

# THE PREVALENCE OF EAR, NOSE AND THROAT DISORDERS IN VIETNAMESE PEDIATRIC PATIENTS

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## **ABSTRACT**

**Objective:** To determine the prevalence of ear, nose and throat (ENT) disorders among pediatric patients in the context of Vietnam.

**Methods:** The research process was conducted in the form of a cross-sectional study. Conducted in the months of April and May 2017, the investigation relied on rural and urban-based public hospitals in the Vietnamese context. The inclusion criterion was set in such a way that the selected hospitals were expected to be pediatric healthcare organizations. Also, the organizations were expected to be public institutions that had served communities for a significant period of at least five years - preceding the time of the study.

**Results:** Findings demonstrated that there is an increasing trend in ENT disorders among pediatric patients in the country, with the majority of this study's participants constituting school going children. From the results, the number of male participants exceeded that of female participants diagnosed with ENT diseases – but the difference was not statistically significant. In particular, the study's findings demonstrated that the most common ENT diagnosis was ear wax, with 17.3% of the selected pediatric patients in the Vietnamese context found to have been diagnosed with the health condition. In ascending order, other conditions that followed ear wax as a major ENT problem facing pediatric patients in Vietnam involved OME and CSOM-TT.

**Conclusion:** From this study's observations, some of the strategies that are recommended include timely referrals through community sensitization or mass education at the community and national levels, the implementation of programs seeking to improve the socioeconomic status of the affected families or communities (hence increased access to healthcare services), public awareness about the availability of pediatric healthcare services targeting ENT disorders (and the availability of specialist doctors), conducting regular screening programs that target children in urban and rural communities, and the provision of regular and subsidized school health services.

**Keywords:** Ear, Nose, Prevalence, Pediatric, Throat, Vietnam.

## INTRODUCTION

During the treatment of pediatric patients in emergency rooms, frequent complaints are reported. For the throat, nose, and ear pathologies, some of the most frequent complaints that have been reported or recorded include pain and fever. In both urban and rural communities, Absalan, Pirasteh and Khavidaki et al. (2013) stated that the ear, nose and throat (ENT) problems account for the majority of visits to doctors. In the majority of developing countries, Chadha, Sayal, Malhotra and Agarwal (2012) affirmed that hospital facilities are overburdened and a lack of adequate ENT specialists compounds this problem. As concurred by Khairi, Daud and Noor et al. (2010), most of the previous literature or scholarly investigations have failed to evaluate the incidence and prevalence of ENT disorders, especially those that occur in rural and urban communities in developing countries. Kishve, Kishve, Aarif and Kalakoti (2010) documented that the situation is exacerbated by a trend in which community practices have been implemented as treatment mechanisms responding to the ENT problems, having witnessed a lack of enough ENT specialist professionals. As such, it is evident that the growing cases of home remedies, especially in developing countries, have translated into the prevalence of traditional approaches; yet Mahadevan, Navarro-Locsin and Tan et al. (2012) cautioned that this trend has led to a significant increase in morbidity, a path that accounts further for the growing demand for the surgical management of ENT problems.

To the neck, head, and Otorhinolaryngologist surgeons, various ENT diseases are presented. According to Nogueira and Mendonça (2011), the pattern of the ENT conditions varies from one community to another. In a similar study, Rijal, Joshi and Regmi et al. (2011) stated that the conditions also vary from one hospital or healthcare organization to another. As observed by Shaheen, Raquib and Ahmad (2012), some of the factors accounting for these variations include the availability of facilities, as well as the number of specialist practitioners available to manage the ENT conditions. Whereas some ENT diseases are acquired, others are congenital in origin. Some of the diseases that are acquired, as asserted by Absalan, Pirasteh and Khavidaki et al. (2013), include malignant and benign tumors, trauma, vascular diseases, neurologic diseases, inflammatory diseases, and infections.

