

Social and Psychological Impact of Allergic Rhinitis among University Students in Malaysia

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Abstract

Background: Allergic rhinitis is a global health problem. It is a symptomatic disorder of the nose after allergen exposure due to IgE mediated inflammation of membrane lining the nose with clinical manifestation of rhinorrhea, sneezing, itching and nasal congestion. It is the sixth most prevalent chronic disease in the world with approximately 1 million people affected each year including up to 40% of the student population. This study aims to explore the social and psychological impact of allergic rhinitis among university students. **Methodology:** This descriptive cross sectional study was conducted on 1000 students of a private university in Malaysia who were willing to participate. Convenient sampling technique was used. The study tool used was a well structural questionnaire. Inferential statistical analysis was done. **Results:** In our study group, 800 students were found to have allergic rhinitis (AR). They were in the age group of 18-26 years. Among them, 55% were females and 45% were males. Most of them, 495 (61.87%) were symptomatic for <3 years. Rhinorrhea was the most annoying symptom of AR stated by 37.5% of the study population. Sinusitis was the commonest cited comorbidity (29%). Communication and socialization problems were reported by 79% of our study group, while 50% were affected psychologically. Sleep, mood and concentration were the most affected. **Conclusion:** Allergic rhinitis can adversely affect the social and psychological life of students. These effects though not life threatening need to be borne in mind while dealing with students with allergic rhinitis.

Keywords: Allergic rhinitis, social and psychological impact, university students.

Introduction

Allergic rhinitis (AR) is a symptomatic disorder of the nose secondary to allergen exposure due to an IgE mediated inflammation of the mucous membrane lining the nose¹. It is clinically defined as a condition with four major symptoms namely rhinorrhoea, sneezing, nasal itching and nasal congestion². It is believed to affect 10-30% of adults and 40% of children worldwide³. It is the sixth most prevalent chronic disease in the world

with approximately 1 million people affected each year including up to 40% of the student population⁴. The common triggers of allergic rhinitis are domestic allergens such as mites, domestic animals, insects while outdoor allergens include pollens and moulds, tobacco smoke and automobile exhaust⁴. There may be associated allergic conjunctivitis, postnasal drip, Eustachian tube dysfunction, otitis media and sinusitis which may deteriorate the quality of life of AR patients^{1,5}. It can also be associated with co-morbid conditions like asthma, atopic dermatitis and nasal polyps. Pharmacologic treatments of this condition can have adverse effects such as sedation⁶. The indirect costs resulting from allergic rhinitis associated absenteeism result in losses to employers that exceed those for other common conditions such as a migraine, diabetes and also asthma¹⁰. Hence this health problem can cause considerable

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economic and societal burden². Students who lead an active life may be exposed to these common allergens and many may suffer from this condition. Though the symptoms are not life threatening, it may compromise the social and academic life of students. This study was therefore conducted to evaluate the impact of allergic rhinitis on life of university students.

Methodology

This study adopted a cross sectional study design. The study population was students of different faculties in a private university in Shah Alam, Malaysia. Convenient sampling technique was used. The study tool used was a well -structured questionnaire prepared after extensive literature review. It was pilot tested on ten random students, checked for ambiguity and later used. The questionnaire had three components a) Demographic profile of the study population b) Allergic

rhinitis symptoms and duration c) Impact of allergic rhinitis on the social, financial and psychological aspects of student life. The study was conducted after obtaining approval from the ethical committee of the university. A written informed consent was sought from all the participants. Data was analyzed using SPSS version 13 using descriptive statistics.

Results

A total of 1000 students from various faculties of a private university in Shah Alam, Malaysia willingly participated in this study. Our study population consisted of young adults of the 18 to 26 year age group. We observed that 800 (79.5%) of our study population had symptoms of allergic rhinitis of varied duration. The demographic profile was as depicted in figure 1a, 1b and 1c.

