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Research Article

**PREVALENCE OF ALLERGIC SYMPTOMS AND ASTHMA
AMONG GENERAL POPULATION OF LAHORE****Dr. Sibgha Saliha, Dr. Aneeqa Mumtaz, Dr Hafsa Saeed**

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Article Received: May 2020**Accepted:** June 2020**Published:** July 2020**Abstract:**

Objective: Asthma is a chronic respiratory disease that affects many adults and children around the world. Symptoms of atopic allergy are associated with the early onset of asthma. The aim of this study is to explore the prevalence of asthma and allergic symptoms among the general population including adults and children.

Place and Duration: In the Pulmonology Department of Mayo Hospital Lahore for one year duration from February 2019 to February 2020.

Methods: This is a cross-sectional study and participants come from different age groups. The information for their general characteristic and self-reported symptoms for asthma and allergy were recorded through a questionnaire which was distributed electronically on social media.

Results: 1496 respondents participated in the survey. The overall incidence of asthma was 8.62% and allergies 28.88%. Allergic and pollen allergy cases were found to be significantly higher ($p < 0.05$) among people over 18 years of age compared to 18 years or less than 18 years. Asthma cases were significantly higher ($p < 0.05$) among men compared to women. Dust allergy cases were found to be significantly higher ($p < 0.05$) among women compared to men. Allergic cases were found to be significantly higher ($p < 0.05$) in the group of children aged 13-18 compared to the group of children aged 5-12.

Conclusion: In summary, this study reports the occurrence of asthma and allergic symptoms in the general population of Pakistan. This type of further research is recommended in this region with a larger sample size.

Key words: asthma, allergy, general population.

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INTRODUCTION:

It is known that asthma is a heterogeneous disease that is often characterized by chronic inflammation of the airways. Asthma is a common chronic respiratory disease that affects 1-18% of the population in different countries. Affects about 235 million of the world's population¹⁻². In Pakistan, asthma is one of the most common chronic diseases affecting over 2 million of Pakistani population. According to the information, the overall prevalence of asthma in children is between 8 and 25%, based on studies from the last thirty years³⁻⁴. It is characterized by variable symptoms such as asthma, tightness of the chest, wheezing, shortness of breath and cough, and is clinically diagnosed by a variable limitation of exhaled air. Both symptoms and airflow restrictions vary depending on the time and intensity. These changes are often caused by factors such as weather, exercise, exposure to allergens or irritants, and viral respiratory infections⁵⁻⁶. The bronchial lining swells during an asthma attack, causing the airways to narrow and reducing the airflow in and out of the lungs. This attack may go away spontaneously or in response to medication, and sometimes may not be available for weeks or months. Recurrent asthma symptoms often cause reduced activity, insomnia and daytime fatigue. Compared to other chronic diseases, asthma has a relatively low mortality rate, but it can be fatal and put a significant burden on patients and society⁷⁻⁸.

There are many types of atopic allergies, such as allergic rhinitis, food allergy, pollen allergy, and pollen allergy, which may be associated with the pathogenesis of asthma. Reactions to allergens also often play a role in asthma. Allergic rhinitis occurs when the immune system reacts excessively to airborne allergens such as mites, cockroaches, pollen, animal dandruff and mold⁹⁻¹⁰. These environmental allergies can cause symptoms such as sneezing, runny nose and stuffy nose, and itchy or watery eyes. Many people with allergic rhinitis suffer from asthma, allergic conjunctivitis or atopic dermatitis. In Pakistan, limited data on allergic disorders are largely limited to asthma, so related studies show that the incidence in Pakistan is between 8% and 15% in children. The purpose of

this study is to investigate the prevalence of asthma and allergic symptoms in the general population, including adults and children.

Study Setting and Design

This is a cross-sectional study was held in the Pulmonology Department of Mayo Hospital Lahore for one-year duration from February 2019 to February 2020. The majority of the population are students from elementary school to graduation. Information on its general characteristics, reported symptoms of asthma and allergies were recorded through an electronic survey distributed to social media. Data was collected over a period of 1 year. The survey is designed for students in different age groups in response to allergies and asthma. The survey included questions about demographics, smoking and reporting symptoms of asthma, allergies and wheezing, as well as questions causing an allergic condition due to dust, pollen or animals.