In all age groups, the universal distribution of ENT problems suggests that they are serious problems to public health. As documented by Chadha, Sayal, Malhotra and Agarwal (2012), knowledge about ENT diseases is crucial whereby it increases the understanding of different forms of comorbidities with which the ENT disease are associated. Also, Khairi, Daud and Noor et al. (2010) observed that knowledge about ENT diseases is important because it aids in predicting some of the impairments that tend to arise from ENT-related, inherent physiologic functional interruptions, especially those that occur in the neck and the head regions. Kishve, Kishve, Aarif and Kalakoti (2010) documented that examples of these impaired functions include the clearance of secretions, protection of the lower respiratory tract, taste, olfaction, speech, phonation, swallowing, breathing, and hearing problems. In most cases, Mahadevan, Navarro -Locsin and Tan et al. (2012) observed that the aforementioned morbidities cause economic and school losses in the community, occupational costs, and social embarrassment. In this study, the main purpose was to examine the prevalence of ear, nose and throat disorders. Particularly, the study gained insights from the context of Vietnamese pediatric patients.

### Rationale

Knowledge about ENT problems is important because it paves the way for policymakers and administrators in the healthcare industry to make adequate strategic health planning at the community level; with particular emphasis on developing countries. In these settings, Nogueira and Mendonça (2011) observed that knowledge about ENT problems is dire due to problems such as a lack of basic health facilities, insufficient personnel, ignorance, and poverty. Hence, this study was important because the findings obtained from the Vietnamese context were projected to sensitize stakeholders in the educational sector regarding some of the best medical curricula that could be implemented in relation to the training of Vietnam's neck, neck, head and Otorhinolaryngology surgery. Overall, the study strives to stretch beyond the provision of room for the formulation of health care planning in Vietnam to sensitize relevant healthcare authorities (at the local and national levels) about the importance of the subject of ENT diseases in the developing country's public health.

## LITERATURE REVIEW

This section provides a brief review of the previous scholarly studies that have investigated the subject of ENT diseases, especially those that have focused on pediatric patients in developing countries. The criticality of reviewing the literature is to determine the extent to which parallels could be drawn between the primary data obtained by this investigation and secondary data in the existing, secondary sources of data, upon which relevant and valid inferences about the prevalence of ENT diseases among pediatric patients in Vietnam might be made. In one of the recent investigations, Rijal, Joshi and Regmi et al. (2011) strived to unearth the prevalence and impact of ENT problems in the development of children, especially in relation to their degree of socialization in the neighborhoods and school environments. Similar to the findings reported by Absalan, Pirasteh and Khavidaki et al. (2013), the study established that ENT disorders such as those that involve hearing impairment cause significant disruptions to children's social, language and academic skills. Shaheen, Raquib and Ahmad (2012) cautioned that in developing countries, socio-economic challenges imply that most of these disorders are left untreated, yet Khairi, Daud and Noor et al. (2010) cautioned that the latter trend could translate into significant irreversible damages such as hearing loss. In the later stages of life, a study by Chadha, Sayal, Malhotra and Agarwal (2012) revealed that the ENT disorders, if untreated, affect the professional and social performance of the affected individuals. Therefore, these scholarly affirmations are important because they lead to the understanding that ENT diseases that are untreated cause secondary effects to the social and professional lives of individuals, especially at later stages of life. Also, the scholarly observations are worth acknowledging because they increase the understanding of some of the socio-economic challenges (such as professional staff inadequacy and poverty in the community) that compromise the ability to contain the ENT disorders in developing countries, attributes that account for the conditions' prevalence. However, the studies falter in such a way that they over-generalize their findings. This study sought to address the gap by gaining specific insights from pediatric patients in Vietnam, especially those who had been admitted in hospitals within the country's rural settings. Kishve, Kishve, Aarif and Kalakoti (2010) contended further that most of the children who attend government schools in developing countries hail from an underprivileged society, with the results demonstrating that these populations are more likely to be affected by ENT disorders. A question that arises is what is the prevalence of these conditions in Vietnam?