Figure 1a,1b and 1c: Demographic profile of the study population

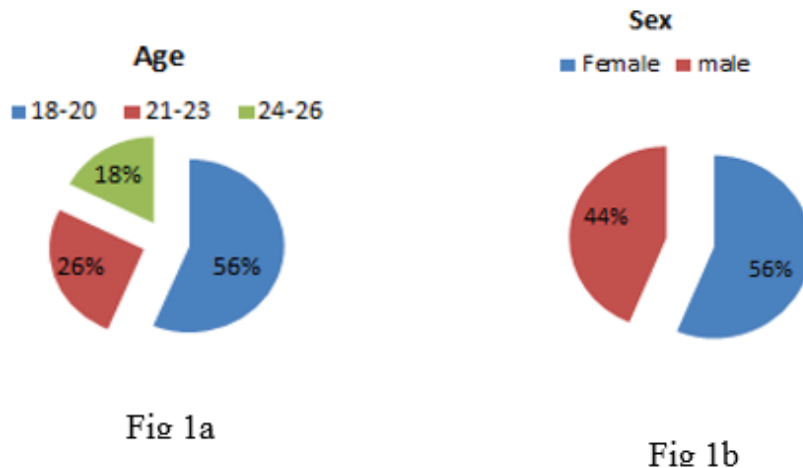


Fig 1c

In our study, out of the 1000 students who participated, 800 had symptoms of allergic rhinitis. Of them, 495 (61.87%) had symptoms of allergic rhinitis for 1-3 years duration while 103 (12.8%) had for more than 3 years, 100 (12.5%) had since childhood and 100 (12.5%) were not sure of the duration of their symptoms.

Watery nasal discharge was the commonest symptom seen in 300 (37.5 %) of our study population, followed by frequent sneezing in 200 (25%) nasal obstruction in 200 (25%) and itching in the nose and palate in 100 (12.5%) as seen in Fig 2.

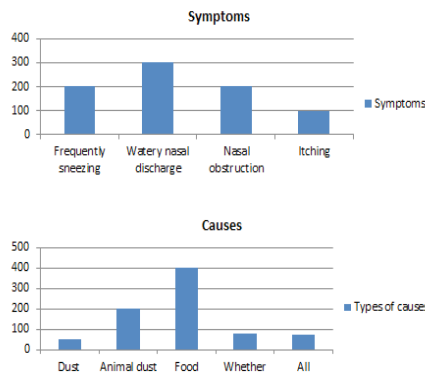


Figure 2. Symptoms of allergic rhinitis

In our study, 50% our participants considered food as the commonest allergen for their rhinitis followed by animal dander (25%), weather changes (9.38%), dust(6.25%) and all of them by (9.38%) as shown in Fig 3.

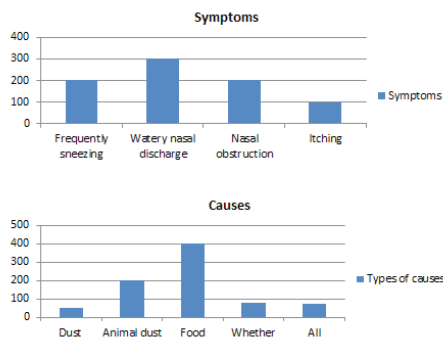


Figure 3 : Causes of allergic rhinitis

In our study group, 635 (79%) reported feeling of being ashamed to communicate with others and socialize due to their annoying symptoms. They felt that their allergic symptoms was responsible for their inability to integrate with peers and lead to family dysfunction. They therefore spent a significant amount of their free time on social network with 49.5% spending more than 3hrs/day

while 29.8% and 18.25% spending >2 hrs an 1-2 hrs on social network respectively. They also complained of fatigue, decreased enthusiasm and poor general health perception.

The psychological impact of allergic rhinitis was also observed in 400 (50%) of our study population. 246 students (30.7%) had multiple symptoms. The common complaints expressed were sleep deprivation 340(42.5%),headache 232 (29%), feeling at edge 30(3.8%), mood fluctuations 6 (0.75%) feeling tearful 16 (2%)and lack of concentration(25%). Sleeping and playing games on internet were the commonest strategies adopted by 50% of the students to alleviate their stress that was attributed to allergic rhinitis. Eating, chatting on social media and others like doing yoga were also mentioned by a minority of the study population.

Discussion

Demographic profile:

Among the study group of 1000 students ,800 (79%) were found to have symptomatic allergic rhinitis. This high prevalence of allergic rhinitis among our study population can be attributed to living in the city areas with contaminated air. R. Mosges and L. Klimek in their study in Germany made a similar observation. They have implicated western lifestyle and air pollution for the high prevalence of allergic rhinitis among adults¹¹.

The mean age of the study group was 21+/- 3 years. In a similar study by Kalmaizi et .al in western Iran the mean age reported was 29+/- 10 years¹². Among the symptomatic group, 18% were of 24-26 years,26% of 21-23 years and 56% of 18-20 years suffered from allergic rhinitis. Though our study population focused on a limited age group, a difference in incidence was noticed even among them. This age-related diminishing feature seen in the allergic rhinitis might be because of the allergen-explicit IgE level abatement that happens with maturing in atopic people ¹³.

