Original Article

Frequency and Pattern of Ear, Nose, and Throat Conditions Leading to Hospital Admissions: A Retrospective Cross-Sectional Study

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Abstract

Background: Ear, nose, and throat (ENT) disorders are a major yet unrecognized contributor to hospital admissions, particularly in places with limited resources and limited access to expert care. There is a dearth of local epidemiology data on ENT-related admissions in Pakistan.

Objective: To determine the frequency, distribution, and clinical characteristics of ENT conditions leading to hospital admissions at DHQ Teaching Hospital, Dera Ismail Khan, Pakistan.

Methods: We retrospectively reviewed the medical records of all patients admitted to the ENT Department between 1 January 2025 and 1 January 2026. Data were extracted using a structured data extraction proforma and analyzed.

Results: The number of patients who came into the hospitals during the period of this research is 1,408, having a mean age of 26.8 ± 17.8 years. Patients originating from the rural areas are 57.5% of the total number of patients, while 61.1% (n=860) of all patients are males. Chronic tonsillitis is the most common disease that has been diagnosed, accounting for 28.2% of hospitalizations. Other diseases that follow include foreign body obstruction (20.9%), deviation nasal septum (18.4%, n=259), and trauma (13.2%, n=186).

Conclusion: Chronic tonsillitis (28.2%), foreign body obstruction (20.9%), and nasal septum deviation (18.4%) were the results of this study. Males made up most patients (61.1%), while the majority had rural backgrounds (57.5%).

Keywords: Otorhinolaryngologic Disorders; Hospitalization; Rural Medicine; Epidemiology; Pakistan

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Introduction

Ear, nose, and throat disorders make up a significant yet sometimes overlooked portion of the world's illness burden. These conditions have a substantial impact on hospital admissions, outpatient visits, and crises, especially in areas with poor health-care and unequal access to services.[1] From self-limiting infectious processes and chronic inflammatory conditions to congenital structural anomalies, neoplastic pathologies, and acute traumatic injuries, this domain encompasses a remarkably diverse range of clinical conditions, some of which necessitate prompt inpatient evaluation and targeted otorhinolaryngological intervention.[2] Despite how important it's there is not enough information gathered about how common and serious ear, nose and throat problems are in hospitals, in Pakistan. This information is very important. It is still missing.[3] Under-standing regional epidemiological trends facilitates the development of evidence-based interventions, preventative initiatives, and policies. The number of instances of otitis media in children worldwide rose from 256 million to 297 million, a 15.9% increase.[4] Young children are particularly vulnerable because of their tendency to explore their environment by placing objects into accessible body orifices. This behaviour contributes to the increased risk of foreign-body-related ENT presentations in this age group. The largest percentage of attendances came from the 20–30 age group.[5] Further data from Pakistan showed that 6.6% of ENT hospitalizations were due to nasal polyposis, with a clear male prevalence of 76.7%.[6, 7] According to a different clinical audit at Ayub Teaching Hospital in Abbottabad, the most common presenting complaints were allergic rhinitis, bilateral impacted cerumen, and both acute and chronic forms of otitis media. The next most common diagnostic categories

were tonsillitis and pharyngitis. A statistically significant male preponderance and a disproportionate burden among individuals from lower socioeconomic strata were documented, implicating nutritional insufficiency, substandard housing conditions, and inadequate sanitation practices as modifiable determinants of ENT morbidity in this population.[8]

A clinically important but frequently overlooked challenge within ENT practice is the persistently high rate of diagnostic discordance between referral diagnoses generated in non-specialist settings and the definitive diagnoses subsequently established by otorhinolaryngologists.[9 10]

Comprehensive hospital-based data that describes the range of ENT admissions and how they change with the seasons is still not available in Khyber Pakhtunkhwa, Pakistan. This lack of information shows that there is a need for local research. The research could produce data that helps with healthcare planning. It could also improve training, for diagnosis. It could help guide steps to prevent problems. The Objective of this study was to determine the frequency, distribution, clinical characteristics, and seasonal patterns of ENT conditions leading to hospital admissions at DHQ Teaching Hospital, Dera Ismail Khan, Pakistan.

