



Research Article

Relationship between Allergic Rhinitis to Quality of Life of Students of Faculty of Medicine Universitas Sumatera Utara Batch 2018

Anna Delinda*¹, Andrina Rambe²

¹Undergraduate Program, Faculty of Medicine, Universitas Sumatera Utara, Medan, 20155, Indonesia

²Department of Ear Nose and Throat, Faculty of Medicine, Universitas Sumatera Utara, Medan, 20155, Indonesia

Abstract

Background: Allergic rhinitis is an inflammation mediated by Immunoglobulin E (IgE) with symptoms such as runny nose, sneezing, nasal congestion, with or without itchy nose. Although allergic rhinitis is not a dangerous disease, this disease has an impact on decreasing the quality of life of the sufferer which can interfere with daily activities. **Objective:** This study use to determine the relationship between allergic rhinitis and quality of life among students of the Faculty of Medicine, Universitas Sumatera Utara, batch 2018. **Methods:** This study used an observational analytical method with a cross-sectional study approach. The research sample was determined by simple random sampling technique and used two questionnaires, namely SFAR to assess allergic rhinitis and SF 36 to assess quality of life. **Results:** Based on the study, the number of allergic rhinitis sufferers from 72 students of the Faculty of Medicine, Universitas Sumatera Utara, batch 2018, 38 students suffering from allergic rhinitis. The results of data analysis using the Chi Square statistical test showed that there was a significant relationship between allergic rhinitis and quality of life, p (p value) of 0.001 ($p < 0.05$). **Conclusion:** There is a relationship between allergic rhinitis and quality of life in 2018 students of the Faculty of Medicine, Universitas Sumatera Utara.

Keywords: allergic rhinitis, SFAR, short form-36, quality of life

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1. Introduction

According to World Health Organization Allergic Rhinitis and its Impact on Asthma (WHO ARIA), allergic rhinitis is an inflammation of the nasal mucosa after exposed to IgE-mediated allergens, showed by nasal symptoms, such as, *rhinorrhea* (watery runny nose), sneezing, nasal congestion and itchy nose [1]. The prevalence of allergic rhinitis is increasing progressively in developed country, especially adults, 10%-40%, on the other side, rate for the children is 2%-25% worldwide. Economic development, westernized lifestyle, urbanization and eating practice also increase the case of allergic rhinitis in developing countries [2].

It is acknowledged that allergic rhinitis have an impact to those sufferers. Although allergic rhinitis is not a dangerous disease, but this can also affect on decreasing the quality of sufferers' life their daily life [3]. In a study involving 1.948 individuals who completed RQLQ questionnaire, there were 3 parameters which indicate the effect of allergic rhinitis, such as embarrassment, frustration, and practical problems, also include discomfort to carrying tissue or handkerchief, the need to wipe the nose, produce nasal snot continuously [4].

There are several instruments that can be used to assess the quality of life of patients with allergic rhinitis. SF-36 is an instrument which widely used by researchers. This instrument is quick (5-10 minutes) and easy

* Corresponding author at: Undergraduate Program, Faculty of Medicine, Universitas Sumatera Utara, Medan, 20155, Indonesia
E-mail address: annadelinda70@gmail.com

to use, also can be done using a telephone interview [5]. Therefore, based on the background displayed above, the writer is interested in knowing the relationship between allergic rhinitis and the quality of life of students of the Faculty of Medicine, Universitas Sumatera Utara, batch 2018.

2. Methods

The research design used in this study was *observational analytic* study with *cross-sectional* study approach. This study intend to determine the relation between allergic rhinitis to the quality of life of student of the Faculty of Medicine, Universitas Sumatera Utara, batch 2018. This study was conducted by communication network of Faculty of Medicine, Universitas Sumatera Utara, throughout July to November in 2021. The population in this study were all students of the Faculty of Medicine, Universitas Sumatera Utara, batch 2018 numbered 254 students. The number of samples will be calculated using the formula:

$$n = 1 + Ne^2$$

Description :

N = sample

N= population

e= error tolerance (0,1)

Based on this formula, the minimum number of sample is:

$$n = 1 + \frac{254}{254(0,1)^2} \quad \text{and} \quad n = \frac{254}{3,54} = 72$$

This study needed 72 students as sample. *Simple random sampling* technique used to determine randomly the student of Faculty of Medicine, Universitas Sumatera Utara which process will give every student (population) and equal chance of being sampled.

3. Results

From the collection of respondents using an online questionnaire, the authors collected 72 respondents who participated in this study. The subjects of this study were students of the Faculty of Medicine, Universitas Sumatera Utara, batch 2018. From the data, the distribution of respondents was obtained based on the diagnosis of allergic rhinitis.