In our study population, 56% were female and 44% were males. The higher incidence of allergic rhinitis among females was also reported in a similar study on allergic rhinitis patients in western Iran, where 61% of their participants were female and 39% were male ¹². Similar observations were also made by Shariat et al. in which 62% were female and 38% were male¹⁴.This observation has been documented in a systematic review and meta- analysis by Pinart et .al ¹⁵ where they stated

that female preponderance for asthma and allergy in adulthood was seen worldwide except in Asia. However, our findings and those of the above studies show that similar prevalence is seen in Asia also. Nasal obstruction has been specifically accounted for in pregnancy, menses, menarche, and while on oral contraceptives showing that the increased prevalence among female students might be identified with hormonal levels. However, in contrast to our observation Hubert, Chen et al in their study on allergic rhinitis reported 37% female and 63% male participants¹⁶.

With respect to ethnicity, our study population included 73% Malays, 20% Indians and 7% Chinese. This can be attributed to the larger population of Malay individuals in the campus in contrast with the other ethnic groups. Similar observations were made in an earlier study on food allergy in the same university¹⁷.

Symptoms of allergic rhinitis:

In our study, watery rhinorrhoea was the most troublesome symptom of allergic rhinitis complained by 37% of the study population. Similar observations were made in a study on allergic rhinitis conducted in Tehran¹⁴. Nasal congestion however, has been documented to be the most bothering symptom in some other studies on allergic rhinitis^{2,6,7,8}. Most of the students in our study population correlated their symptoms with food and considered it to be the commonest cause for their allergic rhinitis. A similar observation was made by Redhwan AA¹⁷.

In our study group, 29% complained of comorbidities like sinusitis and 12% had asthma. Sinusitis, asthma, a poor sense of smell and taste were reported as comorbidities in a similar study in western Iran¹². A similar observation was also made by Shariat et al in 2012. Irritation of the nasal mucosa by allergens causes oedema and clogging of the sinus ostia prompting sinusitis¹⁴.

Social and psychological impact on student life:

Most of the students in our study reported that their social life had been influenced by the hypersensitive rhinitis. Other than the nasal blockage and runny nose; different issues like exhaustion, feeling of inconvenience and decreased efficiency were the common complaints. When those side effects showed up, individuals expressed feeling ashamed to speak with other individuals, which in-turn affected their public activity. Meltzer too drew

attention to these social effects of allergic rhinitis in their study on quality of life of allergic rhinitis in adults and children⁵.

In our study group, 79.5% acknowledged that they felt ashamed to communicate with others due to their annoying symptoms which in turn lead to difficulty in mingling with peers leading to social disjunction. Cingi et al in their study in Turkey also drew attention to the negative effects of allergic rhinitis on the quality of life and social communication². The students of our study group therefore spent a large amount of their time on social network with 49.5% spending more than 3hrs/day, while 29.8% and 18.25% spending >2 hrs and 1-2 hrs on social network respectively. R. Mosges and L. Klimek argue that increase in time spent indoors expose individuals to a variety of novel allergens and the psychological stress due to this lifestyle change leads to an increase in sensitization to a wider variety of allergens which worsens their situation¹¹.

We found that allergic rhinitis symptoms were related with poor mental status among the university students. The symptoms which the students correlated with worse outcomes were sleep deprivation, headache and lack of concentration. The other common complaints expressed were mood fluctuations, feeling at edge and feeling tearful. It was worse among perennial allergic rhinitis sufferers when compared to those with seasonal allergic rhinitis. Similar observations were made by other researchers.^{9,10,13,14} This can be explained by nasal congestion in allergic rhinitis patients due to the release of inflammatory intermediates which leads to disrupted sleep and subsequent daytime sleepiness⁶. Sleeping and playing games on internet were the commonest stress coping strategies adopted by 50% of the students. Eating, chatting on social media and doing yoga were also mentioned by a minority of the study population.

Conclusion

This cross-sectional study on 1000 undergraduate students of a private university in Shah Alam, Malaysia shows that allergic rhinitis is common among the university student community. It adversely influences their social and mental life. These effects though not life threatening need to be borne in mind while dealing with students with allergic rhinitis. Steps need to be taken to reduce the environmental allergens which may prevent allergic rhinitis and concomitant diseases like sinusitis and asthma among the student community.

