

PREVALENCE, QUALITY OF LIFE IMPACT, AND ACADEMIC CONSEQUENCES OF ALLERGIC RHINITIS IN INDIAN MEDICAL STUDENTS: A CROSS-SECTIONAL INSTITUTIONAL STUDY

Otorhinolaryngology

Dr. Raghu G Junior Resident, Department of ENT, Akash Institute of Medical Sciences and Research Centre, Devanahalli – 562110, India. ORCID: 0009-0007-5810-7782

Dr. Saritha H M* Associate Professor, Department of ENT, Akash Institute of Medical Sciences and Research Centre, Devanahalli – 562110, India. ORCID: 0000-0001-7391-8478
*Corresponding Author

Dr. H. K. Nagarathna Professor, Department of ENT, Akash Institute of Medical Sciences and Research Centre, Devanahalli – 562110, India. ORCID: 0000-0002-6879-1801

ABSTRACT

Background: Allergic rhinitis (AR) is a frequent but still underdiagnosed ailment among young adults, which negatively impacts their quality of life and academic performance. **Objectives:** To determine the prevalence of AR among Indian medical students with the help of the Score for Allergic Rhinitis (SFAR), to measure the impact on QoL by Mini-RQLQ, and to analyse academic consequences. **Methods:** A total of 500 MBBS students participated in this cross-sectional research by filling out an anonymous Google Form that included SFAR, Mini-RQLQ, and academic indicators. Then the data were analysed by SPSS v25. **Results:** It was found that 36% of students had AR (SFAR ≥ 7). Cold weather and house dust were mentioned as the most frequent triggers, while sleep disturbance and eye problems were the most reported symptoms. The students with AR indicated a significant reduction in concentration, clinical participation, and attendance ($p < 0.001$) compared to their peers. Only 44% of the affected students reported seeking treatment. **Conclusion:** AR is common among medical students and greatly impacts their quality of life and academic performance, thus rightfully justifying the early detection and intervention.

KEYWORDS

Allergic rhinitis, SFAR, Mini-RQLQ, academic effect, medical student.

INTRODUCTION

Allergic rhinitis (AR) is an inflammatory disorder of the nasal mucosa that actively involves IgE and is really set off by allergens present in the environment, such as dust mites, pollens, and animal dander [1,2]. The classic signs of the condition are sneezing, congestion, runny nose and itching, with ocular signs and sleep disturbance often accompanying these, which together result in decreased cognitive function and daily productivity [3,4].

Increase in city population, air pollution, indoor allergen exposure, and lifestyle changes have been the major contributors to growing AR incidence in India [5]. Medical students are quite an at-risk group as they are constantly indoors, under academic stress, and their sleep schedule is irregular so they seek healthcare less often, which leads to a decline in their quality of life (QoL) and academic performance [6].

Population-level screening is made easier by the use of validated instruments such as the Score for Allergic Rhinitis (SFAR) [8], whereas the Mini-Rhinoconjunctivitis Quality of Life Questionnaire (Mini-RQLQ) gives a detailed view of the disease's impact on QoL [7]. Nonetheless, there is a scarcity of Indian research addressing the academic effects of AR through the use of validated tools. The present study was conducted for the purpose of estimating the prevalence of AR using SFAR, measuring the impairment of QoL through Mini-RQLQ, and determining the academic impact on medical students.

MATERIALS AND METHODS

Study Design And Setting: A descriptive cross-sectional study was carried out during the months of June to December in the year 2025 at the Akash Institute of Medical Sciences and Research Centre, located in Bengaluru, India.

Participants And Sampling: The first-year MBBS students up to the internship were included in the study by convenience sampling method. The minimum sample size was determined to be 323 based on a prevalence of 30%. Ultimately, 500 complete responses were analyzed.

Inclusion Criteria: MBBS students who gave informed consent.

Exclusion Criteria: Students with a diagnosed psychiatric disorder, chronic illnesses that influence their cognition or attendance, and those whose responses are incomplete or inconsistent.

Study Instruments

SFAR: Allergic Rhinitis Screening Tool (score ≥ 7 means AR).