## METHODS

The research process was conducted in the form of a cross-sectional study. Conducted in the months of April and May 2017, the investigation relied on rural and urban-based public hospitals in the Vietnamese context. The inclusion criterion was set in such a way that the selected hospitals were expected to be pediatric healthcare organizations. Also, the organizations were expected to be public institutions that had served communities for a significant period of at least five years – preceding the time of the study. Apart from the pediatric patients' brief healthcare histories, general ENT examination results were obtained from healthcare practitioners attending to the patients. Other features that were recorded included the diagnoses, medical examination findings, complaints, sex, and age of the pediatric patients. Before engaging in the process of data collection, informed consent was obtained from the pediatric patients' parents, as well as relevant primary caregivers. To determine the occurrence or incidence and prevalence of ENT disorders in the Vietnamese pediatric patients, the number of individuals with positive findings was divided by the total number of pediatric patients who had been admitted or treated in the selected hospitals. Also, the confidence interval (CI) that was used was 96%. To analyze the data obtained, the Statistical Package for the Social Sciences (SPSS-17.0) program was used. To consider the results as statistically significant, the investigation and data collection and analysis procedures were set at  $P < 0.05$ .

From an ethical perspective, this study collected data from a vulnerable population. Therefore, the parents or caregivers of the pediatric patients were informed about the voluntary nature of the data provision process. Thus, the participants were alerted about the freedom of withdrawing at any stage, especially if they felt psychologically disturbed by the delicate subject of investigation – and data that was being collected. Also, ethical conformity was achieved by collecting and analyzing data regarding the prevalence of ENT disorders in its original form without interference or manipulation; a step that aided in avoiding biased outcomes. Of importance to note is that the medical records about the selected patients' histories aided in gaining crucial information about the incidence and prevalence of various ENT diseases affecting pediatric patients in the selected hospitals. Another aspect that is important to note is that the participants' parents' or caregivers' decision to withdraw from the study did not lead to any penalty, neither were incentives provided for those

who participated. To increase the honesty of the responses that were received from the hospital records and the oral information obtained from brief semi-structured interviews with the pediatric patients' parents and caregivers, anonymity was assured through the use of codes, rather than the names, contact information, and addresses of the participants. Also, the caregivers and parents to the selected pediatric patients were informed about data privacy and confidentiality. Particularly, they were alerted that the information obtained about the health status, history, or progress of their children would be stored securely (whether print or electronic) to avoid unauthorized access, as the latter flaw is associated with possible victimization and impersonation, as well as psychological trauma on the part of the participants.

## RESULTS

### Demographic characteristics of the participants

**Table 1:** Age of the pediatric patients in selected hospitals in Vietnam

Minimum age of the participants	4 years
Maximum age of the participants	16 years
Total number of pediatric patients	2256
Mean of the age of the pediatric patients	9.88 years
Calculated standard deviation from the mean	2.48

**Table 2:** Frequency of ENT disorder diagnosis – based on the gender of the participants

				Total number of patients
		Male pediatric patients	Female pediatric patients	
Nature of the pediatric patients' diagnosis with ENT disorder(s)	Yes	491	432	923
	No	635	698	13333
Total number of participants		1126	1130	2256

**Table 3:** The frequency and percentage of diagnosis with different ENT disorders in Vietnamese pediatric patients

ENT disorder	Number of pediatric patients	Percentage of the participants
Superficial (neck abscess)	1	-
Cheek cellulitis	1	-
Viral parotitis	2	0.10
Suppurative cervical lymphadenitis	2	0.10
Pre auricular sinus	2	0.10
Chronic allergic pharyngitis	2	0.10
Acute nasal vestibulitis	2	0.10
Pre auricular lymphadenitis	3	0.10
Post auricular lymphadenitis	3	0.10
FB ear	3	0.10

