Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 32s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Prevalence of Diseases of Otorhinolaryngology Among Immigrant Medical Students in Puducherry

Dr. Valarmathi. A*[1], Dr. Geetha Kishan Siddapur[1], Dr. Venkataramanan[1], Dr. Ganesh.S[1], Dr. Merwin Paul. R[1], Dr. Abilash PM[1]

[1]Department of Otorhinolaryngology and Head and Neck Surgery, Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry.
***Corresponding author:**
Dr. Valarmathi.A
Email ID : valar2894@yahoo.com

Cite this paper as: Dr. Valarmathi. A, Dr. Geetha Kishan Siddapur, Dr. Venkataramanan, Dr. Ganesh.S, Dr. Merwin Paul. R, Dr. Abilash PM (2025) Prevalence of Diseases of Otorhinolaryngology Among Immigrant Medical Students in Puducherry. *Journal of Neonatal Surgery*, 14 (32s), 5439-5444.

ABSTRACT

Introduction

Migration can be defined as an extended stay in a cultural environment that is different from the native one. This study focuses on understanding the relationship between health and migration among medical students in Puducherry. It investigates how migrant students may be affected by migration in terms of commonly encountered otorhinolaryngology (ear, nose, and throat) diseases such as rhinitis, sinusitis, hearing loss and tonsillitis in migrant students.

Materials and methods

A cross-sectional study involving 165 medical students from various regions of India was carried out in a tertiary health centre at Puducherry. A questionnaire including sociodemographic details and otorhinolaryngology related symptoms was used to gather data.

Results

A study conducted on 165 immigrant medical students showed a significant association between the causation of otorhinolaryngological diseases and migration factors such as exposure to allergens (p=0.002). duration of stay (p=0.015), psychological stress (p<0.001), and living conditions (p=0.045). The most prevalent otorhinolaryngological condition was allergic rhinitis (35.2%), followed by laryngopharyngeal reflux disease (25.5%), sinusitis (21.8%), tonsillitis (17.0%), and chronic otitis media (14.5%). Noise-induced hearing loss was reported in (7.3%) of participants.

Conclusion

In our study we were able to demonstrate the corelation between causation of the disease and the geographical change and proves that migration has an impact on developing ENT diseases

Keywords: Migrant, Otorhinolaryngological Diseases, Living Conditions, Medical Students.. ..

1. INTRODUCTION

Migration is an intricate process that has a massive impact on the lives and health of individuals, especially the more vulnerable groups such as students. Students who migrate for medical studies for their education face unique challenges arising from environmental, lifestyle, and socio-cultural changes. These changes can increase their susceptibility to various health conditions, including diseases of the ear, nose, and throat (ENT). Factors such as exposure to unfamiliar allergens, dietary changes, psychological stress, and limited access to familiar healthcare systems may contribute to the onset or worsening of ENT disorders.

Despite the fact that the prevalence of infectious illnesses and psychological disorders among immigrant and refugee populations has been well documented (1,2). According to statistics from groups like the American Academy of Otolaryngology, chronic ear ailments, thyroid and parathyroid disorders, and hearing loss are some of the major issues in low-income and middle-income nations. In contrast to native populations, the review literature has

demonstrated that immigrants with ENT disorders typically present with more severe and advanced symptoms (3). Their vulnerability is further increased by this and the lack of access to specialized healthcare in their home areas. This situation makes it essential to address the ENT health needs of the immigrant populations. In many low-income countries, there is a lack of healthcare professionals, consequently leading to scarce access to ENT care (4,5). It is vital to assess and understand the ENT needs of immigrant populations in order to improve resource allocation, ensure timely care, and to mitigate the burden of untreated but preventable conditions.

Puducherry, known for its thriving medical education system, attracts students from diverse geographical and cultural backgrounds. This makes it an ideal setting to study the relationship between migration and ENT health. This study aims to investigate the prevalence and contributing factors of ENT diseases among immigrant medical students in Puducherry, offering valuable insights into how migration impacts otorhinolaryngological health and informing future healthcare strategies.