Table 1. Frequency distribution of respondents based on the diagnosis of allergic rhinitis

| Diagnosis of Allergic Rhinitis | n | % |
|-----------------------------------------------|----|-----------|
| Students Not Suffering From Allergic Rhinitis | 34 | 47,2% |
| Students with Allergic Rhinitis | 38 | 52,8% |
| Total | 72 | 72 (100%) |

Table 1 shows that the respondents were divided into two groups, there were 38 students with allergic rhinitis (52.8%) and 34 students weren't rhinitis sufferers (47.2%).

Table 2. Distribution of allergic rhinitis by sex

| Sex | Students Are Not Suffering From Allergic Rhinitis | | Students with Allergic Rhinitis | | |
|--------|---------------------------------------------------|-------|---------------------------------|-------|----|
| | n | % | n | % | |
| Male | 10 | 35,7% | 18 | 64,3% | 28 |
| Female | 24 | 54,5% | 20 | 45,5% | 44 |
| Total | 34 | | 38 | | 72 |

From table 2, it can be seen that the distribution of respondents by gender shows that the amount of female allergic rhinitis sufferers is more than male sufferers. For female the amount is 20 people (45.5%), while the male is 18 (64.3%). For not sufferers, the percentage for female is 24 people (54.5%) and male is 10 people (35.7%).

Table 3. Distribution of allergic rhinitis by family history

| Family History | Students Are Not Suffering From Allergic Rhinitis | Students with Allergic Rhinitis | Students (n) % |
|------------------------|---------------------------------------------------|---------------------------------|------------------|
| Without family History | 29 | 14 | 43 (59,7%) |
| With family History | 5 | 24 | 29 (40,3%) |
| Total | 34 | 38 | 72 (100%) |

The data from table 3 shows that the distribution by family history of disease was 72 respondents with 29 respondents of students who have family history of allergic rhinitis (40.3%). From that category, there are 5 students are not sufferers and 24 students are the sufferers. The other category, there are 43 respondents (59.7%) without a family history of disease with 14 people with allergic rhinitis and 29 non-allergic rhinitis sufferers.

Table 4. Distribution of allergic rhinitis based on clinical symptoms of rhinitis

| Rhinitis Clinical Symptoms | Students Suffering From Not Allergic Rhinitis (n) | Students with Allergic Rhinitis (n) | Students (n) % |
|------------------------------------------------------------------|---------------------------------------------------|-------------------------------------|------------------|
| Asymptomatic | 6 | 5 | 11 (15,3%) |
| Sneeze | 8 | 5 | 13 (18,1%) |
| Runny nose | 0 | 1 | 1 (1,4%) |
| Nasal congestion | 4 | 0 | 4 (5,5%) |
| Itchy nose & watery eyes | 1 | 0 | 1 (1,4%) |
| Sneezing & runny nose | 3 | 0 | 3 (4,2%) |
| Sneezing & nasal congestion | 2 | 1 | 3 (4,2%) |
| Sneezing, itchy nose & watery eyes | 0 | 3 | 3 (4,2%) |
| Runny nose & nasal congestion | 0 | 1 | 1 (1,4%) |
| Nasal congestion, itchy nose & watery eyes | 0 | 3 | 3 (4,2%) |
| Sneezing, runny nose & nasal congestion | 5 | 5 | 10 (13,8%) |
| Sneezing, runny nose, itchy nose & watery eyes | 0 | 1 | 1 (1,4%) |
| Sneezing, nasal congestion, itchy nose & watery eyes | 0 | 1 | 1 (1,4%) |
| Sneezing, runny nose, nasal congestion, itchy nose & watery eyes | 5 | 12 | 17 (23,5%) |
| Total | 34 | 38 | 72 (100%) |

Table 4 shows that the most frequent clinical symptoms experienced by respondents are sneezing, runny nose, nasal congestion, itchy nose & watery eyes with total 17 respondents (23.5%), consisting 12 people with allergic rhinitis and 5 people who are not allergic rhinitis sufferers. This was followed by the symptoms of sneezing with 13 respondents (18.1%) consisting of 5 people with allergic rhinitis and 8 people not

suffering from allergic rhinitis.