Statistics analysis

Descriptive statistics were created to compare the parameters obtained from participants. Frequencies and percentages are shown for all quality parameters. To compare categorical results, the chi-square test (symptomatic and asymptomatic) was included. The significance criterion was defined as $p < 0.05$. All statistical analyzes were performed using the SPSS 18.0.

RESULTS:**General characteristics and frequency of respiratory disorders among the examined persons.**

Table 1 shows the general characteristics and frequency of respiratory disorders among subjects. Total of 1496 respondents participated in this study among which 55.35% were males and 44.65% were females. There were 74.33% of subjects having more than 18 years of age and 25.67% had 18 years or less than 18 years of age. Smokers were 15.24% and nonsmokers were 84.83%. Allergic subjects were 28.88% and non-allergic subjects were 71.12%. Asthmatic subjects were 8.62% and non-asthmatic subjects were 91.38%.

Table 1 General characteristic and frequency of respiratory disorders among study subjects

Characteristics	Observations	Number	Percentage
Gender	Males	828	55.35
	Females	668	44.65
Age	≤ 18 Yrs	384	25.67
	>18	1112	74.33
Factors	Smokers	228	15.24
	Nonsmokers	1269	84.83
Allergy	Allergy	432	28.88
	Nonallergy	1064	71.12
Asthma	Asthmatic	129	8.62
	Nonasthmatic	1367	91.38

Frequency distribution between subjects and comparison of respiratory disorders by age

Table 2 shows the frequency distribution of respiratory disorders as a function of age among the subjects. Cases of asthma, wheezing, allergic rhinitis, pet allergies, food allergies and dust allergies were found between 18 and 18 years of age, but under 18 years of age. Important. However, cases of allergy and pollen allergy were significantly higher ($p < 0.05$) in people 18 years and older than in children 18 years or less

Table 2 Frequency distribution and comparison of respiratory disorders on the basis of age among study subjects

Prevalence	Number of subjects (N=1496)				p-value
	≤ 18 years (n=384)		>18 years (n=1112)		
	n	%	n	%	
Asthma	42	2.81%	87	5.82%	NS
Allergy	134	8.96%	298	19.92%	Significant ($p < 0.05$)
Wheeze	11	0.74%	25	1.67%	NS
Allergic Rhinitis	70	4.67%	190	12.70%	NS
Pets Allergy	33	2.21%	81	5.41%	NS
Food Allergy	23	1.54%	74	4.95%	NS
Pollen Allergy	55	3.68%	89	5.95%	Significant ($p < 0.05$)
Dust Allergy	93	6.22%	287	19.18%	NS

*NS: Not Significant

Frequency distribution between subjects and comparison of respiratory disorders by sex

Table 3 shows the frequency distribution and comparison of respiratory disorders by sex in subjects. Cases of wheezing, allergic rhinitis, and allergies to pets are more common in men than women, but are not significant; asthma cases were significantly higher in men than women ($p < 0.05$). However, food allergy cases were higher in women than men, but were not significant; dust allergy cases were significantly higher in women than in men ($p < 0.05$).

Table 3 Frequency distribution and comparison of respiratory disorders on the basis of gender among study subjects

Prevalence	Number of subjects (N=1496)				p-value
	Males (n=828)		Females (n=668)		
	n	%	n	%	
Asthma	76	5.08%	54	3.60%	NS
Allergy	373	24.93%	232	15.50%	Significant (p<0.05)
Wheeze	30	2.01%	21	1.40%	NS
Allergic Rhinitis	135	9.02%	124	8.28%	NS
Pets Allergy	70	4.68%	61	4.10%	NS
Food Allergy	45	3.01%	52	3.50%	NS
Pollen Allergy	61	4.08%	50	3.30%	NS
Dust Allergy	56	3.74%	207	13.80%	Significant (p<0.05)

*NS: Not Significant

Frequency distribution and comparison of respiratory disorders in children depending on their age

Table 4 shows the frequency distribution and comparison of respiratory disorders among children by age. More cases of asthma, allergic rhinitis, pet allergies and dust allergies were found in the 13-18 age group compared to the 5-12 age group, but were not significant; Allergic cases were significantly higher (p <0.05) among children aged 13-18 than in the age group of 5-12. However, wheezing, food allergy and pollen allergy were more common in children aged between 5 and 12 years than for children aged between 13 and 18 years, but were not significant.