The primary objective of this study is to determine prevalence of otorhinolaryngological conditions in immigrant medical students. The secondary objective of this study is to evaluate the association of otorhinolaryngological disease with migration in immigrant medical students in Puducherry

2. MATERIALS AND METHODS

Study Design:

This cross-sectional study was conducted to look into the prevalence and risk factors of otorhinolaryngological illnesses among immigrant medical students. The cross-sectional study design approach enabled the collection of data at a particular point in time, revealing insights into the association between migration and ENT health. The study included 165 immigrant medical students from various regions across India who migrated to Puducherry for their studies. Only students who gave consent to participate were included, while those from Puducherry and Tamil Nadu were excluded to strictly focus on the immigrant population and avoid confounding factors related to native healthcare access. The participants represented a diverse geographical and cultural background, thus providing a comprehensive perspective on the factors related to the process of migration that may influence ENT health.

Data Collection:

Data was collected through a two-stage process:

Questionnaire-Based Survey:

A structured face-to-face questionnaire was given to each participant. The questionnaire includes detailed socio-demographic information such as age, gender, region of origin, duration of stay in Puducherry, and living conditions. It also includes sections on medical history, exposure to allergens, lifestyle changes, and migration-related factors such as stress levels and dietary modifications. Specific questions were aimed at identifying symptoms and signs related to ENT diseases, including ear pain, nasal obstruction, throat discomfort, hearing loss, and recurrent infections.

Clinical Examination:

Each participant underwent a thorough ENT clinical examination by qualified professionals. The examination focused on identifying major otorhinolaryngological conditions, including chronic otitis media, allergic rhinitis, sinusitis, pharyngitis, tonsillitis, and other ENT disorders. Findings were documented systematically to avoid errors and to ensure accurate diagnosis and prevalence estimation.

Data Analysis:

Data collected through the questionnaire and clinical examination were summarized and analysed using SPSS software (Version 20.0). The following steps were undertaken. A summary of socio-demographic information was provided including age, gender, and region of origin. The number of cases of various ENT diseases among the participants was listed, calculated and presented as frequencies and percentages.

Statistical Tests:

Chi-square tests were performed to establish associations between migration-related factors (e.g., stress, allergens, living conditions) and the occurrence of ENT diseases. Correlation analysis was performed to assess the strength and direction of correlations between variables such as duration of stay and specific ENT symptoms or diseases.

Symptom-Pattern Analysis:

Symptom patterns were determined by identifying which symptoms were commonly seen together for certain diseases in ENT. This was done by grouping symptoms such as nasal obstruction and sneezing with allergic rhinitis or ear discharge and hearing loss with otitis media. The analysis provided insights into the clinical presentation of ENT disorders in the immigrant student population.

Ethical Considerations:

The Institutional Review Board provided ethical clearance prior to the start of the trial. All participants provided written informed consent, ensuring their voluntary involvement and the confidentiality of the data. Participants diagnosed with significant ENT conditions were referred for further medical evaluation and treatment as needed.

3. RESULTS :

The study population comprised 165 immigrant medical students with a nearly equal gender distribution (53.3% male, 46.7% female). Most participants belonged to the age group 18-21 years (51.5%), reflecting the typical age of medical students. Geographical representation showed the highest proportion of participants from South India (44.8%), followed by North India (33.9%). East and West India contributed smaller percentages (10.9% and 10.3%, respectively).

Table 1: Socio-Demographic Characteristics of Participants

Characteristic	Frequency (n=165)	Percentage (%)
Age Group (in years)		
18-21	85	51.5
22-25	68	41.2
>25	12	7.3
Gender		
Male	88	53.3
Female	77	46.7
Region of Origin		
North India	56	33.9
South India (excluding Puducherry & Tamil Nadu)	74	44.8
East India	18	10.9
West India	17	10.3

Allergic Rhinitis was the most prevalent condition, affecting 35.2% of participants. This high rate could be attributed to exposure to unfamiliar allergens in the new environment. Sinusitis (21.8%) and laryngo pharyngeal reflux disease (25.5%) were also common, likely linked to environmental changes and stress-related factors. Chronic conditions like Chronic Otitis Media (14.5%) and Tonsillitis (17.0%) were notable, highlighting the long-term impact of untreated ENT issues. A smaller subset of students (7.3%) reported Noice induced hearing Loss, underscoring the need for early screening and intervention.