<b>DNS</b>	5	0.20
<b>Chronic laryngitis</b>	5	0.20
<b>ASOM</b>	5	0.20
<b>Perichondritis</b>	6	0.30
<b>CRS</b>	6	0.30
<b>Acute pharyngitis</b>	6	0.30
<b>Chronic nasal vestibulitis</b>	7	0.30
<b>Infected lobule</b>	9	0.40
<b>Epistaxis</b>	9	0.40
<b>URTI</b>	12	0.50
<b>AOM</b>	12	0.50
<b>Allergic rhinitis</b>	12	0.50
<b>Otomycosis</b>	17	0.80
<b>CSOM AS</b>	31	1.40
<b>Otitis externs</b>	33	1.50
<b>Dermatitis pinna</b>	33	1.50
<b>ET dysfunction</b>	39	1.70
<b>OME</b>	126	5.60
<b>CSOM TT</b>	138	6.10
<b>Wax</b>	391	17.30
<b>Normal</b>	1333	59.00
<b>Total number and percentage of the participants</b>	2256	100.00

In this study, the number of pediatric patients selected for participation was 2,256. The demographic features of the participants are highlighted in Table 1. From the results, the number of female participants exceeded that of male participants. Particularly, insights were gained from 1,130 female pediatric patients while the number of male pediatric patients from whom insights were gained was 1,126. Upon collecting data about the participants' demographic features, the study's main aim and objectives, which concerned the prevalence of ENT disorders in Vietnamese pediatric patients, were investigated. Indeed, the results indicated that 59% of the participants exhibited normal ENT results. Thus, the remainders of the participants, who accounted for 41% of the responses that were received and considered valid for analysis, exhibited positive findings; which implied that they had been diagnosed with at least one ENT disorder.

Imperatively, factors of age and the socio-economic backgrounds of the participants did not play a statistically significant role in shaping the outcomes – regarding the prevalence of ENT disorders in Vietnamese pediatric patients. The implication is that the conditions were distributed almost uniformly across the selected age brackets, as well as neighborhoods. From the specific results, the most common ENT problem that was reported involved wax. Pediatric patients who had experienced this condition accounted for 17.3% of the results that were obtained. In ascending frequencies, other common ENT conditions that were reported included Otitis media with effusion, CSOM-TT or tubo -tympanic variety, and chronic suppurative otitis media. A chi-square test aided in evaluating the correlation between normalcy and sex. From the results that were obtained, the prevalence of ENT diseases was higher in males compared to female pediatric patients in Vietnam.

## DISCUSSION

In communities, whether rural- or urban-based, ENT disorders have been reported frequently. From the previous literature, most if the parents, guardians, or primary caregivers struggle to manage these disorders without medical service consultation; yet Mahadevan, Navarro-Locsin and Tan et al. (2012) cautioned that this trend threatens to compound the morbidity of the ENT diseases, besides increasing a likelihood of higher mortality rates among children in regions such as developing countries. Therefore, pediatric patients or school going children form an important group in the community, especially because they constitute parties from whom crucial insights can be gained in relation to the incidence and prevalence of ENT disorders. In particular, pediatric patients are an important group for investigation because the results reported or observed from this population tend to inform modern interventions that seek to improve health care outcomes via patient and family satisfaction, reductions in annual healthcare expenditures or costs at the family, community and national levels, increased life expectancy, and reduced mortality rates; with developing countries on particular focus.

This study demonstrated that in Vietnam, the number of male and female pediatric patients experiencing ENT diseases is nearly equal, with male patients only surpassing their female counterparts by a small margin. In previous studies such as those that were conducted by Nogueira and Mendonça (2011) and Rijal, Joshi and Regmi et al. (2011), findings demonstrated that the number of male pediatric patients experiencing ENT disorders was almost twice the number of female patients in pediatric sections. In Vietnam, this study established that several NGOs seeking to improve the health care service delivery at the community level were present and that they worked with women, community leaders, healthcare organizations, and other relevant stakeholders in the developing country's public healthcare system. Therefore, the study inferred that the presence of these organizations was likely to have played a significant role of ensuring that both male and female groups gained healthcare services, a trend that saw the number of male and female participants almost equal compared to most of the previous studies in which the number of males diagnosed with ENT diseases was significantly higher than the females.