Table 5. Distribution of allergic rhinitis by history of other atopic diseases

| History of students Atopic disease | Not students suffering from allergic rhinitis (n) | With students Allergic rhinitis (n) | (n) % |
|---------------------------------------|------------------------------------------------------------|-------------------------------------------|------------|
| No comorbid | 22 | 18 | 40 (55,5%) |
| Asthma | 5 | 6 | 11 (15,3%) |
| Eczema | 1 | 1 | 2 (2,8%) |
| Allergic rhinitis | 5 | | 8 |
| Asthma & allergic rhinitis | 1 | | 3 |
| Eczema & Allergic rhinitis | 0 | | 1 |
| Asthma, Eczema & Allergic rhinitis | 0 | 1 | 1 (1,4%) |
| Total | 34 | 38 | 72 (100%) |

Table 5 represents data of distribution of family history of other atopic diseases with allergic rhinitis is the most disease experienced by the respondents with total 13 people (18,1%) consisting 8 people with allergic rhinitis and 5 people are not the sufferers. The other disease is asthma with total 11 people (15,3%), consists 6 people with allergic rhinitis and 5 people are not the sufferers. From the family with asthma and allergic rhinitis total 4 people (5,5%), contain 1 people not the sufferer and 3 people with allergic rhinitis.

Table 6. Distribution of respondents by quality of life

| Quality of life | n | % |
|-----------------|----|-------|
| Poor | 20 | 27,8% |
| Good | 52 | 72,2% |
| Total | 72 | 100% |

Table 6 shows that the respondents with good quality of life are 52 people (72.2%) and 20 people (27.8%) have poor quality of life.

Table 7. Distribution of allergic rhinitis respondents based on quality of life

| Quality of life | Students Not Suffering From Allergic Rhinitis (n) | Students with Allergic Rhinitis (n) | Students (n) % |
|-----------------|---------------------------------------------------------|-------------------------------------------|-------------------|
| Poor | 3 | 17 | 20 (27,8%) |
| Good | 31 | 21 | 52 (72,2%) |
| Total | 34 | 38 | 72 (100%) |

From table 7 the distribution of respondents with good quality of life shows that 52 people (72.2%) with 21 are sufferers of allergic rhinitis and 31 people are not the sufferers from allergic rhinitis. While respondents with poor quality of life were 20 people (27.8%) with 17 people suffering from allergic rhinitis and 3 people not suffering from allergic rhinitis. Based on table 8 it can be seen that the p value is 0.001 ($p < 0.005$), which indicates that there is a relationship between allergic rhinitis and the quality of life of the sufferer.

Table 8. Cross-tabulation of allergic rhinitis with quality of life

| | | Quality of life | | | | P value |
|-------------------|-----|-----------------|------|------|-------|---------|
| | | Poor | | Good | | |
| Allergic rhinitis | No | 3 | 15% | 31 | 59.6% | 0.001 |
| | Yes | 17 | 85% | 21 | 40.4% | |
| Total | | 20 | 100% | 52 | 100% | |

4. Discussion

The purpose of this study was to determine the relationship between allergic rhinitis and the quality of life among affected individuals. Based on the results, the p-value was 0.001 ($p < 0.05$), indicating a statistically significant relationship between allergic rhinitis and the quality of life in students of the Faculty of Medicine, Universitas Sumatera Utara.

These findings are consistent with research by Novian (2016), which reported a p-value of 0.022 ($p < 0.05$), showing a significant difference in the quality of life between individuals with and without allergic rhinitis [10]. Generally, patients are troubled by nasal symptoms such as nasal obstruction, rhinorrhea, and sneezing. They often experience discomfort due to the need to carry tissues or handkerchiefs, frequently wipe their nose or eyes, and deal with persistent nasal discharge. Sleep disturbances are common, leading to fatigue, irritability, memory impairment, and daytime sleepiness. These issues contribute to limitations in daily activities, resulting in frustration and distraction [4].

This study employed a hypothesis test using the Chi-Square method with a significance level of 0.05 ($\alpha = 5\%$). The resulting p-value of 0.001 ($p < 0.05$) indicates that the results are statistically significant. Therefore, the null hypothesis (H_0) is rejected, confirming a significant relationship between allergic rhinitis and the quality of life in students of the Faculty of Medicine, Universitas Sumatera Utara.

5. Conclusion

This study concludes that there is a statistically significant relationship between allergic rhinitis and the quality of life among students of the Faculty of Medicine, Universitas Sumatera Utara, batch 2018. These findings highlight the importance of early recognition and management of allergic rhinitis to improve students' well-being and daily functioning.

6. Data Availability Statement

The datasets generated and analyzed during the current study are not publicly available due to privacy and ethical considerations but are available from the corresponding author upon reasonable request.

7. Ethical Statement

This study was approved by the Research Ethics Committee of Universitas Sumatera Utara.

8. Author Contributions

All authors contributed to the design and implementation of the research, data analysis, and finalizing the manuscript.

9. Funding

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10. Conflict of Interest

Authors declares no conflict of interest.

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