Table 2: Prevalence of Major Otorhinolaryngological Diseases

ENT Condition	Frequency (n=165)	Percentage (%)
Chronic Otitis Media (active) / Acute Otitis Media	24	14.5
Noice induced hearing Loss	12	7.3
Allergic Rhinitis	58	35.2
Sinusitis	36	21.8
Tonsillitis	28	17.0
Laryngo pharyngeal reflux disease	42	25.5

Significant associations were observed between factors related to migration and the prevalence of otorhinolaryngological diseases, Exposure to Allergens showed a strong correlation (p=0.002) with allergic rhinitis and sinusitis.

Duration of Stay was significantly associated with otorhinolaryngological conditions (p=0.015), indicating that prolonged exposure to environmental factors might increase susceptibility. Psychological Stress emerged as a highly significant factor (p<0.001) across multiple conditions, underscoring the role of mental health in physical health outcomes.

Living Conditions also played a significant role (p=0.045), suggesting that suboptimal housing or hygiene could contribute to otorhinolaryngological disease prevalence.

Table 3: Factors Associated with Otorhinolaryngological Diseases

Factor	Chi-Square Value	p-Value
Exposure to Allergens	12.4	0.002**
Duration of Stay	8.9	0.015*
Psychological Stress	15.3	<0.001**
Living Conditions	6.7	0.045*

4. DISCUSSION:

The findings of this study reveal several critical aspects of the prevalence and contributing factors for ENT diseases among immigrant medical students in Puducherry. These insights align with and expand upon existing research. The most prevalent condition, Allergic Rhinitis (35.2%), is consistent with global trends reported by Pawankar R [6] (2014), who emphasized the significant burden of allergic conditions due to environmental and lifestyle changes. In the context of Puducherry, exposure to new environmental allergens, including pollens and moulds, likely contributed to the high prevalence. Studies by Bousquet et al. (2008) [7] further support this, noting the vulnerability of migrants to allergic diseases due to immunological adaptation to novel allergens.

The prevalence of laryngo pharyngeal reflux disease (25.5%) and Sinusitis (21.8%) corroborates findings by Renner B, et al (2012) [8], who documented increased respiratory and ENT infections in populations exposed to dietary and environmental transitions. Migrant students' increased consumption of local foods and adaptation to altered air quality could explain these results.

Conditions like Otitis Media (14.5%) and Hearing Loss (7.3%) reflect delayed healthcare access, echoing Norredam M (2011) [9], who observed advanced disease presentation among migrants in underdeveloped countries. Pauli et al . (2022) [10] discovered a higher rate of tinnitus among immigrants compared to general population. Both findings imply that immigrants may be more susceptible to auditory impairments as a result of environmental stressors, healthcare availability, and adjusting to new living arrangements. This highlights the importance of early screening and access to specialized care.

Exposure to Allergens: Environmental allergen exposure was highly significant (p=0.002) in this study. This finding aligns with work by Pawankar et al. (2011), who highlighted the impact of allergen-rich environments on respiratory health among immigrant populations.

Psychological Stress: Stress was significantly associated with ENT diseases (p<0.001). Cohen et al. (2012) similarly identified a strong link between psychological stress and upper respiratory infections, citing immune suppression as a critical factor. Migrant students, adjusting to academic pressures and cultural shifts, likely experience heightened stress levels, increasing their vulnerability to infections and inflammatory diseases. Pauli et al. (2022) also highlighted the importance of psychological factors, such as stress and general health, in the occurrence of auditory abnormalities among immigrants, emphasizing the broader influence of stress on ENT health.

Duration of Stay: The association between the duration of stay in Puducherry and disease prevalence (p=0.015) suggests an adaptation period during which migrants are more susceptible to ENT conditions. This finding aligns with observations by Bousquet et al. (2008), who noted an initial spike in allergic and respiratory diseases among newcomers to allergen-heavy environments.

Living Conditions: Poor housing quality and inadequate hygiene were significantly associated with disease prevalence (p=0.045). UNHCR (2019) documented similar findings, emphasizing the need for improved living conditions to reduce the burden of preventable diseases among migrants.

The results emphasize the importance of targeted healthcare interventions for immigrant populations: Early Screening and Preventive Care: Proactive measures, such as regular medical check-ups, can help detect and manage conditions like allergic rhinitis and sinusitis before they progress. Mental Health Support: Counselling and stress management programs, as suggested by Cohen et al. (2012) [11], could mitigate the impact of psychological stress on ENT health.