With 41% of the participants found to have been diagnosed with at least one ENT diseases, this study's results suggested that a higher number of Vietnamese pediatric patients are likely to have an ENT disorder – compared to most of the previous studies. In some of the previous studies, Absalan, Pirasteh and Khavidaki et al. (2013) found that 33% of the pediatric patients had at least one ENT disease with the findings concurring with those that had been reported by Shaheen, Raquib and Ahmad (2012), who noted that about 31% of the selected participants had one or more ENT diseases. Imperative to highlight is that these studies focused on developing countries, similar to the Vietnamese context. Another aspect that is worth highlighting is that this study concurred with most of the previous literature regarding the frequency of different types of ENT problems that the majority of pediatric patients in developing countries are likely to experience. In particular, the study's findings demonstrated that the most common ENT diagnosis was ear wax, with 17.3% of the selected pediatric patients in the Vietnamese context found to have been diagnosed with the health condition. Some of the studies that had documented similar results included those that were conducted by Khairi, Daud and Noor et al. (2010), Chadha, Sayal, Malhotra and Agarwal (2012) and Kishve, Kishve, Aarif and Kalakoti (2010).

In ascending order, other conditions that followed ear wax as a major ENT problem facing pediatric patients in Vietnam involved OME and CSOM -TT. In the studies by Mahadevan, Navarro-Locsin and Tan et al. (2012) and Nogueira and Mendonça (2011), findings suggested that OME forms one of the leading causes of hearing loss, especially among children in developing countries. Overall, findings in this study suggested that in Vietnam, most of the pediatric patients experiencing ENT diseases are likely to report conditions associated with hearing loss. Given that the children's psychological development is shaped by the adequacy of hearing, especially through expressions of feelings, thoughts, and the acquisition of knowledge and life experience, the need for the country's healthcare system to embrace early interventions cannot be overstated. Also, the need for early interventions is informed by most of the previous scholarly affirmations indicating that when the children have adequately corrected hearing or gain normal hearing, they are likely to participate in formal education successfully.

## CONCLUSION

In summary, ENT disorders are worth examining and containing in developing countries, including Vietnam. The purpose of this study was to investigate the prevalence of ENT diseases among pediatric patients in the context of Vietnam. Findings demonstrated that there is an increasing trend in ENT disorders among pediatric patients in the country, with the majority of this study's participants constituting school going children. From the results, the number of male participants exceeded that of female participants diagnosed with ENT diseases – but the difference was not statistically significant. The implication for the country's healthcare system is that several strategies are worth implementing. From this study's observations, some of the strategies that are recommended include timely referrals through community sensitization or mass education at the community and national levels, the implementation of programs seeking to improve the socioeconomic status of the affected families or communities (hence increased access to healthcare services), public awareness about the availability of pediatric healthcare services targeting ENT disorders (and the availability of specialist doctors), conducting regular screening programs that target children in urban and rural communities, and the provision of regular and subsidized school health services.

Indeed, this study was deemed relevant and contributory to the previous literature whereby it gave insight into the prevalence of ENT disorders in Vietnam, as well as various clinical forms that the ENT conditions assume among pediatric patients; especially those who visit public healthcare organizations. Also, this study was projected to contribute to the debate in healthcare systems of developing countries whereby it highlighted some of the challenges that communities and public health authorities face in relation to the provision of services to pediatric patients experiencing ENT disorders. Through the latter contribution, the study gave insight into specific difficulties facing Vietnam's management of ENT diseases; a trend that was observed further to account for the developing country's perceived stagnation in recovery rates for pediatric patients. Lastly, this study underlined the criticality of embracing large-scale studies, upon which recommendations about the harmonized management of ENT disorders could be elaborated, besides drawing strong conclusions regarding the prevalence of ENT diseases in the country – as well as some of the predictive forces or factors accounting for the perceived trend of increased prevalence and incidence of the ENT-related health conditions.

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