Methods

A retrospective, cross-sectional hospital-based study carried out in ENT Department of DHQ, Dera Ismail Khan between January 1, 2025, and January 1, 2026. Ethical approval was obtained from the Ethical Review Committee, Gomal Medical College, Dera Ismail Khan (NO.399/GJMS/JC). Medical records of patients admitted to the ENT Department were analyzed in this study. Demographic variables (age, gender, residence), primary diagnoses, and clinical features were extracted from hospital documentation and the data were analysed. Conditions were categorized into major diagnostic groups to assess their relative contribution to hospital admissions. All patients admitted to the ENT Department during the study period. Both paediatric and adult patients were included.

A complete enumeration approach was used. All eligible patients admitted to the ENT Department during the study period were included; therefore, no formal sample-size calculation was performed. A total of 1,408 admissions met the eligibility criteria. People of all ages who have problems with their ears, nose or throat and were admitted to the ward are included. Patients managed on outpatient basis and cases referred for non-ENT conditions were excluded. A structured data extraction proforma was used to review the medical records of patients admitted to the ENT Department between 1 January 2025 and 1 January 2026. Demographic variables, including age, sex, and residence, as well as primary diagnosis, clinical features, and month of admission, were extracted from hospital records.

Data were put into IBM SPSS Statistics version 23. Looked at using descriptive statistics. This included frequencies, percentages, means and standard deviations. Diagnoses were put into categories based on the reason for admission. This was done to see how much each diagnosis contributed to hospital visits. The Pearsons chi-square test was used to check if there was a link between age group, which was either adult or pediatric and the reason for admission. A P-value <0.05 was considered statistically significant. Patient identifiers were removed before analysis.

Results

A total of 1,408 patients came in with conditions related to ear, nose and throat during the time of the study. The average age of these patients was 26.8 $\pm$17.8 years. Males made up 61.1% which's 860 patients of the group that was studied. Females were 38.9% which's 548 patients. A total of 810 patients, which's 57.5% lived in areas that are considered rural. The detailed information, about the age and other features of the patients is provided in Table 1.

Table 1: *Demographic Characteristics of Patients*

Variable	Frequency (n)	Percentage (%)
Gender		
Male	860	61.1%
Female	548	38.9%
Residence		
Rural	810	57.5%
Urban	598	42.5%
Age Group		
Adult	953	67.68%
Pediatric	455	32.31%
Total Patients	1408	100%

Chronic tonsillitis (28.2%) was the most common diagnosis, followed by foreign body obstruction (20.9%) and deviated nasal septum (18.4%). Trauma/RTA accounted for 13.2%, followed by epistaxis (4.4%), acute otitis media (3.7%), laryngitis (3.6%), nasal polyps (2.9%), rhinosinusitis (2.5%), and mass/cancer/biopsy (2.0%). The distribution of ENT diagnoses differed significantly between adult and pediatric patients ($P < 0.001$). Adults were more frequently admitted with deviated nasal septum and chronic tonsillitis, whereas pediatric patients had proportionally higher admissions for trauma, acute otitis media, and foreign body obstruction. The distribution of ENT conditions according to age group and their overall frequency are presented in Table 2 and Figure 1.

Table 2: *Age-Specific Distribution of ENT Conditions Leading to Hospital Admission (N=1,408)*

ENT Condition	Adult (n)	Pediatric (n)	Total, n (%)
Chronic Tonsillitis	263	134	397 (28.2%)
Foreign Body Obstruction	204	91	295 (20.9%)
Deviated Nasal Septum	243	16	259 (18.4%)
Trauma / Road Traffic Accident	84	102	186 (13.2%)
Epistaxis	30	32	62 (4.4%)
Acute Otitis Media	3	50	53 (3.8%)
Laryngitis	45	5	50 (3.6%)
Nasal Polyps	39	2	41 (2.9%)
Rhinosinusitis	33	3	36 (2.6%)
Mass/Cancer/Biopsy	9	20	29 (2.1%)
Total	953	455	1408 (100%)
Note: The Pearsons chi square test showed a link between age group and the main reason for admission. The result was significant with a p value < 0.001.			