Enhanced Living Conditions: Efforts to provide hygienic and allergen-free accommodations for migrant students can significantly reduce exposure to risk factors, as highlighted by UNHCR (2019). [12] While this study focuses on medical students in Puducherry, similar patterns of high allergic rhinitis prevalence and stress-related ENT conditions, have been reported in migrant populations globally Norredam M (2011) ; Bousquet et al., 2008 and Pauli et al., 2022). These findings reaffirm the need for localized strategies that address both environmental and psychosocial factors affecting migrant health.

Causality inference is limited by the cross-sectional study design. Furthermore, the study population was restricted to medical students, which may not represent other migrant groups. Future research should explore longitudinal designs and Include diverse migrant populations to generalize findings.

5. CONCLUSION

Our study emphasizes the significant burden of ENT diseases among immigrant medical students. It highlights the critical role of factors such as allergen exposure, psychological stress, and living conditions in shaping their health outcomes. The findings emphasize the need for a multidisciplinary approach in health care systems by integrating cultural competence, preventive health education, and mental health support within ENT care to address barriers, raise awareness, and manage stress-induced conditions. Policy-level interventions are also essential to ensure equitable access to healthcare, including affordable ENT services and routine screenings for immigrants

REFERENCES

1. Barnett ED. Infectious disease screening for refugees resettled in the United States. Clin Infect Dis. 2004 Sep 15;39(6):833-41. doi: 10.1086/423179.
2. PMID: 15472816
3. World Health Organization. Mental health and forced displacement. 2021. [cited 2022 Feb 15]. Available from:
4. https://www.who.int/news-room/fact-sheets/detail/mental-health-and-forced-displacement
5. Benson J, Mwanri L. Chronic suppurative otitis media and cholesteatoma in Australia's refugee population. Aust Fam Physician. 2012 Dec;41(12):978-80.
6. PMID: 23210124
7. Ta NH. ENT in the context of global health. Ann R Coll Surg Engl. 2019 Feb;101(2):93-6. doi: 10.1308/rcsann.2018.0138. Epub 2018 Aug 16.
8. PMID: 30112952; PMCID: PMC6351874
9. Myburgh HC, van Zijl WH, Swanepoel D, Hellström S, Laurent C. Otitis media diagnosis for developing countries using tympanic membrane image analysis. EBioMedicine. 2016 Feb 8;5:156-60. doi: 10.1016/j.ebiom.2016.02.017.
10. PMID: 27077122; PMCID: PMC4816811
11. Pawankar R. Allergic diseases and asthma: a global public health concern and a call to action. World Allergy Organ J. 2014 May 19;7(1):12. doi: 10.1186/1939-4551-7-12. PMID: 24940476 PMCID: PMC4045871
12. Bousquet J, Khaltaev N, Cruz AA, Denburg J, Fokkens WJ, Togias A, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 update (in collaboration with the World Health Organization, GA(2)LEN and AllerGen). Allergy. 2008 Apr;63 Suppl 86:8-160. doi: 10.1111/j.1398-9995.2007.01620.x. Available from: https://onlinelibrary.wiley.com/doi/10.1111/j.1398-9995.2007.01620.x
13. Renner B, et al. Environmental and non-infectious factors in the aetiology of pharyngitis (sore throat). Inflamm Res. 2012;61(10):1041-1052. doi:10.1007/s00011-012-0540-9. PMID: 22890476 PMCID: PMC3439613
14. Norredam M. Migrants' access to healthcare. Dan Med Bull. 2011 Oct 1;58(10):B4339. PMID: 21975158
15. Pauli N, Dahlin Redfors Y, Stubbe J, Jönsson R. Tinnitus in immigrants attending Swedish language education classes. Laryngoscope Investig Otolaryngol. 2022;7(2):614-20. doi: 10.1002/lio2.777. PMID: 35434311; PMCID: PMC9008148
16. Available from: https://onlinelibrary.wiley.com/doi/full/10.1002/lio2.777
17. Cohen S, et al. A stage model of stress and disease. Perspect Psychol Sci. 2016;11(4):456-63. doi:10.1177/1745691616646305.

18. PMID: 27474134 PMCID: PMC5647867
19. UNHCR. Living conditions and migrant health: A global perspective. UNHCR Reports. 2019.
20. Available from: https://www.unhcr.org