Table 4 Frequency distribution and comparison of respiratory disorders among children on the basis of age

Prevalence	Number of subjects (N=1496)				p-value
	Age 5-12 years (n=143)		Age 13-18 years (n=241)		
	n	%	n	%	
Asthma	12	0.80%	31	2.10%	NS
Allergy	60	4.01%	74	4.90%	Significant (p<0.05)
Wheeze	7	0.47%	4	0.30%	NS
Allergic Rhinitis	17	1.13%	20	1.33%	NS
Pets Allergy	14	0.94%	19	1.30%	NS
Food Allergy	12	0.80%	11	0.70%	NS
Pollen Allergy	11	0.74%	11	0.70%	NS
Dust Allergy	31	2.07%	62	4.10%	NS

*NS: Not Significant

DISCUSSION:

This study shows the symptoms of asthma, wheezing, allergies, allergic rhinitis, pet allergies, food allergies, pollen allergies and dust allergies in the general population of Riyadh in Saudi Arabia. In

this study, the overall incidence of asthma was 8.62% and the allergy frequency was 28.88%. We conducted a comparative analysis of the frequency of these symptoms by age group and sex in the study group. We also conducted a comparative analysis of

the frequency distribution of these symptoms for two age groups among children in this population. Asthma and allergies have been found to be more common in people over 18 years of age⁹⁻¹⁰. Allergy, wheezing, allergic rhinitis and pet allergy were more common in men, while dust allergy was more common in women. In children aged 13-18 years, cases of allergy, asthma, allergic rhinitis, allergy to pets and dust allergy were more frequent, whereas wheezing, food allergy and pollen allergy were more common. In the group of children aged 5-12. Moradi-Lakeh et al. In a study conducted by the Saudi National Household Survey of 2013. At the age of 15 and older in 2013, the burden of chronic disease, including asthma, was 4.05%, which is in line with our findings in which self-diagnosis was reported clinical asthma. In our study, asthma and allergies were more common in people over 18 years of age¹¹⁻¹². Oladeji et al. In another study based on high prevalence rates for the population aged 14–34; Symptoms of allergic rhinitis, similar to our results, were observed in 35.1% of respondents. Symptoms of allergic rhinitis may suggest that the proximity of the nasopharynx to the lungs may be a more important factor in asthma symptoms than other types of allergies such as allergic conjunctivitis and dermatitis. The pathogenesis of asthma is also associated with genetic predisposition. Tabbara et al. A study by Bahrain showed that asthma is attributed to the high incidence of injured marriages, which is also common in our study population. In most intermediate countries, including Saudi Arabia, marriage with blood is common to the general population¹³⁻¹⁴. In our study, a group of children who have reported wheezing and allergic symptoms may develop asthma in the future. Moonie et al. And Arabkhazaeli et al. I noticed that children with an early attack of wheezing are associated with atopic asthma. In this study, asthma and wheezing symptoms can be attributed to high exposure to allergens during sandstorms¹⁵.

CONCLUSION:

As a result, the present study found asthma, wheezing, allergies, allergic rhinitis, pet allergies, food allergies and dust allergies among the general population. People over 18 years of age had more symptoms of asthma and allergies. Men had more symptoms of allergies, wheezing, allergic rhinitis, and allergies to pets; women had more dust allergy symptoms. Children between the ages of 13 and 18 had more allergies, asthma, allergic rhinitis, allergies to pets and dust allergies; The symptoms of wheezing, food allergy and pollen allergy were higher in children aged 5-12. People with asthma symptoms may be associated with exposure to environmental dust. Future studies with a larger sample size in this population and some clinical trials for asthma and allergies are recommended.

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