Mini-RQLQ: Cross-cutting of QoL in five domains: nasal, ocular, sleep, emotional, and social. The categories of severity were created through the use of the score-based tertiles.

Academic Impact Questionnaire: Assessed Concentration, attendance, clinical participation, productivity, and examination performance.

Treatment-Seeking Behavior: History of medical consultation and medication use.

Data Collection And Statistical Analysis

Data were collected anonymously through Google Forms. The analysis was done using SPSS v25. Descriptive statistics were performed. Chi-square tests checked the association between AR and academic variables. Normality was checked before factorial ANOVA, which was then used to identify the predictors of AR severity. p -value < 0.05 was considered statistically significant.

RESULTS

Table 1: Demographic Characteristics Of Study Participants

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18–20	224	44.8
	21–23	200	40.0
	24–26	60	12.0
	≥ 27	16	3.2
Gender	Female	312	62.4
	Male	188	37.6
Academic Year	1 st Year	192	38.4
	2 nd Year	82	16.4
	3 rd Year	58	11.6
	4 th Year	68	13.6
	Internship	100	20.0

Prevalence of Allergic Rhinitis: Based on SFAR scoring, 180 students (36%) met criteria for allergic rhinitis, while 320 (64%) were classified as non-AR.

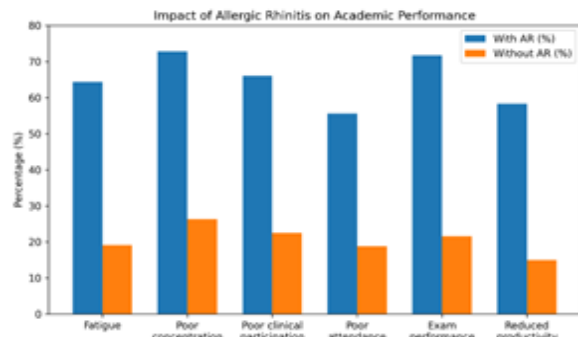
Table 2: Mini-RQLQ Symptom Burden Among Students with Allergic Rhinitis

Domain	Mild (%)	Moderate (%)	Severe (%)
Sleep disturbance	34.4	41.1	24.5
Nasal symptoms	30.6	43.9	25.5
Ocular symptoms	36.1	39.4	24.5
Fatigue/lethargy	32.2	40.6	27.2

Emotional/social impact	29.4	45.0	25.6
-------------------------	------	------	------

Table 3: Impact of Allergic Rhinitis on Academic Performance

Academic Indicator	With AR (n=180) %	Without AR (n=320) %	p-value
Fatigue/lethargy	64.4	19.1	<0.001
Difficulty concentrating	72.8	26.3	<0.001
Poor clinical participation	66.1	22.5	<0.001
Poor attendance	55.6	18.8	<0.001
Exam performance affected	71.7	21.6	<0.001
Reduced productivity	58.3	15.0	<0.001

**Figure 1: Academic Performance Impairment In Students With And Without Allergic Rhinitis**

DISCUSSION

This study shows a very high occurrence of allergic rhinitis (36%) among the Indian medical students, which surpassed the figures of previous Indian studies, thus indicating the increasing disease burden in this population [9,10]. Environmental exposure, indoor living, and academic stress may be the reasons for this observation.

The major allergens were cold weather and house dust, and their presence corresponds to the Indian aeroallergen profiles [12]. Mini-RQLQ results showed a large degree of impairment in the sleep, nasal, and ocular areas, which are known to have a negative impact on attention and academic efficiency [7,14,15].

The students suffering from AR had a noticeable negative impact on their concentration, classroom participation, and examination performance, which was in line with previous studies [16,17]. Less than half of them went to the doctor, which may indicate that the symptoms are considered normal and that self-medication is the way that they go [2,11].

Limitations

There is a possibility of recall bias because of the use of self-reported data. Furthermore, the use of convenience sampling limits the ability to generalize the findings to a wider population. Objective diagnostic tests were not conducted; however, SFAR is a recognized epidemiological screening tool.