Limitations of the study: This study involved young adults of 18-26 years age group and many of them belonging to one ethnic group. Hence the outcomes of this study would probably be pertinent and relevant to this population. Furthermore, the examined information could be influenced by the perspectives of students regarding their illness. Besides, the anxiety and mental status of the symptomatic students maybe influenced by other factors like family income, informal community utilization and parental expectation of their achievements.

Conflict of Interest: Nil.

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References

1. Pawankar R, Mori S, Ozu C, Kimura S. Overview on the pathomechanisms of allergic rhinitis. *Asia Pacific Allergy*. 2011 Oct 1;1(3):157-8
2. Cingi CC, Muluk NB, Hanci D, Şahin E. Impacts of Allergic Rhinitis in Social Communication, Quality of Life and Behaviours of the Patients. *J Allergy Disord Ther*. 2015;2(002).
3. Orban NT, Saleh H, Durham SR. Allergic and non-allergic rhinitis. *Middleton's Allergy Principles and Practice*. 7th ed. Philadelphia: Mosby Elsevier. 2009:973-90.
4. M.shiu.A (2015).Allergy. In *Essentials of Pediatrics*, Nelson ,ed(Elsevier)p282.
5. Meltzer EO. Quality of life in adults and children with allergic rhinitis. *Journal of allergy and clinical immunology*. 2001 Jul 1;108(1): S45-53.
6. Craig TJ, McCann JL, Gurevich F, Davies MJ. The correlation between allergic rhinitis and sleep disturbance. *Journal of allergy and clinical immunology*. 2004 Nov 1;114(5):S139-45.
7. Thompson AK, Juniper E, Meltzer EO. Quality of life in patients with allergic rhinitis. *Annals of Allergy, Asthma & Immunology*. 2000 Nov 1;85(5):338-48.
8. Varshney J, Varshney H. Allergic rhinitis: An overview. *Indian Journal of Otolaryngology and Head & Neck Surgery*. 2015 Jun 1;67(2):143-9
9. Leynaert B, Neukirch C, Liard R, Bousquet J, Neukirch F. Quality of life in allergic rhinitis and asthma: a population-based study of young adults. *American journal of respiratory and critical care medicine*. 2000 Oct 1;162(4):1391-6
10. Bousquet J, Khaltaev N, Cruz AA, Denburg J, Fokkens WJ, Togias A, Zuberbier T, Baena-Cagnani CE, Canonica GW, Van Weel C, Agache I. Allergic rhinitis and its impact on asthma (ARIA) 2008. *Allergy*. 2008 Apr;63:8-160.
11. Mösges R, Klimek L. Today's allergic rhinitis patients are different: new factors that may play a role. *Allergy*. 2007 Sep;62(9):969-75.
12. Kalmarzi RN, Khazaei Z, Shahsavari J, Gharibi F, Tavakol M, Khazaei S, Shariat M. The impact of allergic rhinitis on quality of life: a study in western Iran. *Biomedical Research and Therapy*. 2017 Sep 28;4(9):1629-37
13. Slavin RG. Treating rhinitis in the older population: special considerations. *Allergy, Asthma & Clinical Immunology*. 2009 Dec;5(1):9
14. Shariat M, Pourpak Z, Khalesi M, Kazemnejad A, Sharifi L, Souzanchi G, Movahedi M, Gharagozlou M, Mahlooji M, Moin M. Quality of life in the Iranian adults with allergic rhinitis. *Iranian Journal of Allergy, Asthma and Immunology*. 2012:324-8.
15. Pinart M, Keller T, Reich A, Fröhlich M, Cabieses B, Hohmann C, Postma DS, Bousquet J, Antó JM, Keil T. Sex-related allergic rhinitis prevalence switch from childhood to adulthood: a systematic review and meta-analysis. *International archives of allergy and immunology*. 2017;172(4):224-35.
16. Chen H, Katz PP, Shiboski S, Blanc PD. Evaluating change in health-related quality of life in adult rhinitis: Responsiveness of the Rhinosinusitis Disability Index. *Health and quality of life outcomes*. 2005 Dec;3(1):68
17. Redhwan AA, Low WY, Mustafa FM, Robert C, Ali A. Perceptions about food allergy among medical science students in a university in Shah Alam, Selangor, Malaysia. *International Food Research Journal*. 2011 Feb 1;18(1).