children. Confidentiality and anonymity of all participants were strictly maintained.

RESULTS

Socio-demographic Characteristics of the Study Participants

Table 1 presents total of 84 school-going children were included in this study. The participants' ages ranged from 6 to 15 years, with a mean age of 10.3 ± 2.4 years. Among them, 46 (54.8%) were male and 38 (45.2%) were female. The distribution by age group and gender.

Table 1: Socio-demographic characteristics of study participants (n = 84)

Characteristic	Frequency	Percentage (%)
Age (years)		
6–9	34	40.5
10–12	28	33.3
13–15	22	26.2
Gender		
Male	46	54.8
Female	38	45.2

n=Total number of study participants

Prevalence of ENT Disorders

Table 2 shows that 38 (45.2%) participants had at least one ENT disorder. The most common ENT disorders were otitis media (18 children, 21.4%) and tonsillitis (12 children, 14.3%), followed by rhinitis (6 children, 7.1%) and adenoid hypertrophy (4 children, 4.8%).

Table 2: Prevalence of ENT disorders among participants (n = 84)

ENT Disorder	Frequency	Percentage (%)
Otitis media	18	21.4
Tonsillitis	12	14.3
Rhinitis	6	7.1
Adenoid hypertrophy	4	4.8
Others (nasal polyp, etc.)	2	2.4
Total with ENT disorder	38	45.2

n=Total number of study participants

Gender-wise Distribution of ENT Disorders

Table 3 shows ENT disorders were slightly more common in male children (22/46; 47.8%) than in female children (16/38; 42.1%). Table 3 shows the distribution by gender.

Table 3: Gender-wise distribution of ENT disorders (n = 84)

Gender	With ENT Disorder	Without ENT Disorder	Total
Male	22	24	46
Female	16	22	38
Total	38	46	84

n=Total number of study participants

Types of ENT Disorders by Age Group

Table 4 shows the distribution by gender. Otitis media was most common in younger children (6–9 years), while tonsillitis and rhinitis were more frequent in children aged 10–12 years. Adenoid hypertrophy was mainly observed in the youngest age group.

Table 4: Distribution of ENT disorders by age group (n = 84)

ENT Disorder	6–9 years	10–12 years	13–15 years	Total
Otitis media	10	5	3	18
Tonsillitis	4	6	2	12
Rhinitis	3	2	1	6
Adenoid hypertrophy	3	1	0	4
Others	1	1	0	2
Total	21	15	6	38

n=Total number of study participants

Association of ENT Disorders with Age and Gender

Table 5 shows in this study of 84 school-going children, 45.2% were found to have at least one ENT disorder. Analysis of associations revealed that age was significantly related to the prevalence of ENT disorders ($p = 0.03$), with younger children aged 6–9 years showing the highest prevalence, followed by those aged 10–12 years, and the lowest prevalence observed in children aged 13–15 years. In contrast, gender was not significantly associated with ENT disorders ($p = 0.57$), although a slightly higher proportion of males were affected compared to females. Association of ENT disorders with age group and gender.

Table 5: Association of ENT disorders with age group and gender (n = 84)

Variable	Category	ENT Disorder Present	ENT Disorder Absent	Total	<i>p</i> -value
Age Group (years)	6–9	21	13	34	0.03
	10–12	15	13	28	
	13–15	6	16	22	
Gender	Male	22	24	46	0.57
	Female	16	22	38	

n=Total number of study participants

DISCUSSION

In this study, the majority of participants fell within the age range of 6 years to 9 years, with a small male majority. These findings correspond with another study that showed the largest percentage of occurrences in the 5 year to 9-year age group (37.6%) and a notable male predominance (65.4%). Comparable age and sex distributions in ENT research can be linked to a greater vulnerability to ENT issues in younger children and elevated health-seeking or school participation rates among boys¹².

In this research, 45.2% of children had at least one ENT problem, with otitis media (21.4%) as the most common condition. This aligns with Sumon et al. (2024), who found that chronic tonsillitis (21.8%) and acute otitis media (16.1%) are the primary ENT problems affecting children in Bangladesh. Rhinitis and adenoid hypertrophy were less prevalent yet remained clinically important. These findings highlight the importance of timely diagnosis and intervention to reduce pediatric ENT problems¹³.

In this study, ENT disorders were marginally more prevalent in male children compared to females. Likewise, Raju et al. found a greater occurrence in boys, (57.97%) male children impacted versus female children (42.03%). While the gender difference is slight, these results suggest that ENT disorders are prevalent in both genders, emphasizing the need for thorough diagnosis and treatment for all children¹⁴.

In our research, otitis media was prevalent mostly in children aged 6–9 years. Similarly, a pediatric ENT study identified otitis media in 30% of younger children and tonsillitis in 25% of older children, demonstrating comparable age-related trends. This similarity shows that ear infections primarily affect young children in school, while throat problems typically increase with age¹⁵.

Importantly, the present study found a statistically significant association between age group and ENT disorders ($p = 0.03$), with decreasing prevalence observed in older children. This aligns with prior studies^{16,17} indicating that ENT morbidities are more frequent in early childhood and tend to decline with increasing age. In contrast, no significant association was found between gender and ENT disorders, supporting previous literature that identifies age rather than sex as a more consistent determinant of pediatric ENT morbidity.

Overall, the findings of this study are consistent with regional and international evidence demonstrating a substantial burden of preventable and treatable ENT disorders among school-aged children. The high prevalence, particularly among younger children, underscores the importance of school-based screening programs, early diagnosis, and timely intervention to reduce complications and improve long-term health and academic outcomes.

CONCLUSION

ENT conditions are prevalent in school-aged children, impacting nearly half of them. Otitis media was the most common, succeeded by tonsillitis and rhinitis. Younger children were more often impacted, whereas gender demonstrated no notable correlation. Prompt identification, regular screenings, and awareness initiatives are advised to avert complications and lessen the impact of ENT conditions.

CONFLICT OF INTEREST

There is no conflict of interest.

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