The monthly distribution of ENT admissions is shown in Figure 2. December had the admissions (n=156). Then November had a lot of admissions (n=148). After that came October with (n=134). The month, with the admissions was May (n=80).

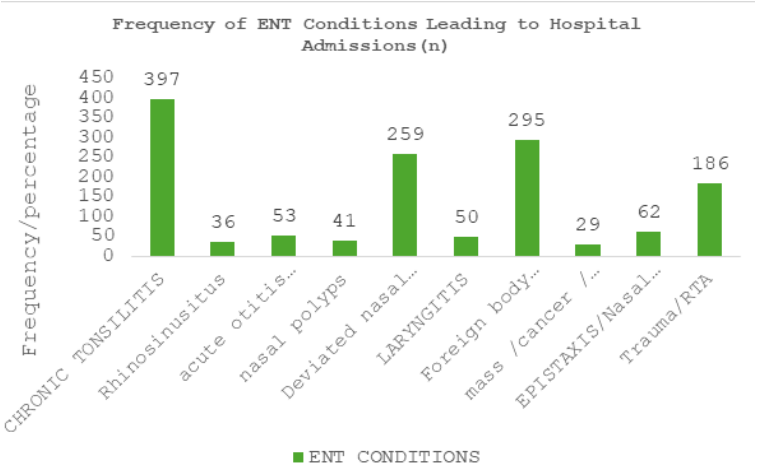


Figure 1: *Frequency distribution of ENT conditions leading to hospital admissions (N=1408).*

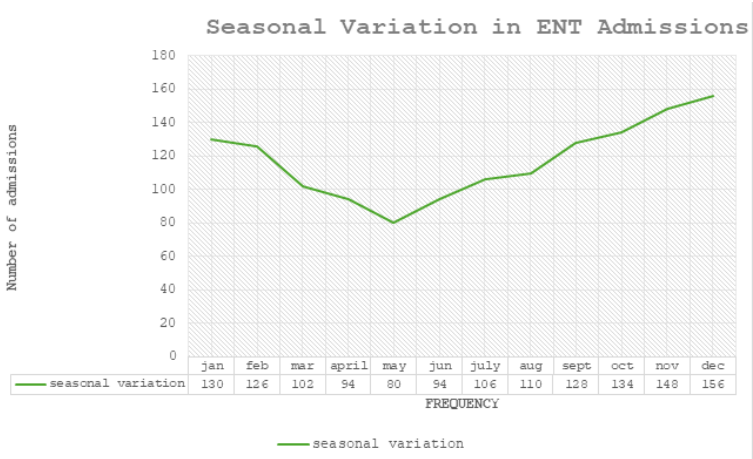


Figure 2: *Monthly distribution of ENT admissions from January 2025 to January 2026.*

Discussion

This study describes the distribution of ENT conditions among patients admitted to DHQ Teaching Hospital, Dera Ismail Khan. Chronic tonsillitis, foreign body obstruction, and deviated nasal septum accounted for the largest proportions of admissions. The observed pattern differed according to age group and showed variation across months, highlighting the importance of age-specific preventive strategies and appropriate seasonal planning of ENT services.

In our study, males accounted for 61.1% of admissions, indicating a male predominance in hospital-based ENT admissions. Similar sex differences have been reported in previous ENT studies.[11,12] The reasons for this observed predominance may include differences in healthcare-seeking behaviour and acc-

ess to hospital-based services; however, these factors were not directly assessed in the present study. The observed sex distribution therefore warrants further investigation in studies incorporating healthcare utilization and social determinants.[13, 14] A total of 810 (57.5%) patients were from rural areas. Similar studies from rural and resource-limited settings have highlighted reduced access to ENT services and a substantial burden of ENT disorders in rural populations. The most frequent diagnosis was chronic tonsillitis (28.2%), followed by foreign body obstructtion (20.9%) and deviated nasal septum (18.4%). The statistically important relationship between age groups and admission diagnosis points to the fact that there are specific types of diseases for each of the age groups. Adults had a high prevalence rate for chronic tonsillitis and deviated nasal septum, whereas children had a higher frequency of injuries, acute otitis media, and foreign body obstruction. These findings are clinically sound and justify the need for age-specific preventive strategies.[15, 16]