CONCLUSION

More than one out of three medical students suffer from allergic rhinitis, which entails detrimental effects on the quality of life and academic performance. Regular screening and timely treatment are a necessity.

Recommendations

Include SFAR screening in the student health checks
Employ Mini-RQLQ for regular monitoring
Raise awareness about the academic impact of AR
Provide early ENT consultation
Introduce environmental allergen control measures

Declarations

Conflict of Interest: No conflict of interest was declared

Ethical Approval: Approval was granted

Informed Consent: Consent was obtained from each and every participant

REFERENCES

1. Dykewicz MS, Hamilos DL. Rhinitis and sinusitis. In: Middleton's Allergy: Principles and Practice. 9th ed. Philadelphia: Elsevier; 2020.
2. Bousquet J, Khaltaev N, Cruz AA, Denburg J, Fokkens WJ, Togias A, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 update. *Allergy*. 2008;63(Suppl 86):8–160.
3. Pawankar R, Canonica GW, Holgate ST, Lockey RF, Blaiss MS. WAO White Book on Allergy: Update 2013. Milwaukee, WI: World Allergy Organization; 2013.
4. Asher MI, Montefort S, Björkstén B, Lai CKW, Strachan DP, Weiland SK, et al. Worldwide time trends in the prevalence of symptoms of asthma, allergic rhinoconjunctivitis, and eczema in childhood: ISAAC phases I and III repeat multicountry cross-sectional surveys. *Lancet*. 2006;368(9537):733–43.
5. Singh AB, Mathur C. An aeroallergen survey of the atmosphere of Delhi, India. *Allergy*. 1990;45(2):95–100.
6. Rajan A, Rao S. Burden of allergic rhinitis among medical students: a neglected concern. *Indian J Allergy Asthma Immunol*. 2021;35(1):28–32.
7. Juniper EF, Guyatt GH, Dolovich J. Assessment of quality of life in adolescents with allergic rhinoconjunctivitis: development and testing of the Mini-RQLQ. *Clin Exp Allergy*. 1999;29(3):413–6.
8. Annesi-Maesano I, Didier A, Klossek JM, Chanal I, Moreau D. The Score for Allergic Rhinitis (SFAR): a simple and valid method for assessing allergic rhinitis in population studies. *Allergy*. 2002;57(2):107–14.
9. Sharma A, Bansal S, Aggarwal A. Prevalence and risk factors of allergic rhinitis among medical students in North India. *Indian J Allergy Asthma Immunol*. 2020;34(2):90–94.
10. Tripathi P, Rai P, Singh R. Allergic rhinitis in young adults: a cross-sectional study. *J Clin Diagn Res*. 2019;13(6):OE01–OE04.
11. George M, Sreedharan J, Joy TM, et al. Self-medication practices among healthcare students in a private university, South India. *J Pharm Bioallied Sci*. 2020;12(4):426–431.
12. Jain N, Kumar R, Vashisht N. Common allergens in India and their association with respiratory allergic diseases. *Indian J Chest Dis Allied Sci*. 2018;60(1):23–28.
13. Dold S, Wjst M, von Mutius E, et al. Genetic risk factors for asthma and atopy in children. *Eur Respir J*. 1992;5(2):144–149.
14. Meltzer EO. Quality of life in adults and children with allergic rhinitis. *J Allergy Clin Immunol*. 2001;108(1 Suppl):S45–S53.
15. Dykewicz MS, Hamilos DL. Rhinitis and sinusitis. *J Allergy Clin Immunol*. 2010;125(2 Suppl 2):S103–115.
16. Skoner DP. Allergic rhinitis: definition, epidemiology, pathophysiology, detection, and diagnosis. *J Allergy Clin Immunol*. 2001;108(1 Suppl):S2–S8.
17. Bousquet PJ, Demoly P, Devillier P, et al. Impact of allergic rhinitis symptoms on quality of life in primary care. *Int Arch Allergy Immunol*. 2013;160(4):393–400.
18. Brożek JL, Bousquet J, Baena-Cagnani CE, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines: 2010 revision. *J Allergy Clin Immunol*. 2010;126(3):466–476.