There were variations in admissions throughout the months of the study with the highest number in December, which was 156; November had 148 admissions, while October had 134. The lowest number of admissions was in May with 80. Increased admissions during late fall and winter could be attributed to seasonal changes in infections. Previous studies have reported changes in the seasonal distribution of otorhinolaryngological infections, although patterns may vary according to geographic location and study population.[17] This might account for the increase in pediatric ENT patients around this time of year, especially tonsillopharyngitis and otitis media. Cold weather may intensify the problems of allergies and inflammation of the upper respiratory system. The indoor allergens such as dust mites, molds, and smoke from heaters may worsen the problems of sinusitis and allergic rhinitis. In addition to that, cold air can irritate the throat as well.[10]

Chronic tonsillitis is the most common condition in our study, accounting for 28.2% of admissions. This shows that there is a high prevalence of ENT tonsillar disorders among patients who need inpatient ENT care. There are great disparities between different studies regarding the pattern of ENT conditions because of differences in the age composition of the population and outpatient/inpatient status.[18] Foreign body obstruction constituted 20.9% of the admissions and was highly common in pediatric patients. This finding is consistent with the known vulnerability of children to having a foreign body inserted or ingested involuntarily because of their nature.[18] The variations in frequency reported from various studies may be attributed to the differences in the demography of participants, the clinical setting, the inclusion criteria used, and the ratio of outpatient and emergency department cases.[19]

Deviated nasal septum was also highly prevalent, often associated with functional impairment and trauma history. Trauma and RTA-related ENT admissions underline the broader implications of road safety and injury prevention. Conditions such as nasal bleeding and acute otitis media, while less frequent, represent acute care needs imposing additional load on hospital resources.[20,21] Acute otitis media constituted 3.8% of all hospital admissions. The relatively low number could be because uncomplicated acute otitis media is managed in outpatient settings, hence the low probability of being observed in patients who are hospitalized. Changes in respiratory infection transmission and healthcare utilization following the COVID-19 pandemic could have also affected the epidemiology of otitis media, as has been mentioned in previous studies.[16] The presence of nasal polyps in 2.9% patients was lower compared to 6.6% patients who had this condition according to a previous study conducted in Lahore. The reason behind this difference could be the variations in referral practices, patient samples, diagnostic criteria, and the fact that this present study was conducted in one single hospital. Nasal polyposis usually occurs with chronic rhinosinusitis and is associated with severe symptoms and related inflammation.[9],[22].

Limitations:

The findings from a particular center may not necessarily apply to other centers. The retrospective study design used information from hospital records that were collected routinely and may have been poorly documented. Lack of adequate information regarding follow up and socioeconomic considerations. Potential underestimation of mild cases managed in the outpatient setting. Due to the nature of the retrospective study, it was not possible to determine the severity of the disease, outcomes, duration of hospitalization, and presence of comorbidity.

Conclusion

Of all 1,408 admissions, the most common conditions among ENT cases admitted were chronic tonsillitis (28.2%), foreign body obstruction (20.9%), and deviated nasal septum (18.4%). It is notable that most of the patients were males (61.1%) and from rural locations (57.5%), pointing out the inequality in disease prevalence and access to medical care facilities. Improving primary ENT care services, preventative measures, and referral systems can lead to decreasing the number of hospital admissions. This information could be used for directing resources in other resource-limited settings.

Ethical Approval: The Ethical Review Committee, Gomal Medical College, Dera Ismail Khan, Pakistan approved this study vide: No.399/GJMS/JC.

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Authors' Contribution:

NA: Conception and design; acquisition of data, drafting of article

MAA: Drafting of article, analysis and interpretation of data, final approval of the version to be published

IU: Analysis and interpretation of data, drafting of article

SG: Drafting of article

MB: Drafting of article

MO: Drafting of article

AK: critical revisions for important intellectual content

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